UCSF Health

#UCSFHealthImprove2018

3rd Annual UCSF Health Improvement Symposium

2018 Poster Program Booklet

Poster Viewing & Reception
Wednesday, May 30th, 4:00-7:00pm

UCSF Health

#UCSFHealthImprove2018

Dear Colleagues—

We are thrilled to share this outstanding collection of improvement initiatives that were submitted as part of our 3rd Annual UCSF Health Improvement Symposium. In the pages that follow, you will enjoy learning about more than 150 projects that led to tangible, measurable and sustained improvements by teams committed to improving patient care. Just as our metric-driven dashboards tell a certain narrative about our organizational performance, these initiatives add to that narrative in demonstrating that improvement work truly occurs everywhere. The work represented is concrete evidence of our vision to be the best provider of health care services, the best place to work, and the best environment for teaching and research.

Why are we hosting our 3rd Annual Improvement Poster Symposium?
The opportunities to learn from each other, share best practices and innovations, and build a community for improvement work are critically important for our patients and the success of UCSF Health. An annual poster symposium provides a vehicle to recognize great people, teams and work, while fostering our culture for continuous improvement.

What types of improvement work are highlighted?
A diversity of improvement work is being shared in the pages that follow. These are aligned with key priority areas within our True North Pillars of Patient Experience, Quality/Safety, Our People, Financial Strength, Strategic Growth and Learning Health System. They also touch important themes across our pillars, such as interprofessional teams, information technology and health equity.

Who was invited to submit projects for the symposium?
Any provider, nurse, staff member, or trainee (e.g. students, residents, fellows, postdocs) who completed a project within a UCSF Health clinical setting was encouraged to submit a poster.

What is our UCSF Resident & Clinical Fellow Quality Improvement Incentive Program?
It's an innovative program and partnership between our clinical enterprise and Graduate Medical Education where training programs are offered an opportunity to choose an organizationally-aligned quality improvement project. This past year, more than 30 programs participated and we've included many of their posters to further highlight the tremendous work.

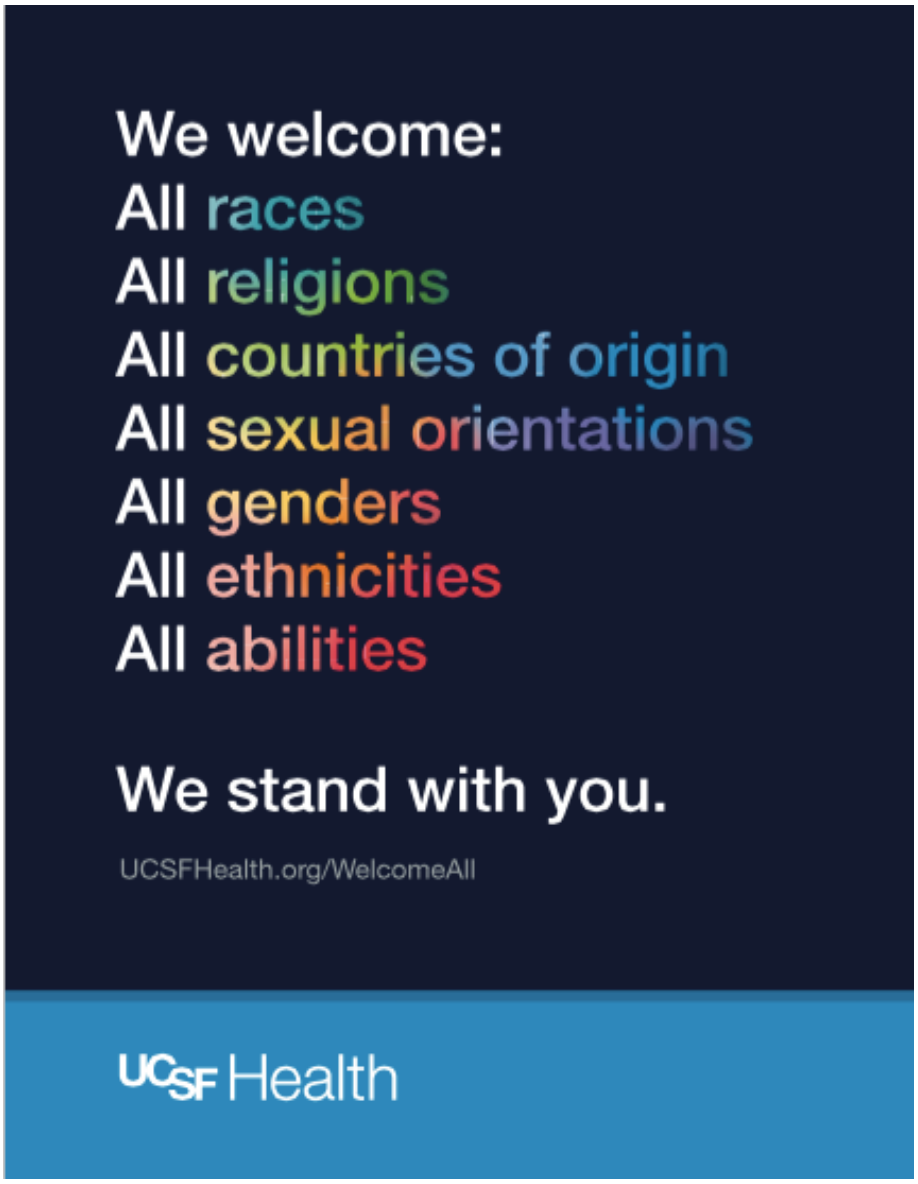
What is the Bridges Clinical Microsystem Clerkship?
It's an innovative longitudinal clinical skills course that involves having first-year medical students work within interprofessional teams to learn about and contribute to improvement work. We've included the student projects that were completed within a UCSF Health site to demonstrate the impact early learners can have on improving quality, safety and the patient experience.

We hope you enjoy learning about the wonderful improvement work included here, adopt interventions that provide solutions to a problem in your own clinical setting, and collaborate with your colleagues to share best practices. We're incredibly grateful to the teams who we have the opportunity to recognize with this program booklet and are inspired by the dedication and high expectations they've set for future improvement symposia.

With thanks and appreciation,

Niraj Sehgal, MD, MPH
VP & Chief Quality Officer
Chair, Quality Improvement Executive Committee

Josh Adler, MD
Executive VP of Physician Services
Vice Dean for Clinical Affairs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UCSF Health Improvement Poster Symposium

Poster Session 1 (4:00-5:15p)

1. Clonidine Taper for Adult ICU Patients on Prolonged Dexmedetomidine Infusions
2. Post Operative Pain Management Decision Tree
3. Preventing Pediatric Perioperative Skin Injuries
4. The Impact of Change in Test Reporting on Antibiotic Treatment Targeted at *C. difficile*
5. Implementation of Accelerated Infliximab Infusion Protocol in Patients With Inflammatory Bowel Disease
6. Bridging the Gap Between Classroom & Bedside: Simulation in ECMO Training
7. Sternal Re-Opening at the Bedside
8. Tracheal Device Pressure Ulcer Reduction
9. VAD Chronicles: An Interprofessional Approach to Improving Staff Morale and Engagement
10. The Life of The Tree
11. Innovations in Accessing Appropriate Levels of Care
12. Care Support: Improving Interdisciplinary Case Conferences to Monitor Utilization Due to Ambulatory Care Sensitive Conditions (ACSCs)
13. Imaging Patients with Pacemakers/ICDs in MRI
14. Improving communication for patients with Limited English Proficiency throughout the primary care visit
15. A Patient-Centered Mobile Health Intervention to Improve Peri-Procedural Patient Outcomes
16. Improving Inpatient Capsule Endoscopy
17. Shared Leadership in an Ambulatory Specialty Department to Decrease Turnover Rate/Increase Staff Satisfaction
18. Improving Patient Access in the Pediatric Brain Center Through Test of Change
19. Got Delirium? Implementation of a Multi-Disciplinary Delirium Reduction Pathway Across UCSF Health
20. Transforming Ideas Into Reality: A Structured Project Pathway to Facilitate QI and Academic Research Projects
21. Reducing Radiation Exposure in Nuclear Stress Testing by Implementing a Low Dose Stress First Protocol
22. Asthma Dashboard Automation
23. Perceptions of Adverse Event Reporting and Review Processes Among Faculty Physicians
24. Implementing Annual Depression and Suicide Screening in Primary Care
25. Integrated Spine Service
26. Clinical Documentation Integrity and Adult Malignant Hematology/BMT Partnership – FY 2018 Value Improvement
27. Improving Data Accuracy & Efficiency by Implementing VQI-specific Brief Op Notes
28. Safe Transitions Pathway in Neurological Surgery
29. Use of Non-Provider Protocols to Decrease Verbal Orders
30. Bridging Silos – Improving Work Experience & Efficiency of Care
31. Travel Patterns for Patients Undergoing Stone Surgery in the State of California, 2005-2016
32. Elimination of Chest Radiographs with Electrocardiogram Tip Confirmation System for PICCs
33. Disparities in Blood Pressure Control in a Primary Care Practice
34. Optimizing opioid prescription practices for ambulatory breast surgery
35. Patient & Family Advisory Councils (PFACs): Recruiting and Supporting Members from Diverse Communities
36. Quality & Safety: A look at Nurse Practitioner Contribution to Value-Based Care
37. An Evaluation of the Effectiveness of Liposomal Bupivacaine (Exparel®) Administered Intraoperatively in Open and Robotic Cystectomy as Part of the Enhanced Recovery After Surgery (ERAS®) Program
38. Best Practice Alert and Cost Transparency Information for High Cost Oncology Medications
39. Employing Best Practice Alert To Identify Oncology Medications With High Out-of-Pocket
40. Blood Bank Ambassadors Bridge Communication Gap and Sustainably Improve Workflow via "Project Connect"
41. Quality Rounds Boost P.R.I.D.E. Core Values Within Transfusion Medicine Team at UCSF Moffitt-Long Hospital
42. Implementation of a Fully Automated, Gel-based, High-Throughput Analyzer in the Parnassus Blood Bank
43. Preoperative autologous blood collection: Iatrogenic anemia, high rates of transfusion and waste – An opportunity to improve patient blood management at UCSF
44. Perioperative Communication Project
45. Informatics Failures and Innovative Solutions – Nursing BPA for Delirium and At-Risk Patients
46. Child & Adolescent Chronic Illness Center: Mental Health Working Group
47. Child and Adolescent Chronic Illness Center: Creating Wellness For Children Growing Up with Chronic Disease
48. Child and Adolescent Chronic Illness Center: Improving Pediatric-to-Adult Care Handoffs
49. Telepathology Implementation
50. Utilization of 2D Barcodes to Track Chain of Custody for All Surgical Pathology Specimens
51. 7 Long Rehabilitative Services Scheduling Pilot
52. Addressing Obstetric Hemorrhage at UCSF: Implementing a Quantitative Blood Loss (QBL) Protocol

53. Work Place Violence Prevention
54. The Clinic Quarterback: A New Play on Partnering with Cystic Fibrosis Patients
55. A Systematic Approach to Identifying Invasive Fungal Infections (IFI) in Hospitalized Patients
56. CAUTI Reduction – Adult Hematology/Oncology/Blood and Marrow Transplant Units
57. Improving Appropriateness of Vascular Access Device Use in Adult Patients with Ultrasound Guided Peripheral Intravenous Catheter Insertions by the Vascular Access Support Team

Bridges Curriculum Clinical Microsystem Improvement Projects

58. Improving Hypertension Control for African Americans at UCPC
59. Management of Polypharmacy among Elderly Patients in Primary Care Using a Virtual Pharmacist
60. Home monitoring to improve blood pressure control
61. Understanding and Improving Provider Conversations about Depression and Suicidality in Primary Care
62. Increasing Flu Vaccination Rates at UCSF Lakeshore
63. Sleepless in San Francisco: Using Sleep Kits to Promote Inpatients' Sleep in the Hospital
64. Influenza, Pneumococcal, and Shingles Vaccinations in MS and Neuroflammation Clinic Outpatients
65. Reducing Stress and Improving Understanding of Wellness in Post Lung Transplant Caregivers
66. Reducing Outpatient Pediatric Immunization Wait Times
67. Post-Operative Outpatient Opioid Prescription and Disposal After Minimally Invasive Gynecology Oncology Surgery
68. App Store in APeX: Creating a Robust Application Testing Environment
69. Delirium Screening in the Pediatric Intensive Care Unit
70. Pre-Operative Enhanced Recovery Pathways in Minimally Invasive Gynecology-Oncology Surgery

Poster Session 2 (5:30-6:45p)

71. Survivorship Wellness: First Year Findings from the HDFCCC Group Program Initiative for Cancer Survivors
72. A Less Invasive Modification to the Bedside Paracentesis for Hospitalized Patients at High Risk for Bleeding Complications
73. Caring for the Caregiver
74. Improving the Quality of Interprofessional Care in Multiple Sclerosis: Emerging Role of a Pharmacist at a Large Academic Multiple Sclerosis and Neuroinflammation Center
75. Multi-Drug Resistant Pathogen Report
76. Bundled Payments for Care Improvement: Orthopedic Arthroplasty
77. Care of the Homeless at UCSF – "Better Care, Faster Placement, Less Cost"
78. New Model of Inreach and Outreach for Geriatrics Primary Care
79. Advance Care Planning in Outpatient Geriatric Primary Care
80. Novel Programming Tool to Assess Blood Utilization of RBC Transfusions
81. Leveraging CDS to Prevent Therapeutic Duplication
82. Supervision of Learners in QI Projects: Engaging and Rewarding Faculty
83. Key Strategies Utilized by Large Academic ACOs Participating in Medicare Shared Savings Programs (MSSP)
84. Clinical Decision Support for Type and Screen Utilization
85. SmartSet Usage in Primary Care
86. Geriatric Hip Fracture Program: *The Thundercat Protocol*
87. Improving Timely Care of Asthma Exacerbations in the Pediatric Emergency Department
88. Improving the Patient Experience: Automated Follow-up Calls from the Pediatric Emergency Department
89. A Team-based Approach To Cardiac Outpatient Recovery (COR)
90. Implementation of Interdisciplinary Robotic Training for OBGYN Residents
91. Impact of a Discharge Alert Tool on Pharmacist Discharge Medication Review
92. Tracking Neuromodulation Outcomes in a Cloud-Based System: A UCSF and North American Neuromodulation Society Registry Initiative
93. Is there an App for that? Building on our EHR
94. Improving Patient and Family Rounding Experiences Through Development of a Family-Centered Rounds Rubric
95. Order Mode Dashboard – Identifying and evaluating order mode utilization
96. Accelerating Safe and Effective Innovation: Creating an Ecosystem to Test New Digital Solutions with the EHR
97. Automating the Referrals Process to Increase Utilization and Drive Revenue
98. Eliminating Opioid Over-Prescription After Ambulatory Surgery
99. Healing Hands: A Massage Therapy Pilot Program in Adult Bone Marrow Transplant (BMT) Patients
100. Clinical Pharmacist Improves HCV Medication Access, Optimizes Outcomes, and Decreases Costs
101. A Transitions of Care Curriculum for Third Year Medical Students
102. PEAK: Enhancing Practice Experience and APeX Knowledge
103. Responding to Insurance Grievances
104. Frontline Nurse-Driven Interventions to Assess and Address Unit-Specific Training Needs in the Cardiac ICU

105. Slimming Down Med Errors through Pharmacist Integration into Bariatric Surgery Clinic
106. Avoiding Unnecessary ANA Testing Using a Best-Practice Advisory
107. Increasing Staff Engagement through Shared Governance
108. Ergonomics Staff Harm Reduction Heart and Lung Transplant Department
109. Better Together: New RN MD Team Improves Flow for all ED Patients
110. Overuse of Respiratory Viral Panel PCR – A QI and Value Assessment
111. Improving Clinical Compliance – Evidence of Immunity for Measles, Mumps, and Rubella
112. BCH-SF CLABSI Reduction: A Fresh Start with CPC
113. Implementing a Standardized Nursing Handoff Process on a Pediatric Unit at UCSF
114. FQHC: Human Papillomavirus Vaccine by 13th Birthday
115. The Critical Care Obstetric Database
116. Cloud-based Implementation of New Frontline Clinical Workflows
117. *FINDconnect* – Addressing the Social & Environmental Factors that Impact Health
118. Video Microlearning and Gamification to Streamline Unit-based Nurse Training with a New Device
119. Improving Patient & Family Education to Prevent Pediatric In-Patient Falls
120. COMPASS: A Group ACT Program for Cancer Patients in Psycho-Oncology
121. "Back to Basics" Initiative to Reduce CAUTI among Inpatient Adults
122. Developing a System to Track and Reinstate Patients Lost to Follow-Up
123. Optimizing Care for Pediatric Patients with Autism Spectrum Disorder in Perioperative Services
124. PICU Cares about Cost: Increasing Staff Awareness of Supply Costs in the Pediatric Intensive Care Unit
125. Inpatient Management of Hyperkalemia with Insulin: Decreasing Post-Treatment Hypoglycemia
126. Removal of 2 RN double check for SQ insulin for adult patients at UCSF Health
127. Inpatient Insulin Pens: Time critical medication dispensed on the unit and the development of an RN led-patient specific bar code label
128. Road to Discharge – Improving Discharge for Pediatric Transitional Care Patients Improving the Family Experience
129. Creation and Implementation of Postoperative Debrief after Cesarean Section
130. Timely Accessioning of Consultation Cases
131. Perioperative Anesthesia Lean Implementation is Associated with Increased Operative Efficiency in Posterior Cervical Surgeries
132. Implementation and evaluation of a weight-based heparin dosing protocol

Resident & Clinical Fellow Quality Improvement Incentive Projects

133. Smoking Cessation Screening & Education in the Cardiac Cath lab
134. Acne Wisely: Reducing unnecessary laboratory costs for isotretinoin
135. "Reverse to avoid the adverse": Improving compliance to evidence-based reversal of non-depolarizing neuromuscular blockade
136. Language specific discharge instructions
137. Delirium Prevention in General Surgery Patients
138. Universal Financial Toxicity Screening in Medical Oncology Clinics
139. Goals of Care Documentation in Inpatient Palliative Care Consultations
140. #DeleteDelirium: A Internal Medicine Residency Program's Efforts to Reduce In-Hospital Delirium
141. Improving Parent Communication Around Time of Infant Delivery and Intensive Care Nursery Admission
142. Assessment and Improvement of Neurosurgical Drain Documentation
143. POLST: Quality Improvement Initiative to Enhance Advance Care Planning and Transitions in Care
144. Improving Inpatient to Outpatient Follow-up for Ophthalmology Consults at Parnassus
145. Reducing Discharge Opioid Prescriptions after Orthopaedic Surgery
146. Head and Neck Surgery Complex Discharge Coordination
147. Reducing Perioperative Costs: Parental Presence Induction Gowns
148. Improving Detection & Treatment Of Post-Cardiac Catheterization Vascular Occlusion Complications
149. Improving Procedural Sedation Documentation in the Pediatric ICU
150. Improving Early Discharge from the Pediatric Acute Care Floor
151. Increasing Completed PHQ-9 Questionnaires for Ambulatory Adult Psychiatry Follow-up Visits
152. Improving Communication Between Inpatient & Outpatient Pulmonologists at the Time of Discharge
153. A prospective, interventional study evaluating the use of a prompt to improve compliance with documentation of a plan of care for pain in patients with bone metastases seen for palliative radiation therapy
154. Standardized Documentation of Adverse Contrast Events (ACE)
155. Reducing Incomplete History and Physicals In an Infertility Practice
156. Delirium Reduction in Urologic Patients
157. Inpatient Wound Care eConsult Workflow: Efficient, Timely, and Secure

Posters for Session 1
4:00-5:15p

Clonidine Taper for Adult ICU Patients on Prolonged Dexmedetomidine Infusions

Kandys Kim, PharmD Candidate[2]

Ashley Thompson, PharmD, BCPS, BCCCP[1,2], James Ramsay, MD[3], Dorothy Wang, PharmD[1,2], Rima Bouajram, PharmD, BCCCP[2]

[1]Department of Clinical Pharmacy, School of Pharmacy, University of California San Francisco; [2]Department of Pharmaceutical Services, University of California San Francisco Medical Center; [3]Department of Anesthesia and Perioperative Care, University of California San Francisco Medical Center

Background

- Dexmedetomidine infusions in critically ill patients often exceed the manufacturer's recommended maximum duration of 24 hours
- Prolonged infusions may be associated with withdrawal symptoms, including agitation, tachycardia, diaphoresis, and other hyper-sympathetic responses
- Although clonidine and dexmedetomidine share similar pharmacologic properties, clonidine's high oral bioavailability, longer half-life, ease of administration and lower cost provide a more convenient and tolerable taper off dexmedetomidine
- Several small studies exist evaluating the safety and efficacy of transitioning from dexmedetomidine to clonidine for ICU sedation, but little is known regarding the use of clonidine in preventing withdrawal symptoms after dexmedetomidine infusion

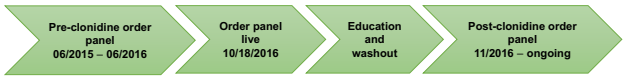
Project Goals

- To evaluate the safety and efficacy of an enteral clonidine taper in transitioning patients off prolonged dexmedetomidine infusions

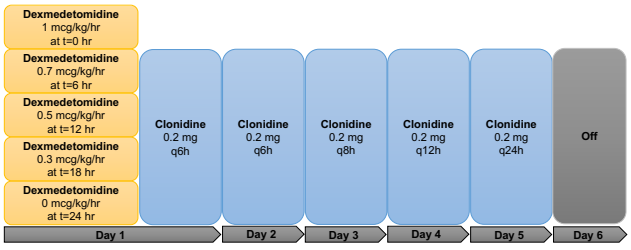
Method

- Retrospective review of medical records
- Two study groups:
  1) Pre-clonidine taper order set
  2) Post-clonidine taper order set
- Inclusion Criteria:
  - Adult patients ≥ 18 years of age hospitalized in medical-surgical and cardiac ICUs
  - On dexmedetomidine infusions ≥ 3 days without interruption of infusion for > 6 hours
- Exclusion Criteria:
  - Primary neurologic disease
  - Concomitant benzodiazepine infusions
  - Experiencing alcohol withdrawal
- Primary Outcome:
  - Proportion of patients who transitioned off dexmedetomidine within 48 hours of starting clonidine without signs of withdrawal
- Secondary Outcomes:
  - Signs of withdrawal, including hypertension, tachycardia, breakthrough pain and agitation
  - Signs of toxicity, including hypotension, bradycardia, and over-sedation
  - ICU length of stay, time to successful dexmedetomidine discontinuation, and total cumulative dexmedetomidine dose were also evaluated

Enteral Clonidine Taper Order Panel



- The clonidine taper order panel is written for a total of 5 days with a 1 day dexmedetomidine overlap
- During the first 24 hours, dexmedetomidine infusion is down-titrated as soon as possible or by 25% of the initial rate every 6 hours until the infusion is off
- A dose of clonidine is given after each time dexmedetomidine is down-titrated
- The starting dose of clonidine is 0.2-0.3 mg every 6 hours depending on patient age, weight, and dexmedetomidine infusion rate
- Once the dexmedetomidine infusion is off, clonidine is tapered off from days 2-5 by increasing the dosing interval until off on day 6



Results

- All of the patients in the post-clonidine cohort successfully transitioned off dexmedetomidine within 48 hours of starting clonidine
- The proportions of post-clonidine patients who transitioned within 36 hours, 24 hours, and 12 hours were 92.3%, 84.6%, and 15.4%
- None of the post-clonidine cohort patients needed to restart dexmedetomidine infusions after completing the clonidine taper
- This research is still in progress

References

1. Kukoyi AT, Coker SA, Lewis LD, Nierenberg DW. Two cases of acute dexmedetomidine withdrawal syndrome following prolonged infusion in the intensive care unit: Report of cases and review of the literature. Human and Experimental Toxicology. 2013;32(1):107-110.
2. Glisic E, Riker R, Kelner A, Perrey H, Fraser G. Transitioning patients treated with dexmedetomidine to enteral clonidine: a retrospective study. Crit Care Med [poster]. 2012; 40(12).
3. Terry K, Blum R, Szumita P. Evaluating the transition from dexmedetomidine to clonidine for agitation management in the intensive care unit. SAGE Open Med. 2015; 3: 2050312115621767.
4. Gagnon DJ, Riker RR, Glisic EK, et al. Transition from dexmedetomidine to enteral clonidine for ICU sedation: an observational pilot study. Pharmacotherapy. 2015; 35: 251-9.

2018 UCSF Health Improvement Symposium

Post Operative Pain Management Decision Tree

Eunhye Kim CN3

13Long/Pain Committee/ General Surgery

Background

13Long is a General Surgery Unit that is mostly populated with post operative patients who often require complex pain management for their recovery. The various challenges in achieving effective pain control include :

1. Fast growing population of chronic pain patients and the increase of opioid tolerance which result in increase complexity in pain management
2. The variation of knowledge in pain management among surgical teams.
3. Absence of a structural guideline on complex pain management for inexperienced or trainee RNs.
4. Insufficient patient education on pain control prior to surgery which often causes increased anxiety when the pain is higher than excepted.
5. Task-oriented nursing care that allows less time for critical thinking for the optimal pain management

Inadequate pain management is directly related to patient's safety and satisfaction. As a certified pain management RN and CN III, my goal is to improve patient satisfaction and safety while addressing the issues above.

Project Goals

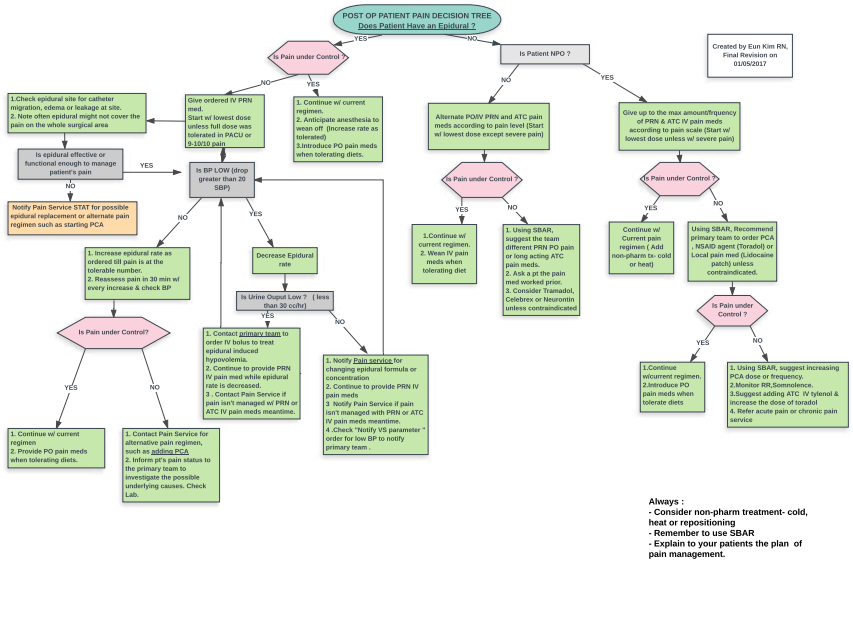
The goals of this algorithm are to :

1. ***Provide a general guideline on post-operative pain management within pain regimen protocols and policies.***

2. ***Guide the nurses to facilitate "Recommendation" when using SBAR to communicate to other multidisciplinary team members.***

The Target state is to improve HCAHPS score (pain management part) by 20 % by the end of June 2019

Project Plan and Intervention(s)



Project Evaluation & Impact

The algorithm is currently being used by 13Long RNs on a variety of surgical patients.

-Preceptor RNs introduces the algorithm to newly hired RNs while educating the pain management principle on 13long

-It has been a helpful visual guides to troubleshoot complex pain control issues, RN's encounter with a various patients types.

The plan for further evaluation would be analyzing HCAHPS scores and its trending.

Next Steps, Dissemination & Lessons Learned

Next Steps:

- **Coordinate the usage of the algorithm by pain committee members**
- **Survey staff to determine the usefulness of algorithm**
- **Present algorithm at annual skills validation class**

Dissemination:

- **Present at hospital wide clinical practice committee**
- **Present at CN3 quarterly meeting**
- **Present at hospital wide pain committee meeting**

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Preventing Pediatric Perioperative Skin Injuries

Anjal Pong, RN, CNE

Chrissie Smith, RN, CNS, CWOCN

Background

- Between 1-2.5 million Hospital Acquired Pressure Injuries (HAPI) occur annually.
- A review of literature reveals significant risk factors for developing pressure injuries in patients undergoing surgery.
- Hospital acquired skin injury and pressure injuries are a serious and preventable problem shown to increase costs, length of stay, place the patient at an increased risk of infection, and patient suffering.

Problem:

- At UCSF Benioff Children's Hospital, in fiscal year 2017 there were 31 incident reports in the Skin/Tissue category, 16 of these reports being hospital acquired pressure injuries, compared to 4 HAPI's in the previous fiscal year. All of these injuries originated in the pediatric perioperative area.
- A multidisciplinary pressure injury prevention work group was created to look into gaps in practice, identify areas of improvement, and implement pressure injury prevention strategies in our pediatric perioperative areas.

Project Goals

Purpose/ Objective

1. **Produce a validated tool** to aid in assessment of Pressure Injury Risk Factors as well as guide the Clinical OR Nurse in implementing preventative positioning aids to decrease the risk of HAPI as it pertains to the pediatric surgical patient population

2. **Address and rectify current barriers** to instituting cultural and practice changes in the Operating Room including:
   a) Poor quality hand-off communication between OR staff and recovery units
   b) Complex electronic documentation of skin assessment in the Intraoperative record which did not translate to the inpatient nursing chart
   c) Minimal educational resources for staff on optimal patient positioning practice
   d) Inconsistent positioning supplies and equipment for staff

3. **Decrease the incidence of pressure injuries in the pediatric surgical patient population** after implementation of a pressure injury prevention tool in the operating room

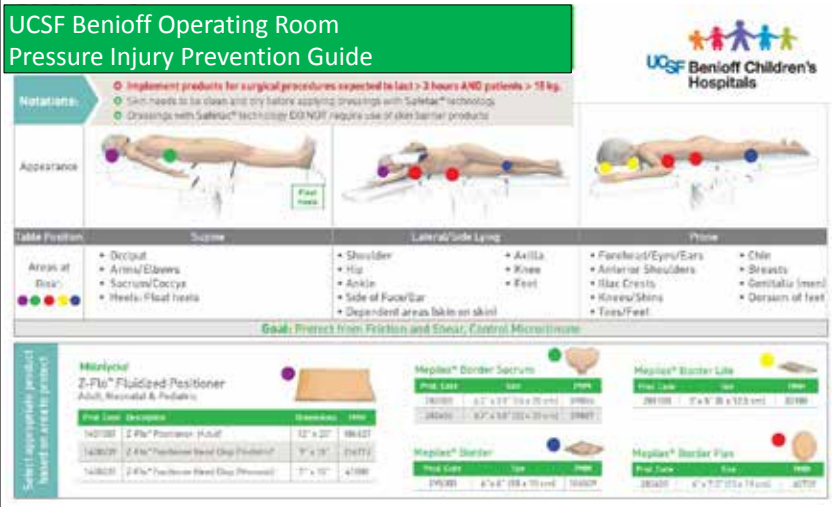
Project Plan and Intervention(s)

Think "SKIN"
Skin and Risk Assessment
Keep repositioning off pressure points
Identify potential injury and intervene
Notify next phase of care

FY2017 Pediatric OR Skin/Tissue IR's:

- *31 IR's for skin related issues.*
  - *16 of these IR's were HAPI's*
- Compared to 4 HAPI's in FY2016 & 4 in FY2015

Project Evaluation & Impact



Next Steps, Dissemination & Lessons Learned

Next Steps:
Complete and implement positioning algorithm/tool. Coordinating annual multidisciplinary hands-on education to standardize this practice. Evaluate knowledge gaps around positioning products, methods and usage and adjust as necessary. Continue gathering case data to strengthen validation of tool.

Dissemination:
This work is being shared with leaders in the UCSF adult operating rooms to determine shared benefits of the implementation efforts. Project shared with all Clinical Nurse Leaders within UCSF to determine universal utilization of tools in other pediatric clinical areas.

Lessons Learned:
More research and data needs to be collected to validate tool. Cultural change in the Operating room is difficult and needs the support of all stakeholders. Communication is one of the keys to success and is necessary to achieve cooperation and transparency.

The Impact of Change in Test Reporting on Antibiotic Treatment Targeted at *C. difficile*

Lusha Wang, MPH, CIC[1], Laurel Gibbs, CLS/MT(ASCP), CIC[1], Steve Miller, MD, PhD[3], Amy Nichols, RN, MBA, CIC, FAPIC[1], Lynn Ramirez, MD, MS[1], Sarah Doernberg, MD, MAS[2]

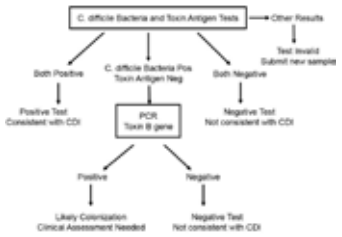
[1]Hospital Epidemiology & Infection Control

[2]Antibiotic Stewardship

[3]Laboratory Medicine

Background

- *C. difficile* infection (CDI) is a serious hospital-acquired infection
- Testing methods for *C. difficile* have evolved over time to become more sensitive
- UCSF uses a two-step algorithm that incorporates detection of *C. difficile* bacteria, toxin protein, and toxin gene as follows:



- Recent data suggests that patients carrying *C. difficile* bacteria with the gene for toxin but no detectable toxin protein may be colonized and not require treatment (Polage CR et al. JAMA IM 2015; 175(11): 1792-801)
- In 2017, only 35% of positive tests for *C. difficile* at UCSF were toxin protein positive, indicating that our high rate of positivity may be driven by colonized patients
- UCSF participated in a multi-center project to revise the language for CDI test results. Specifically, reporting for toxin-negative/PCR-positive (gene) carriers:
  - Toxin protein: Not detected
  - Toxin gene: DETECTED
  - Comment: Detection of bacteria that have the toxin gene but do not produce toxin protein likely reflects colonization with toxigenic C. difficile instead of clinical infection. Correlate with clinical information; contact Infectious Diseases for help with interpretation and management.

Project Goals

The goal of this project is to evaluate if this reporting change safely reduced treatment directed at *C. difficile* in colonized patients.

Project Plan and Intervention(s)

We hypothesized that the change in the *C. difficile* reporting would result in a reduction in *C. difficile* targeted treatment given to patients whose tests are positive by PCR only, which represent presence of toxin gene but no detectable toxin protein production.

A multidisciplinary team worked together in preparing for the hospital-wide change in *C. difficile* reporting.

ID Management Program (IDMP)

- Evaluate the current literature on *C. difficile* testing
- Stakeholder engagement
- Provider education
- Finalize testing comment

Hospital Epidemiology & Infection Control (HEIC)

- Meet with unit leadership for feedback
- Provide education at staff meetings
- Build report to capture antibiotic usage
- Prepare and analyze data

Clinical Laboratories

- Determine updates to workflow
- Train lab staff on update to testing language
- Provider education

Project Evaluation & Impact

Although the majority of these patients were still treated, a treatment reduction greater than 25% was observed. Patients carrying *C. difficile* bacteria with the gene for toxin but no detectable protein were less likely to be treated after the change in reporting (p=0.0009).

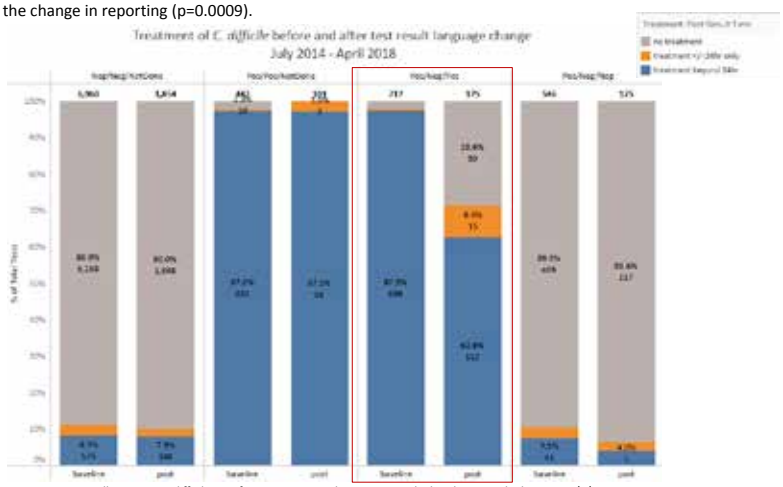


Figure 1. All inpatient *C. difficile* tests from Parnassus and Mission Bay. The baseline period is between 7/1/2014 – 7/9/2017 and the post period is 7/10/2017 onwards. Test results displayed as GDH/Toxin/PCR. PCR used to detect the *C. difficile* toxin gene and tests only reflex to PCR if GDH is positive but toxin is negative. Treatment equates to the following antibiotics given to patient following final test result: PO vancomycin, PO/IV metronidazole and PO fidaxomicin.

Next Steps, Dissemination & Lessons Learned

Next Steps:

- Consider testing by PCR only on request
- Monitor for adverse events resulting from withholding treatment

Dissemination:

- As part of a UC-wide initiative, the results will be analyzed and published.
- These data can be paired with bigger picture unit performance regarding *C. difficile* prevention measures as reduced antibiotic exposure may lead to a reduced incidence of the disease.

Lessons Learned:

- *C. difficile* is a complex challenge that require creative approaches to enhance our efforts in improving patient care.
- A multidisciplinary team is essential to developing and executing a successful institutional change.

2018 UCSF Health Improvement Symposium

Implementation of Accelerated Infliximab Infusion Protocol in Patients With Inflammatory Bowel Disease

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Cesar Rodriguez, BS
Wendy Wong, Pharm.D
Helen Wu, Pharm.D.

DEPARTMENT OF CLINICAL PHARMACY

Background

- Infliximab is one of the more effective treatments for inflammatory bowel disease (IBD).
- Lengthy administration time (≥2 hours) represents a significant inconvenience to patients who receive regular maintenance infusions.
- Recent studies show that infusion over 30-60 minutes is safe in patients receiving maintenance therapy.
- On June 14, 2017, UCSF adult infusion clinics adopted an accelerated infusion protocol to infuse infliximab over one hour.

Infliximab Drug Information

FDA-approved indication(s)[a]:
•Inflammatory bowel disease (IBD)
•Rheumatoid arthritis
•Psoriasis
•Alkylosing spondylitis

Mechanism of action: Chimeric monoclonal antibody for tumor necrosis factor alpha (TNF-α)

Safety: antibody-induced infusion reaction (~6.5%[2])

Administration: at least 2 hours

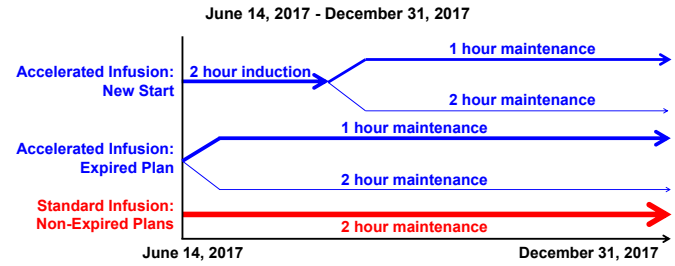
Dosing:
•Induction: 5 mg/kg at 0, 2, and 6 weeks
•Maintenance: 5-10 mg/kg every 8 weeks

[a] Remicade Package Insert. Janssen Biotech, Inc., 2015.

Project Goals

- To implement an accelerated infliximab protocol at UCSF adult infusion clinics for patients with IBD.
- To determine the safety and tolerability of a one-hour accelerated infliximab infusion compared to a two-hour standard infusion in patients with IBD.

Project Plan & Intervention(s)

	Standard Two-Hour Infusion	Accelerated One-Hour Infusion
Effective Time Period	Before and after June 14, 2017	After June 14, 2017
Study Time Period		
Indication	Non-expired therapy plan	New starts Expired therapy plans
Infusion Time	2 hours or more	No previous reaction and consent: 1 hour Previous reaction or no consent: 2 hours or more

Project Evaluation & Impact

Overview	
Study Type	Retrospective chart review
Inclusion Criteria	1. Maintenance infusions 2. 18 years or older 3. IBD indications
Exclusion Criteria	1. Induction infusions 2. Non-IBD indications
Setting	UCSF adult infusion clinics (Parnassus, Mt. Zion, Mission Bay)
Time	June 14, 2017-December 31, 2017
Control	Two-hour infusion
Intervention	One-hour infusion

Primary Endpoint: Presence of Infusion Reaction(s)	
Definition	Any adverse experience that occurred during or within one hour after infusion
Types of Reaction	1. Itchiness 2. Rash 3. Edema 4. Swelling 5. Shortness of breath 6. Urticaria 7. Pruritus
Source of Information	1. Nursing administration notes 2. Allergy profiles 3. Adverse drug reaction incidence reports
Covariate	1. **Premedications:** acetaminophen diphenhydramine, hydrocortisone, cetirizine/loratadine 2. **Concomitant immunomodulators:** azathioprine, methotrexate, 6-mercaptopurine (6-MP), mycophenolate, corticosteroid

Characteristic	Two-Hour Infusion N = 305 n (%)	One-Hour Infusion N = 246 n (%)	P-value
Dose			0.255
5 mg/kg	145 (47.5)	105 (42.7)	
> 5 mg/kg	160 (52.5)	141 (57.3)	
Premedication	262 (85.9)	213 (86.6)	0.817
Concomitant immuno-suppressant	123 (40.3)	100 (40.7)	0.939
Azathioprine	23 (7.5)	23 (9.3)	0.445
Methotrexate	43 (14.1)	48 (19.5)	0.089
6-MP	18 (5.9)	13 (5.3)	0.755
Mycophenolate	1 (0.3)	1 (0.4)	1.000[a]
Corticosteroid	73 (23.9)	46 (18.7)	0.138
Other	1 (0.3)	4 (1.6)	0.178[a]
Reaction	2 (0.7)	0	0.505[a]
Rash	0	0	-
Edema	0	0	-
Swelling	0	0	-
Shortness of Breath	0	0	-
Urticaria	1 (0.3)	0	1.000[a]
Pruritus	1 (0.3)	0	1.000[a]
Other	1 (0.3)	0	1.000[a]

[a] Fisher's exact test

Cost Saving	
Number of One-Hour Infusions (6 Months)	246
Cost Savings (Per Infusion)	$1100
Estimated Total Cost Savings (Per Year)	$541,200

Conclusion
- The one-hour accelerated infusion protocol for infliximab maintenance therapy is safe and well tolerated in patients who have had no past history of significant infliximab infusion reactions.
- Our accelerated infliximab infusion protocol can potentially lead to an annual cost savings of approximately $541,200.

Next Steps, Dissemination & Lessons Learned

Next steps/ dissemination: Expand accelerated infliximab infusion into the pediatric population.

Lessons learned: Assessing for value via chart review can be time consuming and some endpoints such as patient satisfaction can be difficult to evaluate.

Bridging the Gap Between Classroom & Bedside: Simulation in ECMO Training

Intensive Cardiac Care
David Orth, RN, MS, CNS, CCRN, CNIV
Cass Sandoval, RN, MS, CNS, CCRN
10ICC Education Council

Background

For over 15 years, nurses in 10ICC have attended an eight (8) hour didactic course plus water drill that prepared them to care for extracorporeal membrane oxygenation or life support (ECMO/ECLS) patients. Typically nurses were assigned to a patient on ECMO/ECLS along with a senior nurse for several shifts after the course. Though this provided adequate support, the UCSF Intensive Cardiac Care Unit Education Council felt more could be done to help nurses integrate new knowledge and skills in a practical way. As a result, the Education Council collaborated with various healthcare professionals to build a simulation learning environment for their nurses training to care for ECMO/ECLS patients.

ECMO/ECLS Device

Project Goals

UCSF Department of Nursing had a relatively new simulation lab with high-fidelity full body mannequins. Didactic/water drills were meeting cognitive needs, but simulation is better for technical and behavioral learning. Furthermore, a simulation environment remains a safe place to learn and make mistakes.

Our group wanted to improve the learning environment by training 100% of 10ICC nurses new to ECMO/ECLS with simulation classes tailored to the unique needs of our patient population and staff.

Project Plan and Intervention(s)

Engaging key stakeholders was critical to implementing a simulation based learning environment. Getting clinical experts in ECMO therapy for content, stimulation specialists and clinical nurse educators for training tips, in addition to former nurse trainees for gap analysis and managerial support were crucial to giving new ECMO/ECLS nurses a solid foundation.

Scripts were developed to help guide new nurses training to ECMO/ECLS. Typical simulation training environments will consist of beginning with patient handoff report and the learners progressing through four main scenarios. To enhance learning opportunities, learners will switch pairs after each segment. The mannequin and monitors will change as part of script and in response to interventions indicated. Council members participated by acting as members of inter-professional team to help facilitate with learning.

10ICC Nurses in Simulation Lab

Simulation Viewing Room

Example: Simulation Script

Project Evaluation & Impact

Upon completion of the simulation training, feedback was incredibly positive. Nurses gained confidence integrating complex assessments and dynamic information in a safe learning environment. Further evaluation of the simulation program revealed that teamwork not only improved in the simulation sessions but back on the unit. The success of the ECMO/ECLS simulation classes furthered empowered nursing council members and staff members towards creating other advance training sessions to meet the needs of the unit.

Group Debriefing & Evaluation

Next Steps, Dissemination & Lessons Learned

Next Steps: Modification of the curriculum for the next cohort will be based on trainer and trainee feedback. In addition, we identified the need to develop and incorporate formal pre and post metrics to assess and measure staff learning and the need to expand simulation to other clinical topics.
Dissemination: The integration of a simulation based learning environment has proven to be effective and easily adaptable to evolving clinical topics. Disseminating and incorporating simulation as part of other training programs at UCSF has already begun. An overview of the 10ICC ECMO course was also presented at a national conference
Lessons Learned: During the project, we discovered that debriefing was a key element to the learning experience. Experiences were enhanced through comments of the participants and observations from those in the viewing room. There is little published about the use of simulation in ECMO for RN training, so planning for future sessions will include how to best evaluate the effectiveness of simulation learning with advanced therapies such as ECMO/ECLS.

Sternal Re-opening at the Bedside

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Intensive Cardiac Care

Background

Critical care nurses work in a wide variety of settings and fill a variety of roles. They must rely on a highly specialized set of skills and experience to provide high quality and safe care both to the patient and their families. In a surgical cardiothoracic critical care, nurses are often caring for critically ill patients on life saving devices. Complications can easily evolve with no notice and it is up to the bedside nurse to be vigilant to protect their patients from serious complications. Following a recent emergent complication at the bedside, nurses were tasked with the difficult challenge of assisting and setting up for an emergent sternal re-opening. Many of the staff that were present reported feeling unprepared and helpless during the event. Several nurses were unsure of their roles during the emergent situation, which left staff feeling like they were unable to help the patient. After a thorough review, it was identified that the nurses of Intensive Cardiac Care Unit (10ICC) needed more education, clearer guidelines, and practice with high-risk, low-volume events in a simulation environment to become more skilled and confident in the event of a Cardiac Tamponade and sternal re-opening.

Project Goals

We wanted to improve nursing education in 10ICC by 100% by utilizing video simulation as part of staff education and hands-on training when caring for high-risk, low volume events.

Project Plan and Intervention(s)

- Develop a sternal re-opening guideline to disseminate to 10ICC nurses with clinical content experts as resources.
- Prepare a video simulating an actual re-sternotomy at the bedside and the necessary people needed during this event.
- Collaborate with the 10ICC Education Council to develop an education day for all nurses in 10ICC to include the following educational topics:
  - Pacemaker management
  - Identifying early signs of Cardiac Tamponade
  - How to prepare a 10ICC patient room for sternal re-opening at the bedside
  - Understanding emergency open chest roles

Simulation Video:
https://www.youtube.com/watch?v=hwmFXxnEznY

Simulations will provide nurses in training with real life case scenarios and expectations of each healthcare team member.

Project Evaluation & Impact

This project was developed as a result of an emergent situation. No patient was harmed in this event, however the need for an educational intervention was identified to be crucial to preventing errors in high-risk, low-volume events. With the use of a video simulation, it allowed nurses in 10ICC to be able to visualize the expectations, processes and roles during an emergent situation prior to hands-on training. Furthermore, it allowed nurses to familiarize with how interprofessional communication and collaboration is essential in high intensity situations. In order to evaluate the efficacy of our project, we debriefed with nurses, advanced practice providers, and cardiothoracic surgeons (Fellows and Attendings) who participated in open chest emergencies at the bedside. After watching the video, nurses and advanced practice providers felt more prepared and empowered to take action. Nurses reported greater knowledge around necessary supplies and where to gather them, how to help prepare a sterile field, and calling the appropriate providers to the bedside. Surgeons felt they had improved support from the bedside staff who now had a better idea of their roles during these types of emergencies. We continue to debrief with all participants after each event to identify where we can improve to ensure safe care of our patients.

Next Steps, Dissemination & Lessons Learned

Next steps: Review staff feedback and plan for on-going educational implementation with use of video simulation and hands-on training. In addition, we hope to begin offering this in a simulation course required for all new nurses hired to 10ICC.

Dissemination: Because open chest emergencies primarily happen in 10ICC in the first 48 hours after surgery, it is unlikely that this training video could be used in other units. However, it has become required viewing material for all 10ICC nurses. There is potential for the video to become required for all residents, advanced practice providers, and fellows on both the cardiothoracic surgery and the 10ICC critical care medicine services.

Lessons learned: One year after dissemination of the training video, we have identified the need for an additional nurse to sterile gown and assist with external chest compressions while the sterile field is prepared. We identified the need to make certain supplies (light source and large sternal needle holder) readily available by adding it to the tamponade cart. We also added phone numbers for commonly called consulting services to the roles and responsibilities sheet located on top of the tamponade cart. With each event, we can continue to modify our procedure as appropriate.

Tracheal Device Pressure Ulcer Reduction

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Sylvie Baudart, RN, BSN, CCRN, CN III
David Orth, RN, MS, CNS, CCRN, CN IV
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Jamie Ramsey, MD

Intensive Cardiac Care

Background

Pressure ulcers can have profound effects on patient outcomes. Hospital acquired pressure ulcers (HAPU) in the Intensive Care Units (ICU) has contributed to increase risks of infections, complications, costs and hospital length of stays. As a result, a unit base initiative was developed to decrease device related pressure ulcers stages 3-4 in 10ICC. Most tracheostomies performed in 10ICC are placed by surgical services other than OHNS. Upon reviewing HAPU development in 10ICC, it was discovered that tracheal device related pressure ulcers were a prevalent and reoccurring issue in non-OHNS trached patients. Upon further assessment and evaluation it appeared that majority of tracheostomies were being placed at the bedside in 10ICC, and there are no protocols or Standards of Care to apply a wound dressing/padding under the tracheostomy faceplate prior to suturing and no standardize practice or timeline for removing the sutures. Tracheotomy tubes have the potential to develop a localized pressure thus leading to a pressure ulcer, especially for mechanically ventilated patients. Faceplate pressure has been known to cause pressure ulcers over the bony prominences of the clavicles at the sternal junction. The risk for pressure ulcer development is even higher when the tracheostomy tube is sutured because the dressing cannot be easily inserted for added padding support. Additionally, excess secretions and drainage from the stoma site and tracheostomy tube often lead to maceration of the skin. The lack of standardization of care, the sutures not being removed in a timely manner and the absence of padding between the faceplate and skin all increase the risk of developing a device related pressure ulcer.

Project Goals

We wanted to decrease the risk of tracheal device related pressure ulcer by 50% by using a wound dressing/padding prior to suturing and ensuring the removal of tracheal sutures by post-op day five (5).

Project Plan and Intervention(s)

An interdisciplinary approach to decrease the risk of tracheal device related pressure ulcers in the ICU.

The inserting medical team will apply a wound dressing/padding under the tracheal faceplate prior to suturing. Nursing or Respiratory Therapy will post a Yellow Sticker on the trach caddy at the bedside to remind the healthcare team that sutures are to be removed on post-op day five (5). On post-op day five (5), sutures will be removed in addition to changing tracheal padding to 4x4 drain sponge or Allevyn foam dressing. Nursing will continue to manage, monitor and assess skin around trach per Nursing Procedures Manual. Wound dressing/padding is to remain in place and changed as needed until the trach is removed.

Evaluation Process:
Audits will be done within the first five (5) days to assess for application of wound dressing/padding application, suture removal on day five (5) and every Wednesday on Wound Wednesday as long as the trach is in place. Audits will be completed to assess for compliance with protocol and evaluate the benefits and barriers to the application of a wound dressing/padding. Outcomes that will be measured and trended will be tracheal ostomy healing, skin assessment for pressure ulcer development, suture removal efficiency, and if utilization of wound dressing/padding was beneficial towards preventing pressure ulcers.

Project Evaluation & Impact

In a short study, various types of wound dressing/padding were placed on three ICU patients undergoing tracheostomy placement prior to suturing the tracheal faceplate. Patient A had Mepilex Border Lite placed by the Thoracic Team, Patient B had Allevyn foam dressing placed by the ICU Team, and Patient C had Duoderm CGF dressing placed by the ENT Team. The variability in dressings did not impact patient care, but could however potentially effect patient outcomes. Each patient were evaluated and assessed on days 0-5 for signs and symptoms of skin breakdown, tracheal care, compliance of dressing application prior to suturing, dressing condition, application of Yellow Sticker to trach caddy and efficiency of suture removal. As stated, all patients had some type of dressing applied prior to suturing, yellow sticker reminders were posted on the trach caddy and sutures removed on post-op day five (5). The study revealed that although no individual patient developed pressure ulcers, the type of dressing used can affect patient outcomes.

The use of Mepilex and Allevyn dressings revealed that the dressing allowed absorption of light to moderate secretions and easy removal and reapplication of the dressing for skin assessments and dressing changes. The Allevyn dressing is bulky and has the potential to apply increase pressure on the tracheal faceplate. As a result, the dressing had to be trimmed to fit the tracheal faceplate so that padding support could be provided to the posterior faceplate. The use of Duoderm CGF dressing on the other hand, can potentially increase the risk for skin maceration and breakdown due to the excess secretions and frequent removal and change of saturated dressing. Duoderm is a hydrocolloid dressing suitable for moist wound healing, and the use of such dressing will not provide padding or preventative support for pressure ulcer development.


Patient A. Mepilex Border Lite Dressing


Patient B. Allevyn Foam Dressing


Patient C. Duoderm CGF Dressing

Next Steps, Dissemination & Lessons Learned

Next Steps: Although no skin breakdown was indicated in the wound dressings/padding as stated above, further studies will be needed with other wound dressing/padding to evaluate the effectiveness of various dressings. This will allow us to select the best product for tracheal faceplate padding prior to suturing. Furthermore, educational interventions with all healthcare teams will be required to ensure sutures are being removed in a timely manner.
Dissemination: The application of a wound dressing/padding prior to suturing in the Operating Room (OR) and ICU setting can easily be applied to other areas of the hospital once a standardized protocol and educational intervention is in place. Educational application of standardized practices will allow clinicians to be diligent with patient care, assessment and improved patient outcomes.
Lessons Learned: The biggest challenge encountered is the variability of practices amongst the surgical teams placing tracheostomies. With various healthcare teams and physicians placing tracheostomies, the line of communication and knowledge of protocols can become challenging. Our interdisciplinary approach to care allows all areas of the healthcare team to work collaboratively, communicate more efficiently, and apply one universal practice in new tracheostomy patients.

VAD Chronicles:

An Interprofessional Approach to Improving Staff Morale and Engagement

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ICC Quality and Safety Council
Mechanical Circulatory Support Team

Intensive Cardiac Care

Background

The Mechanical Circulatory Support (MCS) Team at UCSF Health has a unique patient population that the Intensive Cardiac Care (10ICC) nurses care for. Meticulous and attentive care of a patient equipped with a mechanical circulatory device is vital and thus requires close monitoring and communication between physicians, MCS coordinators, and nurses. MCS patients are often seen in 10ICC post device implantation or following complications and illnesses requiring lengthy, challenging and sometimes recurring hospitalizations. Nurses develop close relationships with these long term patients and their families. Unfortunately, the patient's course often include aggressive mechanical and chemical treatments that leave the patient profoundly physically debilitated and psychologically depleted. Many nurses have reported feelings of sorrow, being emotionally drained and burned out after caring for these critical patients, resulting in low staff morale. Furthermore, 10ICC nurses see these Ventricular Assist Device (VAD) patients at the lowest point in their hospital course and rarely get to witness the vast improvements these patients undergo. There is currently no mechanism to communicate to 10ICC nurses that these patients are improving, becoming autonomous and going home back to their families. In an effort to improve staff morale and engagement in 10ICC, an interprofessional collaboration with the MCS Team was coordinated to develop a newsletter to communicate patient success stories after being hospitalized at UCSF.


VAD • Chronicles UCSF

"VAD Chronicles," UCSF Health's very first newsletter on MCS patients.

Project Goals

We wanted to improve the staff/provider morale and engagement in 10ICC by utilizing a newsletter to communicate positive patient stories and statistics with frontline healthcare providers.

Project Plan and Intervention(s)

Engaging key stakeholders was critical towards developing the newsletter. Obtaining support from the MCS Team and getting patients to share their stories from the outpatient setting for content was crucial to getting the newsletter started. Patients willing to share their photos and stories for the newsletter sign a *UCSF Consent for Photography/Authorization for Publication* in the outpatient clinic and have it placed into their chart. Patient stories and photos will be submitted to the MCS Team, who will provide the necessary materials to the "VAD Chronicles" editing team. The newsletter will contain patient stories and photos, MCS statistics and updates, in addition to featuring a MCS team member each issue to better acquaint other healthcare providers to the members of the MCS Team. The newsletter may also include games, puzzles, recent news on VAD-related research. The tone of the newsletter will be positive and playful to ensure maximal staff engagement. We plan on publishing the newsletter on a quarterly basis.

VAD Chronicles, Volume 1, Issue 1

Project Evaluation & Impact

Upon completion and production of the first issue of VAD Chronicles, feedback was incredibly positive. Nurses and healthcare providers were extremely excited to read the newsletter and see how prior patients were doing after their implantation/hospitalization. One patient in particular left a powerful message to the healthcare providers at UCSF that left many 10ICC staff astounded.

"Continue doing what you are doing. Get them up even when they can't. Push them a little harder each and every day. Don't give up on us, even when we have given up. We'll bounce back, it just took me a little longer, but I am grateful for it. So, keep doing what you are doing. We really do appreciate it."

Messages and stories such as these are powerful tools towards improving staff morale and engagement in 10ICC. Furthermore, success stories provided the 10 ICC nurses and interprofessional healthcare providers with closure, especially when it involves the care of a challenging and complicated patient. Many 10ICC nursing staff and UCSF healthcare providers expressed great gratitude and appreciation for the newsletter, in addition to looking forward to reading the next newsletter issue.

Next Steps, Dissemination & Lessons Learned

Next Steps: The next issue of VAD Chronicles will continue to highlight and feature patient stories and photos from MCS. For the first newsletter, we were only able to obtain three patient stories but we hope to collect more patient stories for our future newsletters. We also plan on adapting the newsletter to staff needs and response to ensure the chronicles remain current and relevant. The current dissemination plan is limited to internal distribution. The enthusiasm the VAD Chronicles have generated has been so great that physicians are interested in using it as a external communication tool.

Dissemination: VAD Chronicles is a quarterly newsletter that provides UCSF Healthcare providers updates on the progress and success stories of MCS patients. A newsletter such as VAD Chronicles is an effective tool for any service or program at UCSF to emulate to keep their staff members updated on current practices, news and patient progress. Furthermore, a newsletter can serve as a powerful tool to convey messages that are often times difficult to express.

Lessons Learned: After the dissemination of our first newsletter, we have identified the need for a more efficient way to publish and post the newsletter so that it would be readily available to the 10ICC nurses and other healthcare providers at UCSF. We will be adding the newsletter to the 10ICC weekly updates, in addition to posting a copy in the nurses' staff lounge. The Heart and Vascular Team will be provided a copy and an electronic pdf copy to post and share with their team members.

The Life of The Tree

UCSF Health

Dept of Neurosurgery

Diane Hollander

Starr Neal

Madee Milanes

Gita Patel

Background

Problem:
Patients who are calling the clinic, reaching the phone tree, are not routed to their desired point of contact. An average of 1600 calls/month are received and routed.

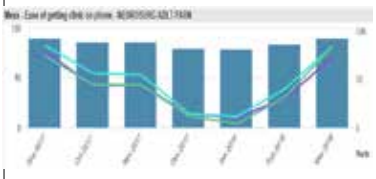
Current State:
12.9% of calls are abandoned

Phone tree schemas – previous versions:

Project Goals

Target State:

- Abandoned call rate of <5%
- Increase ease of getting clinic staff on the phone from 86% to 90% by February 2018
  February 2018 = 91.7%



Project Plan and Intervention(s)

Tactics:

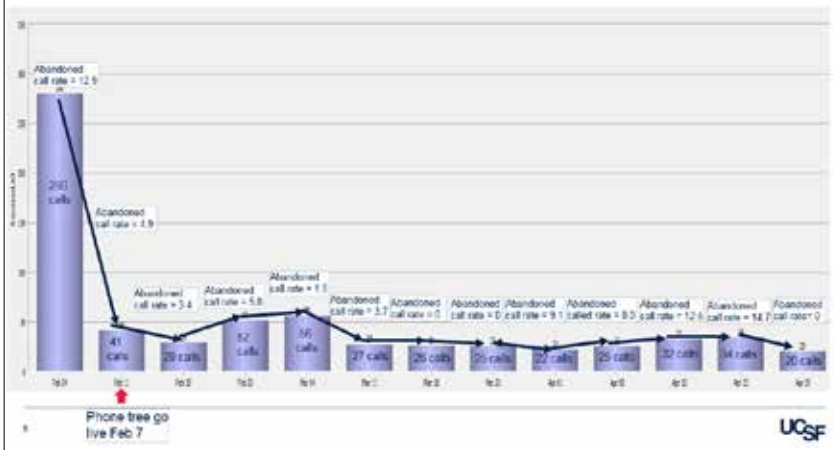
- Start with the current map and follow each option to affirm all phone numbers (create a mini phone tree for each clinic)
- Determine the most direct options to reach intended destination (previously all pointed to main phone number)
- Information routinely given for new patient referrals in an automated message
- Automate rollover of afterhours calls (replace manual call forwarding)
- Correct all the misdirected calls based on incorrect caller IDs coming into main phone lines
- Standardize voice mail for all staff
- Ensure "out of office" calls are not forwarded to phone tree (creates an endless loop for callers)

Offer option to caller to Zero out to attendant after hearing options

- Submit IT Ticket on MCCS
- Test Phone Tree in virtual playground
- Set a Go Live date (mid-week)
- Trace misdirected calls to identify root cause & submit IT Tickets for post live changes

Project Evaluation & Impact

In Process Metrics – Weekly Abandoned Call Rate



Eliminating received calls related to the wrong caller ID made a significant impact in the # of totals calls received **(From 280 to 40)**

Next Steps, Dissemination & Lessons Learned

Next steps:

- *Continue to monitor and troubleshoot abandoned call rates and solicit feedback from end users and patients*
- *Implement same process for Neuro Spine service*

Lessons learned:

- *Front line staff must be involved in every step of the process*
- *Verifying accuracy of all commands/phone numbers in tree is key*
- *Testing in virtual playground differed from live environment*
- *Eliminating time waste allows staff to focus on value added tasks*

Innovations in Accessing Appropriate Levels of Care

UCSF Health

Care Support

Health Complexity Team

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Lisa Sapiro, LCSW
Martha French, NP
Jillian Clark, LCSW
Regina Noland, HCN
Jessica Bianconi, HCN
Mackenzie Clark, PharmD
Seth Robbins, MD
Robin Andersen, NP
Christine Ritchie, MD

Office of Population Health

Background

Patient education provided by case managers has been shown to reduce ED usage among high risk patients who are frequent utilizers of the emergency department.

Inappropriate ED usage can be attributed in part to lack of information about health care options available should patients have an urgent medical need. Many patients are unaware of 24 hour access to their primary care office or that after hours or weekend urgent care facilities exist.

Studies suggest that an array of patient messaging strategies meant to reduce avoidable ED visits were shown to have potential impact on reducing inappropriate ED usage. Messages emphasizing wait time and stress inherent in ED visits were particularly effective.

Project Goals

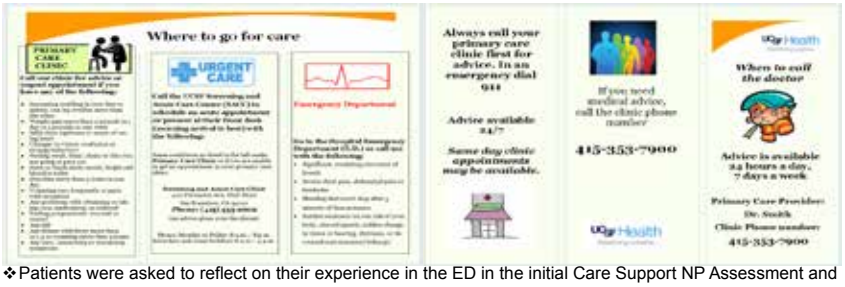
- To reduce Emergency Department utilization by 5% in the following patient population: all patients 65 and over who were enrolled in the Care Support program between 7/1/17 and 12/31/17, who live in SF, have a PCP at UCSF, and had at least 1 ED visit in 6 months prior to enrollment.
- To test strategies educating patients regarding early symptom recognition and Accessing Appropriate Levels of Care.
- To better understand patients' experience of the ED and how this influenced their decision of where to access care.

Primary Intervention

- Care Support piloted a messaging strategy focused on Accessing Appropriate Levels of Care.
- Care Support NPs provided patients with a brochure and employed teach back about early symptom recognition and when and how to access care.

Pilot Project Plan Activities

- The brochure reinforces that medical advice is available 24/7 and provides contact information for the patient's Primary Care clinic and UCSF Screening and Acute Care clinic.
- Patients were also provided with a personalized list of urgent care centers that accept their insurance.
- Both documents were provided to patients during the initial Care Support home visit. Patients received these documents in a plastic sleeve with a magnetic clip to allow the information to be displayed on their home refrigerators for easy access.



- Patients were asked to reflect on their experience in the ED in the initial Care Support NP Assessment and in subsequent Transitions of Care calls made by Health Care Navigators after ED visits.

Project Evaluation & Impact

Of the 17 patients in the pilot project, there was an 80% reduction in ED use in the 6 months subsequent to the intervention compared to the 6 months prior.*

Most patients were not aware of:

- Available telephone medical advice 24/7
- Primary care clinics have on-call doctors working after hours
- Same day clinic appointments
- Available urgent care center options

* as of April 30, 2018

Next Steps, Dissemination & Lessons Learned

Next Steps:

- Expand the process to all patients being enrolled in the Care Support Program.

Dissemination:

- Clear reduction in utilization was shown with verbal education on early symptom recognition, accessing appropriate levels of care with teach-back, and local urgent care facilities; and provision of "When to Call the Doctor" flyer and refrigerator magnet. This strategy has the potential for further dissemination and testing in other OPHAC clinical programs who also care for these high risk patients.

Lessons Learned:

- In general, patients reported feeling well cared-for and having a good experience in the ED/hospital, so they did not perceive it as a place to avoid.
- Education on "early symptom recognition" and "accessing appropriate levels of care" was new information for most of the patients in our pilot population and likely reflects the patient population at large.

Care Support: Improving Interdisciplinary Case Conferences to Monitor Utilization Due to Ambulatory Care Sensitive Conditions (ACSCs)

UCSF Health

Care Support Program

Ambulatory Complex Care Management

Ryan Alipio, MHA; Anne Thibault, NP; Martha French, NP; Lisa Sapiro, LCSW; Jillian Clark, LCSW; Jessica Bianconi; Brendan Burkart; Dianne Garcia; Regina Noland; Tasha Toliver; Mackenzie Clark PharmD; Seth Robbins MD; Robin Andersen, NP

Christine Ritchie, MD

Office of Population Health

Background

- The Care Support Program leverages key aspects of complex care models to support and care for the most vulnerable patients with medically and psychosocially complex issues, who tend to be high utilizers of costly health system services.
- Patients eligible for complex care services include:
  - Age 18 years or older with ≥4 chronic conditions (Diabetes or Heart Failure, asthma, COPD, depression, diabetes, heart failure, hypertension or cardiovascular disease)
  - High utilization patterns as defined by ≥2 inpatient stays or ≥3 ED/observation visits within the past 6 months
  - Patients who are represented in an ACO partnership
- Sentinel events such as hospitalizations and ED visits offer opportunities for team/systems improvement.
- Weekly Interdisciplinary Case Conference offers regular opportunities for case reviews and attention to specific opportunities for quality improvement.

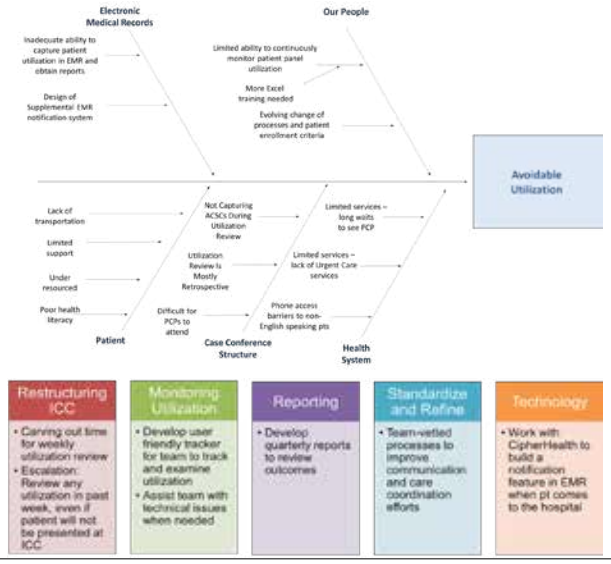
Project Goals

Problem: High risk populations, even after enrollment into complex care programs, disproportionately use higher levels of care.

Goal: To incorporate utilization review processes into ICC with objectives of conducting root cause analysis, capturing ACSCs, determining avoidability (at a care team or system level), and recommending interventions to the care team, the Primary Care Provider, and/or Health System.

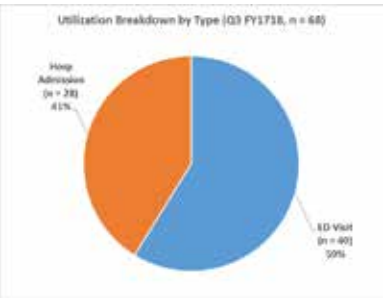
Prior to 2017	Jan 2017 to today
1) Each New Patient is presented with utilization in the last 6 months (ED/IP)	1) Each New Patient is presented with utilization in the last 6 months (ED/IP)
2) Utilization is presented only on a quarterly basis, along with usual 3 month interval presentations	2) Patients evaluated in ED or hospitalized in the prior week of ICC date, weekly utilization review is conducted

Project Plan and Intervention(s)



Project Evaluation & Impact

Category of Clnical Impression	# of Encounters	% of Encounters
non-ACSC	27	40%
Pain related non-ACSC	24	35%
Pneumonia	5	7%
Diabetes	4	6%
UTI	3	4%
Dehydration	2	3%
CHF	2	3%
Hypertension	1	1%
Grand Total	68	100%



Could Care Support have avoided this utilization?		
Assessment	# of Encounters	% of Encounters
Avoidable	7	10%
Not Avoidable	61	90%
Grand Total	68	100%

Examples:
- Provide structured education regarding seeking appropriate levels of care
- Reinforce early sx recognition

Could Health System have avoided this utilization?		
Assessment	# of Encounters	% of Encounters
Avoidable	11	16%
Not Avoidable	57	84%
Grand Total	68	100%

Examples:
- Improve phone tree access in primary care for non-English speaking patients
- Optimize medication review for patients discharged from SNF to home

*calculated based on the number of unique pts (n =35) that reported utilization in last quarter

Next Steps, Dissemination & Lessons Learned

Next Steps:
- Develop standardized data management processes to ease ability to gather and analyze pertinent data
- Explore interventions to improve early symptom recognition and self-management of chronic conditions
- Explore and test processes to improve patient access to appropriate level of care

Dissemination:
- Continue to refine ICC format as patient populations and program structure continue to change to accommodate the system's growing needs

Lessons Learned:
- Top reasons for utilization are not ACSCs but rather pain related (abdominal, chest, etc.)
- Clinical observations: difficulty documenting utilization outside of UCSF in medical record
- Systems changes may assist to address low health literacy- poor understanding of disease state and expected symptoms

UCSF Health

Imaging Patients with Pacemakers/ICDs in MRI

Name

Dr. Michael Hope, chair MRI Safety: Dr. Edward Gerstenfeld, Chief, Cardiac electrophysiology; Ben Mow, chief MRI technologist, Devin Dixon, MRI supervisor, Charlene Fong, RN.

Background

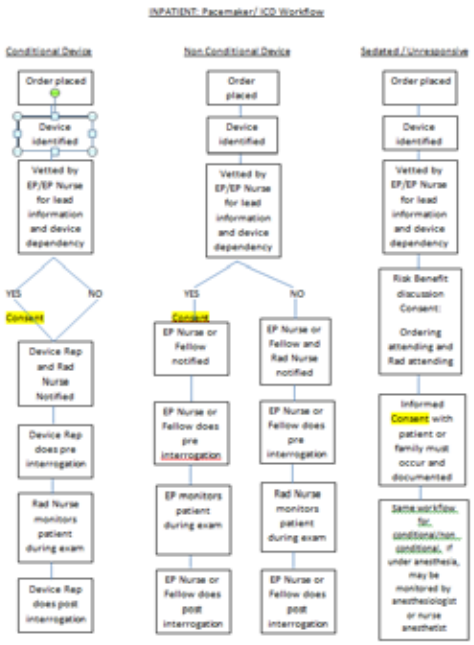
In the past, MRI was contraindicated in all patients with implantable cardiac devices because of concerns that the powerful magnetic and radiofrequency fields generated during the MRI might cause heating in the area of the device, damage to the device or inhibit pacemaker/ICD function. There are risks associated with MRI for patients who have a pacemaker/ICD which are Non-MRI conditional and are not approved by the FDA for MRI scanning.
Last year, UCSF Radiology, lead by Dr. M. Hope in partnership with Cardiology, lead by Dr. E. Gerstenfeld developed a workflow to safely image patients in MRI 1.5 T with selected pacemakers/ICDs.

Project Goals

Goals are to provide MRI imaging services to patients with selected pacemakers/ICDs in a safe, timely, and cost efficient manner.

Project Plan and Intervention(s)

Based on current evidence and research , MRI can be performed in patients with a conditional and non-MRI conditional pacemaker in a 1.5 tesla MRI scanner. A physician or nurse with training is in attendance to monitor the patient during the MRI.
Radiology and Cardiology developed a two part screening to ensure that the patient can be safely imaged in MRI. Cardiology screens the patient for appropriateness , performs device interrogation and programming for the MRI. After the MRI, baseline setting are restored. Radiology staff also screens the patient for MRI safety, and during imaging the MRI technologist follows the manufacturer imaging guidelines to minimize the potential for thermal heating.



Project Evaluation & Impact

There have been no untoward events so far after imaging 215 patients in MRI since 2015. UCSF is currently the primary facility in the Bay Area providing MRI imaging for pacemaker patients and the volume of completed exams have increased 80% since 2016. There is sizable back log of patients with pacemaker needing MRI. Limitations are due to the volume of patients with non-conditional pacemakers/ICDs and the availability of Cardiology EP or nurse to monitor these patients during the MRI.

Next Steps, Dissemination & Lessons Learned

Next Steps:
Expand clinical resources of Cardiology trained nursing staff to screen and monitor patients with pacemakers/ICD implants during MRI.

Dissemination:
Through the MRI safety committee and other networks, share practice standards with UC campuses, ZSFGH and the community.

Lessons Learned and Opportunities: Currently, these scans are primarily done in the 1.5 Tesla scanner, so the opportunity would be to be able to scan patients with pacemakers in higher Tesla scanners in the future. Currently non-conditional pacemakers are not FDA approved, so the opportunity will be to safely scan these patients monitored by trained nurses.

Improving communication for patients with Limited English Proficiency throughout the primary care visit: focusing on communication with ancillary staff

Lily Kornbluth, MD

Leah Karliner, MD, MAS

Division of General Internal Medicine (DGIM)

Background

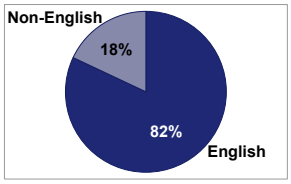
Primary care delivery is transforming, and increasingly important visit tasks are being completed by front desk staff and medical assistants (MAs).

At UCSF's DGIM, approximately 11% of active panel patients have Limited English Proficiency (LEP), and approximately 18% of scheduled clinic visits are for patients with LEP.

Little is known about how patients with LEP communicate with front desk staff and MAs during a primary care visit.

As we move forward with DGIM's LEAN Transformation, it is important to understand the communication (or lack thereof) that is taking place during these parts of the visit for this vulnerable population.

Patient language preference for scheduled visits



Project Goals

- Quantitatively and qualitatively describe LEP patient communication with front desk staff and MAs during the primary care visit.

- Elicit the opinions of front desk staff, MAs, and MDs on how we can improve primary care delivery for patients with LEP.

- Provide information and recommendations to the DGIM LEAN Transformation team, as we actively make changes to the way we deliver primary care.

- After DGIM LEAN Access and Flow Kaizens are complete, we will reassess communication with LEP patients via qualitative, semi-structured interviews with front desk staff, MAs, and MDs.

Project Plan

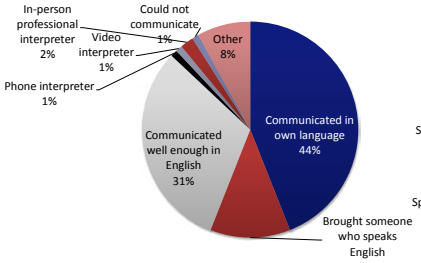
1) Analyze Language Access Systems Intervention (LASI) data related to front desk/MA communication
- 733 Spanish, Cantonese, and Mandarin-speaking DGIM patients interviewed 1 week after a PCP visit
- Use these data to quantitatively describe the LEP patient experience with front desk staff and MAs

2) Semi-structured interviews with front desk staff, MAs, and MDs at 1545 Divisadero primary care practice
- Understand the breadth of front desk staff and MA tasks that involve communication with the patient
- Describe patterns of professional interpreter use amongst front desk staff and MAs
- Understand barriers to using a professional interpreter for front desk staff and MAs
- Understand different practice patterns of MDs when working with LEP vs English-speaking patients
- Elicit suggestions from front desk staff, MAs, and MDs about how the clinic can improve communication for patients with LEP

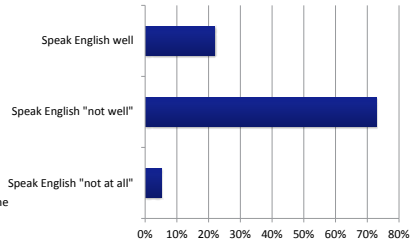
3) Present findings and recommendations to the DGIM LEAN Transformation team
- Influence ongoing clinic delivery changes

Project Evaluation

Patient report of communication with front desk staff and MAs during the primary care visit (LASI data)



Self-rating of English proficiency for patients with LEP using English with front desk staff and MAs (LASI data)



Semi-structured interviews with front desk staff:

"It's easier to go find another staff member who speaks the language than to dial the phone interpreter. It's just more efficient."

"Phone interpreters can take a long time to connect. Usually English works fine for most people."

Semi-structured interviews with MAs:

"I only use the phone interpreter if the patient speaks zero English. It just takes too long."

"I'm too rushed to use the phone interpreter on most days."

"Some tasks, like the med rec, are better for the MD to do because they will have the video interpreter going anyways for their visit."

Semi-structured interviews with MDs:

"I always do the Med Review for my patients with LEP."

"Visits for patients with LEP run longer."

"LEP patients don't use MyChart, and they don't use Open Access slots. Almost all appointments are pre-booked."

Next Steps, Dissemination & Lessons Learned

Next Steps:

-Findings presented to the DGIM LEAN Transformation team for the Access Kaizen
- Key recommendations:
  - Consider longer appointment times for interpreted visits
  - Increasing Open Access visits does not serve patients with LEP
  - Leveling schedules (i.e. evening out the number of providers for any given half-day) will help with front desk staff and MA work flow. This may lead to increased interpreter use.

-Planning to present to the DGIM LEAN Transformation team for the Flow Kaizen

Lessons Learned:

Almost 25% of patients with LEP cannot adequately communicate with front desk staff and MAs because they are using limited English to communicate. Professional interpreter use by front desk staff and MAs is minimal, and time is seen as the major barrier. Tasks left undone by the front desk and MAs then fall to the MD to complete, adding time and stress to these visits.

2018 UCSF Health Improvement Symposium

UCSF Health
Department of Urology

A Patient-Centered Mobile Health Intervention to Improve Peri-Procedural Patient Outcomes

Ashwin Balakrishnan
Hao G. Nguyen, MD PhD
Katsuto Shinohara, MD
Peter R. Carroll, MD MPH
Anobel Y. Odisho, MD MPH

Department of Urology, UCSF
Helen Diller Family Comprehensive Cancer Center

Background

- Adequate patient preparation before procedures ensures patient safety and can enhance recovery.
- Access to mobile technology presents an opportunity to improve patient-provider communication before and after procedures.
- Currently, patient preparation for prostate biopsy involves detailed print material, in-clinic patient education, and phone calls to patients to remind them of key dates and information.
- However, patients sometimes struggle with adhering to verbal and paper-based instructions, resulting in cancelled appointments, incomplete preparation, avoidable delay to patients, and costs to the healthcare system.
- Evidence shows that text message reminders improve patient adherence and attendance to clinical appointments.
- The use of this efficient and accessible technology to help patients prepare for procedures is a rapidly growing area of research and development.

Project Goals

- Improve patient adherence to antibiotic, fleet enema, and medication hold instructions in order to promote patient safety, reduce appointment cancellations/delays, and reduce costs.
- Educate patients about expectations on the day of biopsy and concerning signs and symptoms after the procedure.
- Notify providers about patients who are not ready for their procedure and those who report concerning symptoms.
- Increase patient satisfaction with care and communication at the Urologic Surgical Oncology Clinic at Mission Bay.

Project Plan and Intervention

Communication Platform

- Many of our urology patients are elderly and may have difficulty with new technologies. Therefore, we avoided app-based interventions.
- We worked with Medumo, Inc. to design an SMS-based intervention with short reminders containing links to web-based content. The program does not require downloading or logging into an application.

Table 1. Text message delivery schedule.

Day	Time	Content sent
Registration	Enrollment	Program welcome, patient homepage link
14 days before	10AM	MRI and medication survey
12 day before	10AM	Educational information and video on prostate biopsy
7 days before	9AM	Key items to obtain and fleet enema instructions
1 day before	9AM	Pre-procedure readiness survey
Day of procedure	7AM	Antibiotic & fleet enema reminder
	5PM	Post-procedure precautions
2 days after	10AM	Follow-up symptom survey
4 days after	5PM	Satisfaction survey

Program Development

- Met with clinic staff and providers to identify key issues leading to cancellations, delays, or non-adherence.
- Used existing patient education material to inform development of content.
- Timed the delivery of patient education content and reminders.
- Designed two brief pre-procedure surveys to identify patients at risk of cancellation or non-adherence.

Pre-procedure survey sent to the patient the day before their biopsy at 9:00AM

Project Evaluation and Impact

We evaluated the readability of the content using validated formulas (Table 2). The National Institute of Health recommends that patient education material is written for a 7th grade reading level.

Table 2. Readability scores for messages in program.

Readability Formula	Reading Level Grade
Flesh-Kincaid Grade Level	5.5
Gunning Fog Index	8.9
Coleman-Liau Index	7.8
SMOG Index	9.5
Automated Readability Index	4.4
Mean Grade Level	**7.2**

Patients began receiving messages on May 8th, 2018. In the first week, 146 patients were automatically enrolled in the program (Table 3). No patients opted out of from the program in the first week.

Table 3. Enrollment in first week of program.

	Number of Patients (%)
Enrolled in program	146
Completed appointment	9 (6.2%)
Awaiting procedure	137 (93.8%)
Unenrolled out of program	0

Next Steps, Dissemination, Lessons Learned

Next Steps

- Gather feedback from clinic staff and patients to determine if any messages need to be modified.
- Compare patient adherence, cancellation, and 30-day hospital admission between a cohort of patients who have used the text program for two months, and a retrospective cohort.

Dissemination

- We are developing programs for patients undergoing surgery for prostate and bladder cancer.

Lessons Learned

- Input from a variety of people in the care team is essential to identify areas where patient-provider communication can be improved.
- Education programs should match the language, health, and technology literacies of patients.

2018 UCSF Health Improvement Symposium

UCSF Health

Improving Inpatient Capsule Endoscopy

GI Endoscopy QI Team

Vivek Rudrapatna, Myung Ko, Nikhil Thiruvengadam, Priya Kathpalia

Abstract

- Capsule Endoscopy (CE) is an effective diagnostic modality for variety of conditions including obscure GI bleeding and small bowel tumors.
- The quality of inpatient CE is variable and often suboptimal. Poor exams contribute to an increase in hospitalization costs, length of stay, delays in definitive treatment and overall comorbidity.
- Although many risk factors are intrinsic to the patient population and examination setting, others are readily modifiable. Many published protocols have been shown to improve exam quality in a low cost and safe way. However, they have not been widely adopted by practitioners at UCSF.
- We propose to 1) benchmark the current quality of inpatient current CE and 2) iteratively test a variety of protocols using a "Plan-Do-Study-Act" (PDSA) framework.

Objectives

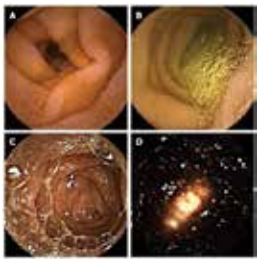
- To benchmark the current quality of inpatient CE on a variety of metrics – visual quality, diagnostic yield, completion rate and proportion of small bowel visualized, frequency of repeat and/or subsequent studies, length of stay, transfusion requirement.
- To deploy an inpatient CE protocol involving 2L PEG the night before and Simethicone the morning of an examination.
- To characterize and iteratively enhance protocol performance via the PDSA framework in conjunction with other stakeholders.

Introduction

- Capsule Endoscopy (CE) is a valuable study for a wide variety of indications related to small bowel disease. In the inpatient setting, it is commonly used for the diagnosis of overt obscure gastrointestinal bleeding.[1] It is considered superior to enteroscopy and radiography with a mean yield of 60% in several studies.[2-4]
- The variation in detection rate primarily depends on the velocity of the capsule in the small bowel and the background color of the small bowel, which depends primarily on the quality of bowel preparation.[5]
- Although early protocols recommended a 12-hour fast prior to examination,[6] subsequent randomized control trials have demonstrated that a 2L polyethylene glycol (PEG) bowel preparation the night before improves visual quality (VQ, Figure 1), diagnostic yield (DY) and completion rate (CR).[7]
- Simethicone, an anti-foaming agent, has been shown to improve VQ without improving the diagnostic yield or completion rate.[7,8] Pro-kinetic agents have not been shown to improve VQ, DY or CR in meta-analysis. [7]

Methods

- We will review a sample of the electronic health records of all patients undergoing CE at UCSF in 2016.
- Each chart will be queried for patient characteristics (age, gender, comorbidities), bowel preparation, completion rate, frequency of repeat/subsequent diagnostic studies, length of stay, transfusion requirements.
- We will review the CE images and report corresponding to these patients to assess VQ, CR, and DY. To assess VQ we will assess three 1 minute samples corresponding to the each small bowel segment according to published metrics (see Fig. 1).
- From the above analysis we will deploy sequential PDSA cycles beginning with one utilizing a 2L PEG/simethicone bowel preparation. Each PDSA cycle will focus on mitigation of one identified barrier through inpatient order sets, housestaff education, and capsule instructions note.



A. Excellent: perfect visualization in every small bowel segments

B. Good: > 75% of the mucosa in perfect condition, with some fluid or debris remaining

C. Fair: 50%-75% of clean mucosa, with the presence of enough fluid, bubbles or debris to preclude a completely reliable examination

D. Poor: < 50% of clean mucosa.

Conclusions

- Capsule endoscopy is a first-line and indispensable modality for examination of small bowel pathology in the inpatient setting, most commonly overt obscure bleeding.
- Quality is variable but at least partially modifiable via published and validated protocols.
- We propose to benchmark and iteratively improve CE quality using the PDSA framework in conjunction with other stakeholders.
- These measures may contribute to improved patient outcomes and hospital resource utilization.

References, Acknowledgements, Funding

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Shared Leadership in an Ambulatory Specialty Department to Decrease Turnover Rate and Increase Staff Satisfaction

DREAM COMMITTEE

Pediatric Brain Center's Shared Leadership Group

2018 Members:
Raquel Guillen – Past Chair
Erica Wu - Chair
Maria Hong
Amanda Lopes, RN
Irwin Chew, MS, RN

Adviser:
Jeremy Vergara, DNP, RN

Sponsor:
Karen Seth, MBA

Background

The PBC shared leadership group, also called the Dream Committee, consists of the PBC staff (RN and coordinators). The group was formed to address growth opportunities in the department as a result of the 2017 GALLUP survey feedback. The group was conceptualized to promote camaraderie and improve relationship and communication between staff members. DREAM stands for: Dedication, Recognition, Encouragement, Ambition, Morale.

Mission

The DREAM Shared Leadership Committee fosters dedication, recognition, encouragement, ambition, and morale within the PBC.

Specific Goals

- Organize educational lectures to promote PBC staff professional growth
- Organize social events to celebrate successes in the PBC
- Organize "all staff meeting" to address issues that affects practice
- Bridge the gap between staff, leadership, other allied services, and providers

Initiatives

PAST SIX MONTHS…
- Monthly Lunch Bunch Lectures (Staff-organized lectures)
- Excel Training for all staff
- In-services/Open Forums
- Social Events
- All staff meeting

NEXT SIX MONTHS…
- Increase educational/social event participation rate
- Diversify the DREAM Committee by recruiting staff from all levels and specialties

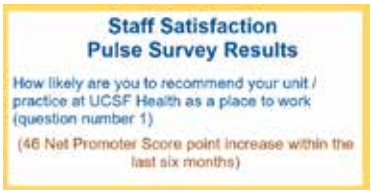
UPCOMING EVENTS:
- Staff Only Meeting (follow up)
- Continue Lunch Bunch Lectures
- Social Events: First Fridays, Easter/ Spring potluck

Staff-Led/Organized Lectures (Monthly)

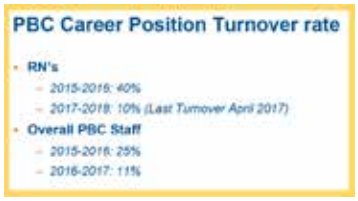
1. *Audrey Foster-Barber: Developmental delay referrals/ Tics and Tourette's/ Fetal referrals (August 2017)*
2. *William Qubty: Headache (September 2017)*
3. *Joseph Sullivan: Pediatric Seizure Semiologies - A Video EEG Tutorial (October 2017)*
4. *Alexander Fay: Overview of neuromuscular disorders and some exciting new treatments (November 2017)*
5. *Karen Seth: UCSF and PBC True North Goals and Progress – Mid Fiscal Year Review (January 2018)*
6. *Onica Kuch: Medical Emergencies in the PBC (February 2018)*
7. *Peggy O'Grady and Connor Dearing: Social Work Utilization in the PBC (March 2018)*
8. *Alexandra Ross: Psychology in the PBC (April 2018)*

Project Evaluation & Impact

Staff Engagement



Staff Turnover



Engagement Milestones

Target = Six staff engagement milestones/ month

Definition of staff engagement milestone: Staff driven activities/moments that address Gallup opportunity (to learn and to grow) and foster camaraderie within the PBC

Next Steps & Lessons Learned

Shared Leadership driven initiatives in the ambulatory setting to implement change leads to improved staff retention and increased staff satisfaction. Preliminary review of patient satisfaction scores has seen increase in trend. An implications of this presentation is to encourage other ambulatory units to adopt shared leadership structure to improve staff engagement throughout UCSF ambulatory services

Improving Patient Access in the Pediatric Brain Center through Test of Change

10/20 Initiative

A PBC Child Neurology Work Queue Reduction Project

Core Members:
Raquel Guillen
Kristopher Kwan
Erika Aquino

Project Manager:
Jeremy Vergara, DNP, RN

Leadership:
Karen Seth, MBA
Dale Williams

Baseline State

- Child neurology new patient referral WQ – backlog over 300
- No current system to divide workload (Who processes which referral)
- Potential redundancy with WQ work
- A total of 41 patients were ready to be scheduled at start of the project

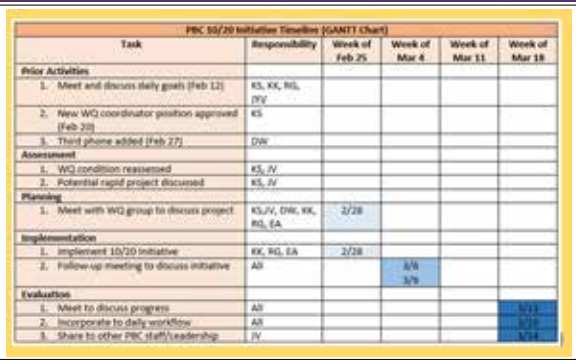
Aim of the Project

- To meet patient scheduling needs in a timely manner and improve access
- Trial a new process for two weeks to improve process. If successful, will be incorporated as a standard work for WQ staff/every coordinator's workflow.
- Provide structured workflow among PBC access staff
- Reduce /sustain WQ numbers to less than 100
- To ensure duplication of work is avoided
- Easily track patients and provide real time information on who needs follow-up
- Provide role clarity and responsibility among team members

Project Details

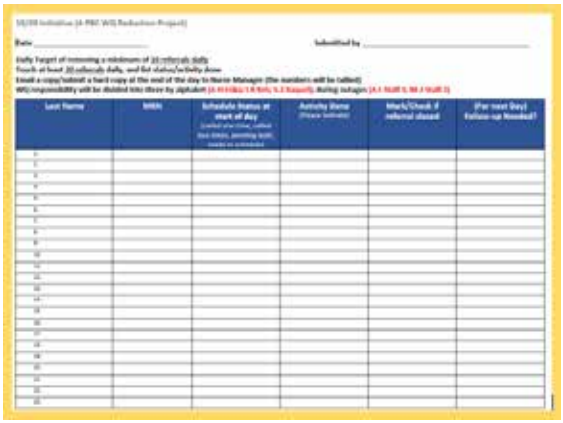
- PBC access staff is assigned daily target of removing a minimum of 10 patients from WQ
- PBC new patient coordinator will touch at least 20 referrals daily and list activity done
- Submit a copy or excel copy at the end of the day to Nurse Manager (the numbers will be tallied)
- WQ responsibility will be divided into three groups by patient's last name (A-H Erika; I-R Kris; S-Z Raquel); During outages (A-L Staff 1; M-Z Staff 2)
- Close WQ referral after 2nd call and notify referring provider
- Keep a copy in a binder of the daily sheet
- Refer/Review previous daily sheet and check if any outstanding issues can be addressed
- Asking assistance or delegation to a PBC staff colleague is highly encouraged for difficult cases
- Communicate to leadership team any issues
- WQ metrics is presented during daily huddles

Project Timeline



Task	Responsibility	Week of Feb 25	Week of Mar 4	Week of Mar 11	Week of Mar 18
Prior Activities					
1. Meet and discuss daily goals (Feb 12)	KS, KK, RG, JV				
2. New WQ coordinator position approved (Feb 20)	KS				
3. Third phone added (Feb 27)	DW				
Assessment					
1. WQ condition reassessed	KS, JV				
2. Potential rapid project discussed	KS, JV				
Planning					
1. Meet with WQ group to discuss project	KS,JV, DW, KK, RG, EA	2/28			
Implementation					
1. Implement 10/20 Initiative	KK, RG, EA	2/28			
2. Follow-up meeting to discuss initiative	All		3/6 3/9		
Evaluation					
1. Meet to discuss progress	All				3/13
2. Incorporate to daily workflow	All				3/16
3. Share to other PBC staff/Leadership	JV				3/14

The Project



Results

Future State

- Goal is to work on getting the referrals in active tab to ZERO and those in the deferred tab <100
- If WQ >100, huddle will be called immediately to examine issues
- If WQ is >100, 10/20 sheet will need to be submitted to nurse manager.
- If WQ >100, manager will do spot audits

Got Delirium? Implementation of a Multi-Disciplinary Delirium Reduction Pathway Across UCSF Health

Catherine Lau MD, Brian Holt MHA, Jan Yeager MDes, Jessica Chao PharmD MBA, Teresa Fong MBA, Judy Maselli MSPH, Megan Rathfon NP, Vanja Douglas MD, Stephanie Rogers MD

Background

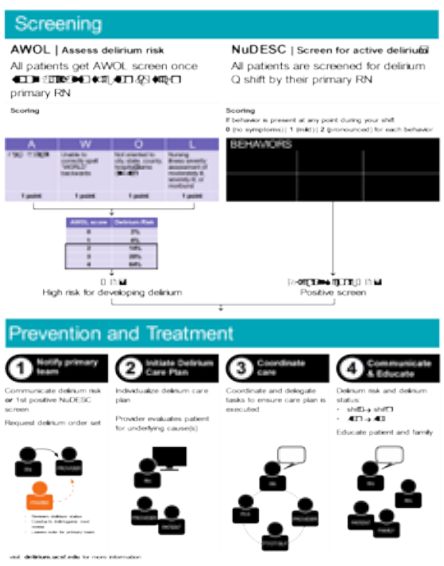
- Hospital-acquired delirium is serious, leading to increased falls, pressure ulcers, length of stay (LOS), cost, patient institutionalization, and patient and caregiver distress.
- In addition, hospital-acquired delirium is associated with mortality rates as high as 35-40% within one year in geriatric patients.
- Because hospital-acquired delirium is often under-recognized and prevention and treatment involves multi-disciplinary care coordination, comprehensive programs to decrease delirium are often lacking.

Project Goals

- **Develop and implement a multi-disciplinary pathway for screening, prevention, and treatment of delirium at a 796-bed academic tertiary care urban hospital.**
- **Decrease delirium days per 1000 patient days by 5% and decrease average LOS by 3% by June 2018.**

Project Plan and Intervention(s)

Figure 1: Delirium Care Pathway

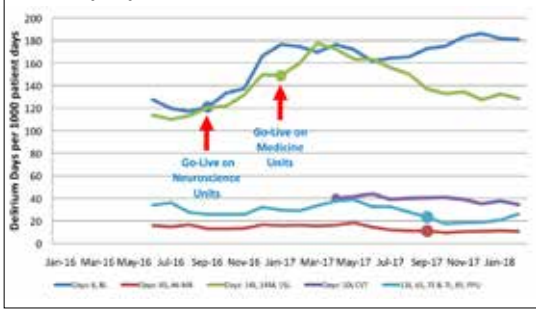


- A team consisting of a geriatrician, hospitalist, neurologist, pharmacist, nurse practitioner, and service design experts created a comprehensive, evidence-based delirium care pathway with three components (Figure 1):
  1) Screening
  2) Prevention
  3) Treatment
- The multi-disciplinary delirium reduction pathway was implemented in a step-wise fashion throughout the Health System starting in September 2016.
- Delirium reduction is a component of the Inpatient Age Friendly Health System Initiative, which is one of the UCSF Health Value Improvement initiatives for FY18.
- This initiative is also aligned with the UCSF internal medicine and general surgery residency quality improvement incentive goals for the 2017-18 academic year.

Project Evaluation & Impact

Delirium Day Reduction at UCSF

6 month rolling average



- As of March 2018, nursing compliance with AWOL screening is > 90%, compliance with Nu-DESC screening is > 85%, and provider activated delirium order set compliance is > 80% on the medicine service.
- Thus far, LOS in all patients with delirium decreased from 11.0 to 10.0 days. LOS of patients with delirium on the Acute Care for the Elderly (ACE) unit decreased from 13.0 to 11.4 days.

Next Steps, Dissemination & Lessons Learned

- **The creation of a comprehensive, multi-disciplinary delirium screening, prevention, and treatment pathway can lead to improved patient care and decreased LOS in patients who are at risk of delirium and who develop hospital-acquired delirium.**
- Next Steps:
  - Improve MD orderset compliance
  - Investigate and pilot hardwiring delirium into daily standard work (e.g. inclusion of delirium in nursing STAT)
  - Develop and pilot delirium audit tool similar to existing audit tools for patient harm
- Lessons Learned:
  - Compelling data visualizations engage stakeholders and allow us to monitor and sustain success over time
  - Proactively reach out and offer support to groups with low compliance has been well received and appears to be improving compliance

2018 UCSF Health Improvement Symposium

Transforming Ideas Into Reality: A Structured Project Pathway to Facilitate QI and Academic Research Projects

Catherine Lau MD

Nader Najafi MD, James Harrison MPH PhD, Priya Prasad MPH PhD, Bradley Sharpe MD, Margaret Fang MD

Division of Hospital Medicine

Background

- Physicians based in academic health systems are often called upon to lead initiatives ranging broadly from quality and value improvement (QI) efforts to health services and outcomes research.
- These efforts are important for clinical operations as well as career and academic advancement.
- As academic medicine departments and divisions continue to grow in size, the challenge of supporting predominantly junior faculty to be successful in leading projects often requires access to a project mentor for methodologic design consultation, high-quality data, and project management support for implementation.
- However, clear mechanisms to facilitate and support this work are often lacking.

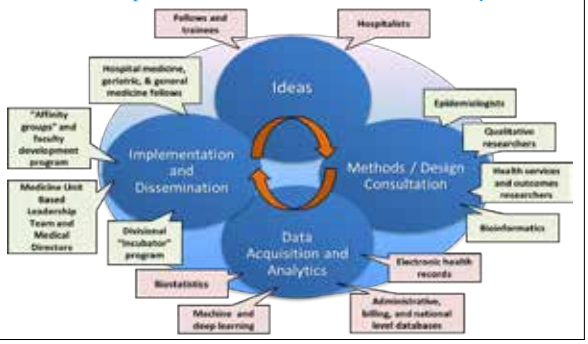
Project Goals

- **To develop and implement a structured and supported system, leveraging existing resources where possible, to facilitate the ability of a growing hospital medicine division to conduct high-quality QI and research projects in an urban academic teaching hospital.**

Project Plan and Intervention(s)

- We aimed to integrate existing but separate affinity groups and resources within our Division into a ***more transparent, easier to navigate, centrally coordinated*** project pathway to support all faculty and staff.
- This required broad buy-in across divisional stakeholder groups such as QI, medical education, global health, health services research, data and clinical informatics, faculty development program, and the hospital medicine fellowship.
- We conceptualized the essential requirements of an integrated, structured, and supported project pathway into four domains:
  1. **Idea Generation:** where project ideas from faculty, trainees, and staff are submitted into a centralized portal called the "Project Tracker" and regularly reviewed by the divisional Research and QI groups;
  2. **Methods / Design Consultation:** where ideas are then refined through consultancy with experienced methodologists and, when appropriate, assigned a project mentor;
  3. **Data Acquisition / Analytics:** where relevant data is obtained and analyzed;
  4. **Implementation and Dissemination:** where divisional members can assist in project completion and help prepare abstracts and papers for presentation.
- The division supported infrastructure needed to coordinate the project pathway. This includes supplemental funding for research-oriented faculty to supervise the program and creation of a "Data Core", staffed by a clinician-informaticist and analyst.

Conceptual Design of a Project Pathway to Improve Hospital Medicine Academic Productivity



Project Evaluation & Impact

- Since the formal implementation of the project pathway in January 2017, there have been 49 separate project ideas submitted through the project pathway.
- Examples of submitted projects include: Pilot of a Molecular Medicine Consult Service, Albumin Utilization and Potential Reduction, and What Happened to my Patient: Developing Habits of Lifelong Learning through Patient Follow-Up.
- This has resulted in the submission of 21 abstracts to professional society conferences, 6 awarded intramural grants, and 3 research manuscripts submitted for publication. Over half of the submitted abstracts were first-authored by faculty at the clinical instructor or assistant professor level.
- In addition, the project pathway provides data and analytics on 4 divisional QI metrics that cannot otherwise be tracked using other existing administrative or clinical datasets.

Next Steps, Dissemination & Lessons Learned

- **Implementation of a structured project pathway can:**
  1. **Facilitate the transition from idea generation to project implementation.**
  2. **Lead to enhanced availability of project resources for all faculty to contribute to academic productivity.**

2018 UCSF Health Improvement Symposium

Reducing Radiation Exposure in Nuclear Stress Testing by Implementing a Low Dose Stress First Protocol

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Susan Woodard, NP III
Sue Robertson, NP II
Danny Langston, NP II

Cardiac Stress Lab,
UCSF Medical Center Parnassus Campus

Background

Nuclear stress testing is utilized to evaluate for coronary artery disease (CAD) by injecting a radioactive isotope to image myocardial perfusion at rest and then again after stress (via exercise or pharmacologic dilatation). A SPECT camera is the most common image modality for nuclear stress testing. Resting isotope dose is ≈ 8 mCi of Tc-99, and stress dose is ≈ 24 mCi. The total amount of time for completing a rest and stress SPECT study may average 3 hours due to waiting for myocardial isotope absorption, imaging of the left ventricle, and processing for interpretation.

The majority of patients without known cardiovascular disease have normal myocardial perfusion scans. These patients are receiving unnecessary radiation when they undergo an entire "Rest and Stress" exam. Some facilities practice a 2-day "Stress First" protocol to decrease radiation exposure. Resting images are only required if stress images demonstrate abnormalities, but they must be completed another day due to lingering isotope from the stress dose. However, the 2-day "Stress First" protocol can be problematic for patients who live far away or noncompliant with follow-up.

Newer studies and current guidelines support protocols utilizing a low isotope dose for stress imaging first in patients without high risk features. Resting images can still be completed afterwards on the same day if indicated. By implementing a 1-day "Low Dose Stress First" protocol, we may potentially reduce the total test duration and amount of isotope administered. Our project can positively impact the UCSF Health True North pillars in these categories:

- **Patient Experience**- *Reduction in total testing hours may improve patient satisfaction and allow more time to commute/transfer to other appointments.*
- **Quality & Safety**- *Reduction in isotope dosage may decrease comorbidities/diseases caused by radiation exposure. Staff or personnel with close contact to the patient will also be exposed to less radiation.*
- **Financial Strength**- *Reduction in total testing time and isotope usage may increase cost savings to the Medical Center by allocating staff and resources more efficiently.*

References:
Henzlova MJ, Duvall WL, Einstein AJ, Travin MI, Verberne HJ. ASNC imaging guidelines for SPECT nuclear cardiology procedures: Stress, protocols, and tracers. Journal of Nuclear Cardiology 2016.

Chang SM, Nabi F, Xu J, Raza U, Mahmarian J. Normal Stress-Only Versus Standard Stress/Rest Myocardial Perfusion Imaging: Similar Patient Mortality with reduced Radiation Exposure. Journal of the American College of Cardiology 2010; 55 (3): 221-30.

Project Goals

Goals:

1. Reduce unnecessary radioactive isotope exposure by implementing a 1-day "Low Dose Stress First" (LDSF) protocol for patients who meet specific qualifications.
   - *LDSF patients would receive 10 mCi of Tc-99 instead of the usual 24 mCi for stress imaging.*
   - *If there are abnormal stress findings, patients would proceed with resting images the same day by receiving ≈ 30 mCi of isotope after the stress images end.*
2. Alleviate time constraints by potentially omitting resting images.
   - *LDSF cases would not undergo resting images if stress images are normal (negative perfusion defects, no reduced LV ejection fraction, no left ventricular dilatation).*

Target Population:

Patients from the ED/CDU (Clinical Decision Unit) and outpatients undergoing SPECT imaging who have low probability of needing resting images. They must meet the below criteria:

- ***No history of CAD/ MI / Heart transplant***
- ***No history of Heart Failure, Cardiomyopathy, or reduced EF***
- ***No LBBB or V-pacemaker***
- ***BMI < 35*** *(patients with BMI > 35 require higher isotope doses for stress imaging to obtain adequate myocardial absorption)*

Target Thresholds:

- Minimum goal- perform 5% of LDSF tests in eligible patients.
- Target goal- perform 7% of LDSF tests in qualified patients.
- Outstanding goal- perform 10% of LDSF exams in qualified patients.

Analysis/Measurement:

Daily assessment and report review of all MD finalized nuclear stress tests to decipher which LDSF cases required additional isotope for resting images.

Project Plan and Intervention(s)

Baseline:

- This project implemented a new 1-day protocol, but retrospective data for 2-day "Stress First" studies were reviewed from April 2017 to June 2017.
  - 15 total patients (outpatients and ED/CDU patients) were performed as 2-day "Stress First" with SPECT imaging.
  - 6 of these patients did not require resting images another day, suggesting that 40% of the 2-day "Stress First" patients avoided unnecessary isotope exposure.

Hypothesis: Performing "Low Dose Stress First" (LDSF) nuclear SPECT tests in outpatients and ED/CDU patients that meet specific criteria will decrease the total amount of radioactive isotope exposure and potentially reduce total testing time.

Interventions:

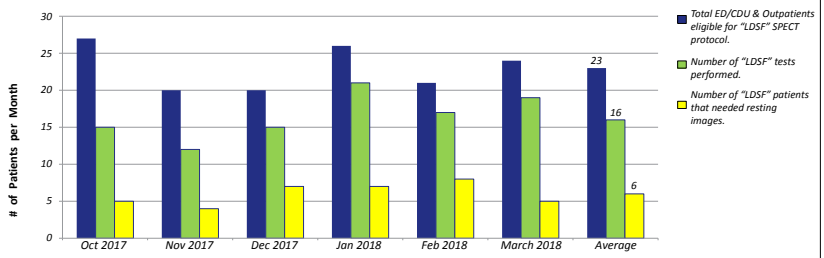
- Initiated the LDSF protocol in mid Sept 2017, but data was collected from October 2017 to March 2018.
- Conducted a meeting with Nuclear Medicine staff to decide LDSF criteria and discuss the new workflow.
- NPs screened outpatients 1 day before their scheduled tests to ascertain if they met LDSF criteria.
- ED/CDU patients were screened after test orders would appear in the work queue.
- Senior Nuclear Medicine tech would order the appropriate amount of isotope for the following day after communicating with the NPs.
- Doses could still be adjusted if there were changes to the protocol.
- Once the eligible patients completed their LDSF portion, a Nuclear Medicine physician would determine whether resting images were required.

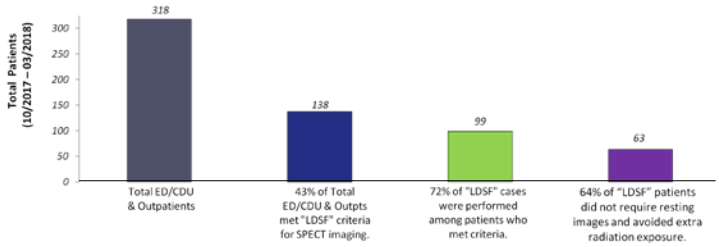
Common Barriers/ Root Causes:

- *Communication*- Not all staff (stress lab staff, schedulers, Nuclear Med techs) were aware of which patients warranted the LDSF protocol.
  - To improve this, we provided an algorithm and "color dot" system next to patient's name on the Apex schedule to indicate status.
  - We identified and printed out a schedule of LDSF patients to discuss in the morning huddles.
- *Performing Provider* - Not all eligible patients proceeded with LDSF if the performing provider deemed patient to be high risk.
  - Although this may lead to fewer LDSF studies, our data showed that 72% of LDSF cases were performed among patients who met criteria, which exceeded our outstanding goal of 10% performance rate.
- *Nuclear Reader*- 42% of LDSF patients who had resting images showed abnormal findings.
  - There was inter-reader variability that accounted for additional resting images in some LDSF patients with normal stress reports.
  - It would be ideal to have a consistent reader or check for inter-rater reliability in the future.

Project Evaluation & Impact

NUCLEAR SPECT STRESS TESTING WITH "LOW DOSE STRESS FIRST" PROTOCOL
(ED/CDU & OUTPATIENTS, 10/2017 - 03/2018)





Next Steps, Dissemination & Lessons Learned

Next Steps:

- *Modify the "Low Dose Stress First" (LDSF) criteria to include or exclude other patient populations.*
  - Our data showed that patients with history of significant peripheral vascular disease or ESRD had a high likelihood of needing resting images.
  - 71% of Pre-op Vascular Surgery and 44% of Pre-kidney Transplant cases had abnormal stress findings.
  - These groups may benefit from PET Rb stress tests, which utilizes Rubidium isotope and a PET camera for imaging.
  - The PET Rb stress test allows for a rest and stress exam to be completed within 60 minutes, but requires specific insurance authorization for outpatients.
- *Expand the LDSF criteria to incorporate inpatients.*
  - Utilizing the LDSF protocol for qualified inpatients may expedite their plan of care or discharge time, which contributes to less medical expenses.

Dissemination:

- The Cardiovascular Research Institute (CVRI) at Mission Bay has also initiated the LDSF protocol in their stress lab. They were able to add time slots for additional patients, which is what we plan to do once another SPECT camera is installed and remodeling is completed later this year.

Lessons Learned:

- Interdepartmental collaboration was challenging with regards to communication and lack of access to each other's systems.
  - Unfortunately, we were unable to track total testing hours because patients departed from Nuclear Medicine without known time stamps.
  - Despite limited accuracy on test duration, we can infer that LDSF patients who did not require resting images most likely ended their exam sooner than if they had proceeded with a regular "Rest & Stress" study.
- There were suggestions that all patients should be LDSF to reduce multiple protocols and improve staff compliance.
  - Staff was educated that patients who had high probability of obtaining resting images would receive a greater amount of radioactive isotope (≈ 40 mCi total) than with a routine "Rest & Stress" exam (≈ 32 mCi total).
- We had also aimed to improve cost savings but lacked IT support in analyzing the financial impact. Although we could not prove that there was a reduction in total testing time or medical expenses, our project showed that the majority of eligible patients were exposed to less radiation through the LDSF protocol. In the future, we hope to have the capabilities to address these other endpoints.

2018 UCSF Health Improvement Symposium

Asthma Dashboard Automation

Bilwa Buchake
Noreenlou Goodlow
ACE & BCH-QI

Background

The Asthma Dashboard is an important tool for improving quality of Asthma care and patient safety. It monitors the following clinical outcomes:

- Use of Inhaled Corticosteroids (ICS) following discharge improves patient outcomes due to its efficacy suppressing airway inflammation.
- 30-day follow-up for pulmonary patients to confirm the reasons for recent exacerbation, adjust treatment, or provide more patient education.
- Length of Stay (LOS) to reduce unnecessary time spent in the hospital, thereby avoiding hospital-acquired conditions.

Data from the Asthma Dashboard are also used to answer questions for the annual *US News and World Report* survey.

Problem

Prior to intervention, it took 360-420 minutes each month to create the dashboard. The multistep manual process also contributed to 1-5 (non-patient-facing) errors annually.

Improving the efficiency of creating the dashboard each month impacts the ***Quality and Safety*** and ***Financial Strength*** True North Pillars.

Project Goals

GOAL:
To automate the Asthma dashboard, reducing the amount of time needed to create the dashboard and eliminate human errors in decision making and calculation of metrics.

TARGET STATE:
- Reduce the time needed to generate the dashboard every month from 6-7 hours to <30 minutes.
- Reduce human errors by 100%.

GAPS: Data reside in multiple, disparate sources, without a singular means for extracting all required elements.

Project Plan and Intervention(s)

Identifying the multiple, disparate sources from which the raw data in the Dashboard were housed was the biggest need. We concluded that the required data could be pulled from databases available to the Department of Quality, such as Caboodle and UCAll.

We also trialed developing the dashboard in Tableau instead of Excel, which would allow for greater interactivity.

Our solution development workflow was as follows –

1. Analyze data required for creating the dashboard
2. Identify underlying data sources from where these data could be gathered
3. Write SQL programs to gather data from identified data sources and store in a database
4. Create data integration and transformation solution for combining data from multiple data sources
5. Write SQL programs to aggregate data
6. Use Tableau for displaying and distributing the Asthma Dashboard

The process map to the right shows the process post-intervention, as compared to pre-intervention (below, left), highlighting the reduction in unnecessary steps through automation.

Project Evaluation & Impact

PROJECT EVALUATION:
We measured two outcomes: total time spent preparing the dashboard and number of data errors.

PROJECT IMPACT:
Removing waste led to a large reduction in the total time required for creating the dashboard each month, regardless of the number of identified Asthma discharge patients.

The expected annual reduction in FTE hours required for creation and distribution of the Asthma dashboard is **74.4 hours**. Workflow automation has eliminated the need for manual decision making and calculations, thus eliminating human errors by **100%**.

Zero Annual Errors (projected)

# of errors BEFORE Intervention	# of errors AFTER intervention
1-5	0

Next Steps, Dissemination & Lessons Learned

NEXT STEPS:
We will continue to evaluate the ease of using the automated process each month and make necessary modifications. To completely automate it, we would like to -
- Schedule the creation of the Asthma Dashboard as one or more automated database jobs using a date trigger
- Develop a means for incorporating Physician feedback on individual cases without using email
- Deploy dashboard to Tableau server and allow for interactive functionality

DISSEMINATION:
Other dashboards within BCH-QI have been identified as benefiting from this automation framework. It could also be expanded to areas within and outside the Department of Quality, anywhere analysts are required to generate dashboards and reports that require Demographic data, Admission-Discharge-Transfer data, Vizient data, to name a few.

LESSONS LEARNED:
- The availability of databases such as UCAll, Caboodle and Clarity offer a wide array of opportunities with process and task automation, within and outside the Department of Quality at UCSF Health.
- Significant challenges with use of data for automation include lack of a Central Data Warehouse and a Tableau Server.

Perceptions of Adverse Event Reporting and Review Processes Among Faculty Physicians

UCSF Division of Hospital Medicine

Kiran Gupta, Adam Schoenfield,* James Harrison, Rita Redberg,* Adrienne Green

*UCSF Department of Medicine

Background

- Incident reporting systems are widely utilized to detect adverse events and remain a central component of many hospital patient safety programs
- Non-physicians file the majority of incident reports
- Barriers to physician reporting are not well understood

Project Goals

To describe:

- Barriers to incident reporting
- Perceptions of adverse event reporting and review processes
- Recommendations to improve the incident reporting process

Project Methods

•We developed a 21-item survey that explored physicians:

(1) Experiences with adverse events
(2) Perceived barriers to filing incident reports
(3) Perceptions of adverse event review processes
(4) Suggestions for improvement

•The online survey was then sent to attending physicians in the Departments of Medicine, Surgery and Pediatrics at UCSF

•We compared physicians' survey responses between departments using chi-square tests

•Free text survey comments were summarized using content analysis

Project Findings

- 307 responses from 1046 attending physicians from the departments of medicine, surgery and pediatrics (29.3% response rate)
- Over 80% reported caring for a patient who experienced an adverse event
- Surgeons were more likely to state that reporting would not make a difference to patient safety compared to other physicians (p=0.03)

Table 1: Adverse Event and Incident Reporting Survey - Attending Physician Comparisons

	Medicine N = 187	Surgery N= 42	Pediatrics N= 78	p-value
		n (%)		
Taken care of patient who experienced adverse event or near miss				
Yes	158 (85)	35 (83)	69 (89)	0.86
Ever reported adverse event or near miss though electronic incident reporting system				
Yes	59 (32)	13 (31)	36 (46)	0.09
On average, how long did it take you to fill out incident report				
<5 minutes	3 (2)	2 (5)	1 (1)	0.61
5-10 minutes	28 (15)	3 (7)	19 (24)	
11-15 minutes	18 (10)	4 (10)	9 (12)	
16-20 minutes	4 (2)	2 (5)	3 (4)	
>20 minutes	5 (3)	2 (5)	4 (5)	
Barriers to adverse event reporting				
I don't know how	66 (35)	9 (21)	18 (23)	0.06
It takes too long	66 (35)	18 (43)	32 (41)	0.52
I don't think it makes a difference	33 (18)	15 (36)	15 (19)	0.03
It's not part of my job	2 (1)	0	2 (3)	0.63
I'm concerned I will get in trouble	7 (4)	4 (10)	1 (1)	0.08
Has participated in the review of adverse event or near miss				
Yes	127 (68)	35 (83)	58 (74)	0.11
Adverse event review process was uncomfortable				
Yes	29 (16)	8 (19)	23 (30)	0.06
Adverse event review process led to meaningful change				
Yes	76 (42)	20 (48)	36 (46)	0.34
Comfortable talking about adverse events and near misses				
Yes	148 (79)	34 (81)	69 (89)	0.21
If involved in adverse event would you feel comfortable talking about the situation				
With your peers	160 (86)	33 (79)	70 (90)	0.25
With your supervisors	126 (67)	25 (60)	60 (69)	0.12
During a formalized review process	129 (69)	29 (69)	58 (74)	0.67
With a chaplain	26 (14)	4 (10)	20 (26)	0.03
With those outside medical setting	45 (24)	8 (19)	20 (26)	0.71
I would not feel comfortable talking to anyone	1 (1)	1 (3)	2 (3)	0.33

Barriers to filing incident reports

"No outcome of incident report gets back to the reporter" (Surgeon)

"As a physician, I find the incident reporting system hard to navigate and review" (Medicine physician)

"Completion of the incident report form is laborious and tedious…it's draining….and in my opinion is a major reason people do not complete more of these" (Pediatrician)

"I strongly believe in the Incident reporting system. As an attending, I will guide the residents to perform this function" (Medicine physician)

Perceptions of adverse event review processes

"At times there is a presumption of guilt until proven innocent" (Surgeon)

"It was discussed in a safe environment where we focused on processes and systems" (Medicine physician)

"Tone of interaction was quite accusatorial, assuming negligence before complete analysis of event" (Pediatrician)

"I think that harm to patients makes all of us uncomfortable" (Medicine physician)

- 68-84% of physicians reported participating in an adverse event review process
- 79-90% of physicians felt most comfortable talking about the situation with a peer
- Free text comments identified the following:
  - The adverse event reporting system interface is not user-friendly
  - Outcomes of adverse event reporting are not consistently fed back to providers
  - The adverse event review process is sometimes perceived as punitive by some but also viewed as productive and facilitating improvement by others

Discussion and Next Steps

- Physicians continue to experience barriers when reporting adverse events and near misses through reporting systems
- Improving user interface design, providing education about how and what to report, delivering timely feedback on reports filed and ensuring that adverse event review processes maintain a blame-free environment may facilitate higher rates of reporting among physicians

2018 UCSF Health Improvement Symposium

Implementing Annual Depression and Suicide Screening in Primary Care

Kristin Gagliardi[1], Hannah Rapp[1], Jennifer Latimer[1], Sara Coleman[1], Erin Andersen[2], Maki Aoki[2], Emma Samelson-Jones[3], Coleen Kivlahan[4] and Mitch Feldman[2]

[1]Office of Population Health & Accountable Care, [2]Division of General Internal Medicine, [3]Department of Psychiatry, [4]Primary Care Services

Background

In Sept. 2017, the Division of General Medicine (DGIM) at Mt. Zion implemented standard workflows for annual depression and suicide screening for all empaneled patients at one location.

Screening with the PHQ-9 was implemented in response to the FY18 PRIME Behavioral Health measures, which incentivize the identification and treatment of depression within Primary Care.

Project stakeholders elected to develop new EMR-based workflow tools to facilitate standardized screening, provider communication with clinical staff, and decision support resources (SmartSets). DGIM has a diverse population of about 25,000 patients; this intervention was conducted on one floor of the DGIM clinical practice which serves about 16% of UCSF Primary Care patients (DGIM2).

Initial screening outcomes one month post launch suggested a successful implementation: ~80% of all patients who attended a DGIM appointment on the second floor had a PHQ9 entered into the Apex flowsheet. Efforts to screen at a high rate continued, as a new Collaborative Care program for depression treatment became more widely available to patients.

Project Goals

Across UCSF Primary Care, the main objective is to achieve the PRIME* screening goal:

	FY17 Baseline	FY18 Current	FY18 Goal	90th Percentile
% of **PRIME** patients with PHQ9 entered in EMR Flowsheet	0.65% (160 pts)	16.25% (4,687 pts)	18.14% (~5,230 pts)	84.54% (~24,222 pts)

To achieve this goal, we have continuously created and tested PDSA cycles to drive:

- Effective and efficient provider communication workflows
- Streamlined clinic staff support workflows
- Provider engagement and collaboration with new treatment programs
- Patient engagement with screening and new treatment programs

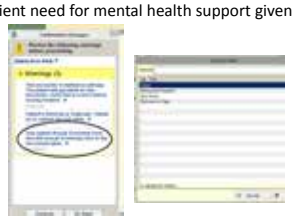
% of GEN MED 1545 2 patients seen in clinic since Sept. 2017 with PHQ9 entered in EMR Flowsheet s	GEN MED 1545 2 Goal
73%	100%

*PRIME patients = patients seen in Primary Care twice in a given measurement period

Project Plan and Intervention

In January 2017, a steering committee was created, consisting of leadership from the Office of Population Health & Accountable Care, the Department of Psychiatry, DGIM and Primary Care Services to identify an interdisciplinary team tasked with leading work groups to research and design screening workflows and a stepped care treatment model. In the months following, these workgroups consulted providers and front line staff to; design Apex workflow enhancement tools, create the analytical infrastructure to create a daily patient registry, and advocate for two new FTE, to support the anticipated increase in depression identification and patient need for mental health support given the new screening.

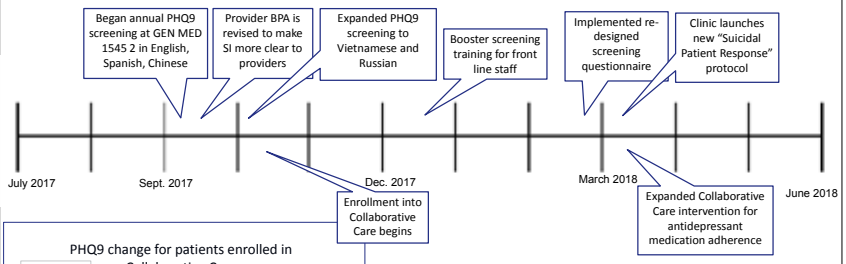
BPA Alert for Providers

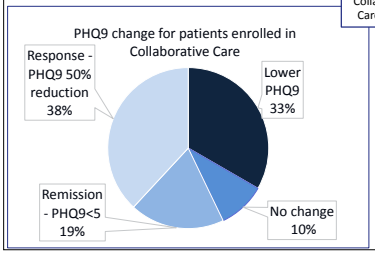


Cadence Prompt for Front Desk Staff

Project Evaluation & Impact

Following program launch, various PDSA cycles occurred to maintain high level screening rates. These refinements were made in the setting of bi-weekly sub-committee meetings with a varied group of practitioners and staff:





Patient Testimonial

"I was grateful that during an unrelated checkup with my primary care physician, I was presented with a depression questionnaire. When the nurse informed me that my response may result in a follow-up contact from an LCSW, I was very open to it. This allowed me to self-identify as depressed, and took the burden off of me to actively seek help. I may not have actively sought help without the survey."

Next Steps, Dissemination & Lessons Learned

Next Steps:

Looking ahead to FY19, we will further systematize depression screening at DGIM and UCSF Primary Care. Identified opportunities include:

- Greater inclusion of front line staff input to further refine processes to increase screening compliance
- Continuing to create and disseminate reports to ensure meaningful and actionable data reaches front line staff and administrators
- Leveraging the health maintenance banner for screening to create a more streamlined process that is integrated with other annual screeners
- Dissemination of screening best practices across Primary Care clinics
- Exploring the application of health technology to increase screening and patient engagement rates
- Expanding the Collaborative Care program to more patients and providers within DGIM
- Population Health: include the depression screening measure in the PRIME Primary Care Ambulatory Quality reports to achieve the same concerted improvement efforts as other primary care quality measures

Lessons Learned:

A number of key factors were instrumental in the wide spread adoption of depression screening. These factors include:

- Consistently engaged stakeholders and leadership
- Value of integrated mental health providers
- Ongoing development and refinement of reports relating to screening and data abstraction into Apex
- Strategic participation in varied communication channels (i.e. team meetings, daily huddles, newsletters, posters, staff trainings)

Integrated Spine Service

Team

Conor O'Neill, M.D., Director of Non-Operative Spine Service, Department of Orthopedics
Mario DePinto, M.D, Director of Pain Management Center, Department of Anesthesiology
Nat Gleason, M.D., Medical Director for Practice Innovation, Faculty Practice Organization, & Division of General Internal Medicine faculty
Catherine Lau, M.D., Director, Caring Wisely
Stephen Baxter, PT, MSc, DPT, Department of Physical Therapy and Rehabilitation Science
Matt Callahan, MBA, Analytics Program Manager, Department of Orthopedics
Lowen Cattolico, PT, MS, OCS, Assistant Director Outpatient Services, Department of Physical Therapy and Rehabilitation
Sarah Imershein, Value Improvement Manager, STIM
Jessica Chao, PharmD, MBA, Director, Clinical Innovation Center
Yoon-Ji Kim, Service Designer, Clinical Innovation Center
Jan Yeager, Mdes, Service Designer, Clinical Innovation Center

Background

19 million people are treated for for spinal pain annually in the US, leading to direct costs of $86 billion.

Primary cost drivers are:
- surgery
- injections
- imaging
- prescriptions

25% of patients with spinal pain have significant physical limitations, resulting in $270 billion of indirect costs due to work absence.

Back and neck pain are complex conditions. Once it becomes chronic it can be managed--but rarely cured. Psychological and social factors are more powerful predictors of outcome than imaging findings. Evidence-based care dictates an integrated, bio-psychosocial approach. Clinical pathways that emphasize this approach have shown decreased MRI utilization and surgery referrals, decreased direct and indirect costs, improved patient outcomes, and improved patient and physician satisfaction.

Approximately 20,000 back and neck pain patients are treated per year at UCSF (75,000 separate encounters). Care for these patients is associated with high direct costs ($85M), a net loss (4.5M), and no improvement in patient a quality of life (PRO data from Ortho Spine Clinic).

Project Goals

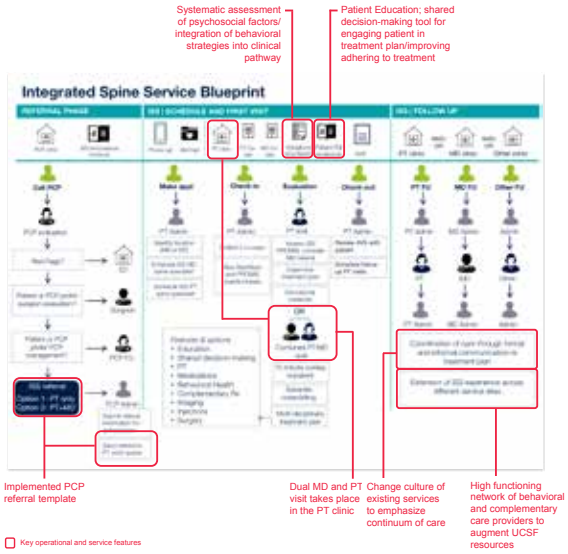
The goal of the Integrated Spine Service is to demonstrate that a value-based multidisciplinary program for the treatment of back and neck pain – a Non-Operative Spine Service – which collaborates closely with Primary Care and Physical Therapy, will result in better outcomes (5% improvement in PROMIS 10), lower costs (10% reduction in direct costs), and an enhanced patient experience. The target population is patients with back or neck pain who have a UCSF primary care physician.

Project Plan and Intervention(s)

Adopt methods proven in other settings to decrease costs and improve patient outcomes:

- Multidisciplinary, integrated care
- Use a biopsychosocial model in treating patients
- Shared commitment to a continuum of care
- Treatment that emphasizes patient engagement and shared decision making
- Clinician feedback on utilization, costs and outcomes

Launched service at 2 locations:
- Mission Bay (*January 8, 2018*)
- Mount Zion (*February 1, 2018*)



Project Evaluation & Impact

Referral Flow

	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
Referrals	16	37	11				
Actual visits	0	9	20				
Target visits	0	10	10	20	20	30	40

- **PCP Referral Process Satisfaction** (N=8): 75% extremely easy, 25% somewhat easy
- **Patient interviews** (N=5)
  - *"They are watching over me and even care about my emotional situation"*
  - *"Clinic schedule (mornings only) doesn't work with my schedule"*
- **Assessment tool** (STarT Back) has identified significant psychological factors in 70% of patients, ½ of these severe

Next Steps, Dissemination & Lessons Learned

Next Steps:
- Close gaps in referral process (Apex reports)
- Gather feedback
  - From PCPs, schedulers, staff, and patients on service experience, workflow
  - On efficacy of patient education and SDM program
- Evaluate utilization (conduct retrospective and prospective comparisons between ISS treated and non-ISS treated groups, episode and PMPM analyses)
  - Office visits (by cost center), opioid Rx's, imaging, injections, ED visits, non-surgical admission, surgery.
  - Total direct cost (HB and PB)
- Surgical yield from referrals

Dissemination:

Identify all stakeholders and all practice, spatial, operational and financial implications of bringing together a multidisciplinary team under one service (and clinic environment)
Use tools like a service blueprint to illuminate all the components that need to be addressed in the design of a new service and keep all stakeholders aligned on workflow, operational requirements, and patient interactions.

Lessons Learned:

Current operations don't easily support new models of care. We need to think more progressively about how to overcome financial and operational constraints in order to fulfill the goals of improved patient outcomes and reduced costs

Clinical Documentation Integrity and Adult Malignant Hematology / BMT Partnership

FY 2018 Value Improvement Project

Clinical Documentation Integrity (CDI)

Clinical Documentation Specialists

Diane Arneson, RN
Susie Hsu, RN
Kim Mendoza-Dungo, RN
Erica Shea, RN
Rita Brar, FMG
Flora Go-Soco, RN
Nozipho Ngande, FMG
Jennie Solis, RN

Herb Dye, RN, Manager CDI
Donna Hays, RN, Director CDI

Medical Director CDI
Jackie Nemer, MD

Value Improvement
John Hillman
Miguel Jimenez
Kim Berry

Malignant Hematology
Rebecca Olin, MD
John Dzundza, MD
MH Hospitalists & NPs

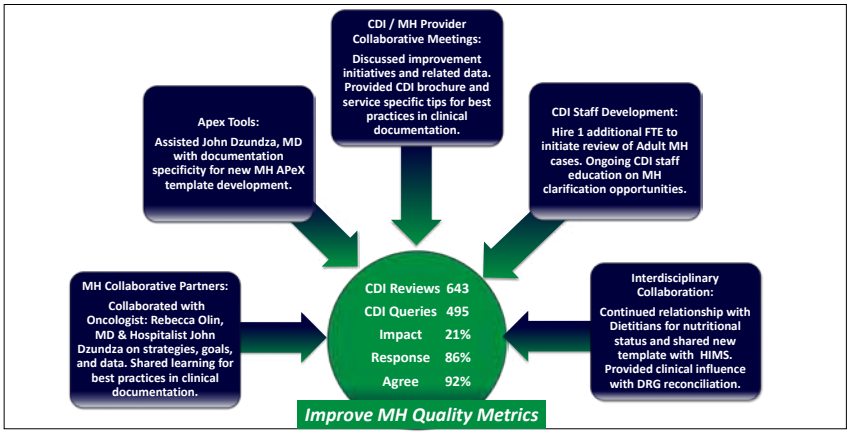
Background

- Documentation for patients on Malignant Hematology service does not always reflect severity of illness, risk of mortality, medical complexity and associated care during their inpatient hospitalization. Without related specificity in the documentation there is a negative affect to Case Mix index (CMI) and risk adjusted Quality outcome metrics such as Observed/Expected Mortality rankings (O/E) and Length of stay (LOS) index.
- Non Medicare cases fall into lower weighted DRGs and have a lower Case Mix Index for MH/BMT compared to the Medicare patients despite similar hospitalizations and clinical co-morbidities.
- The CDI team reviews Adult Malign Heme/BMT **Medicare cases** with positive outcomes on quality metrics and financial reimbursement. A CDI partnership with Malignant Hematology to accurately reflect severity of illness and medical complexity of all patients on MH/BMT service would improve Quality metrics & potential reimbursement.

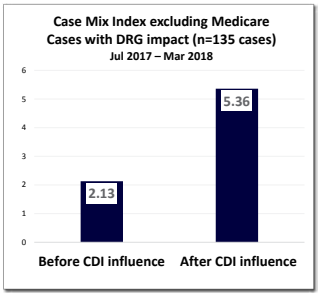
Project Goals

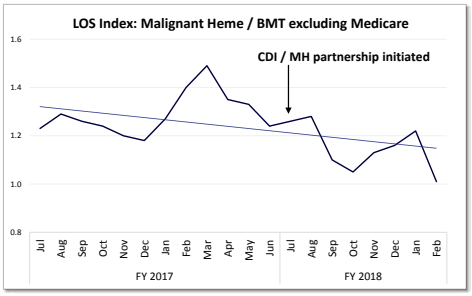
- Capture all secondary diagnoses and co-morbid conditions to accurately represent severity of illness, medical complexity and associated for risk adjusted Quality metrics as measured by an:
  - ❖ Increase in Case Mix index for MH/BMT population by >0.2
  - ❖ Decrease in Observed/Expected Mortality rating
  - ❖ Possible additional benefit of decreased LOS index
  - ❖ Improved financial reimbursement
- True North Alignment Pillars:
  - ❖ Quality and Safety & Financial Strength

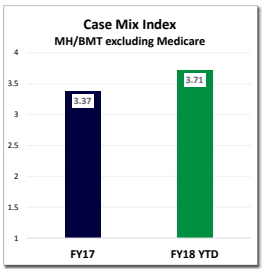
Project Plan and Interventions

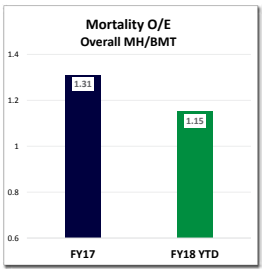


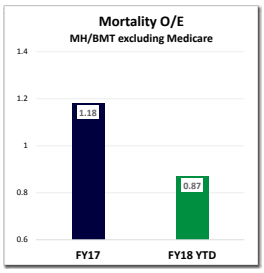
Project Evaluation & Impact











Next Steps, Dissemination & Lessons Learned

Next Steps:
- ❖ Continue to reduce Mortality O/E by capturing severity of illness & medical complexity
- ❖ Continue to benchmark service line data to determine best opportunities to prioritize CDI expansion

Dissemination:
- ❖ Sharing best practices in clinical documentation with reportable Quality outcomes
- ❖ Value based improvement projects could be adopted in other settings by expanding CDI collaboration to all payers

Lessons Learned:
- ❖ Service line champions are vital to collaborative partnerships that support documentation improvement to accurately reflect severity of illness, medical complexity and associated care
- ❖ APeX support (templates, service specific dot phrases, etc.) are useful tools in documentation improvement efforts
- ❖ Importance of reviewing reimbursements with key financial partners to reach a consensus on best methodology for measuring financial impact of non-Medicare cases. **We exceeded our original financial goal of $1.5M by $2.4M for improved reimbursements.**

Improving Data Accuracy & Efficiency by Implementing VQI-specific Brief Op Notes

Joyce Nacario, BSN, RN, CNOR

Kamal Soni (IT/Apex)

Department of Quality - AQI
Division of Vascular Surgery

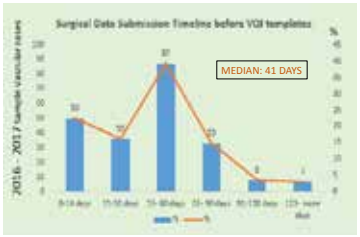
Background

The Vascular Quality Initiative (VQI) is a collaborative of regional quality groups collecting and analyzing data in an effort to improve patient care. The VQI collects perioperative and one-year follow update to generate real time benchmarked reports to assess quality of care and determine best practices in vascular surgery.

VQI Modules:
1. Peripheral Vascular Intervention
2. Infra Inguinal Bypass
3. Supra Inguinal Bypass
4. Endo-Vascular Abd Aortic Aneurysm Repair
5. Open Abd Aortic Aneurysm Repair
6. Thoracic & Complex EVAR
7. Carotid Endarterectomy
8. Carotid Artery Stenting

Problem

UCSF Health started with Vascular Quality Initiative (VQI) in April 2015 with 4 modules and added 4 more modules in 2016. We have several ways of abstracting data from Epic by pulling into a report all discreet data such as demographics, lab values, history, imaging, etc but the specific details of the procedure are often the most difficult to find. We tried to capture missing data elements using an xls spreadsheet designed with a dropdown menu to align the answers with the registry. It takes up to 41 days (median) days lag time waiting for the forms to be emailed back to the data manager for VQI Registry submission. Documentation is done far behind from the time of procedure making accuracy and completeness of data a major challenge.



Project Goals

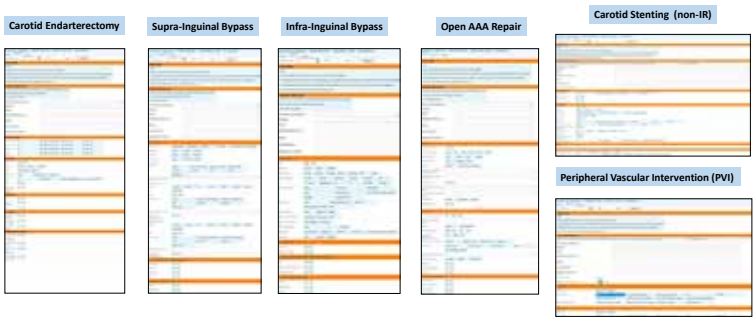
GOALS/ OBJECTIVES:
- To improve VQI data collection process.
- To reduce VQI abstraction time, effort, and missing VQI specific variables.
- To create EPIC data tools to assist in data collection more efficiently.
- To move data collection as close as possible to the procedure time.

Project Plan and Intervention(s)

IMPROVEMENT STRATEGIES: Create 8 structured, easy to use VQI specific Brief Op Notes in EPIC to capture complete VQI specific data more efficiently. Design discreet data fields for future data import automation.

PROCESS: We acquired AC3 UCSF IT/Epic Leadership approval to design & build 8 VQI Brief Op Notes using standard Epic clinical documentation tool called the Smart Block. We streamlined the content so that the source of truth of existing data fields in EPIC/EMR are taken into account. Utilizing a structured customized template for each VQI module allows the surgeons to specifically choose the correct VQI procedure and appropriately select the answers that match the VQI registry definition and nomenclature.

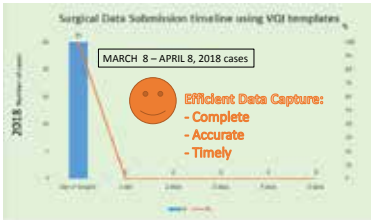
The 6 of 8 Vascular Surgery templates are LIVE (March 8, 2018) and each VQI Brief Op Note expands to a longer form dependent on the answers provided by the surgical fellows.



Project Evaluation & Impact

PROJECT EVALUATION:
After going LIVE with the VQI templates in March 8, 2018, the time required to collect VQI *surgical* data decreased from 41 days (median) to 1 day. By having surgeons enter procedural data at the point of care, documentation is complete & accurate, decreasing the time & effort looking for missing VQI variables.

PROJECT IMPACT:
Although we just went LIVE with only 25 charts to evaluate from March 8 – April 8, 2018, the utilization of a structured VQI brief op note to capture clinical data at the point of care, significantly improved efficiency in the data collection process. The project eliminated misinterpretation of the op notes during chart reviews.



Next Steps, Dissemination & Lessons Learned

NEXT STEPS: Finish the last two templates for EVAR and TEVAR modules and design Long Term Follow up templates. Maintain, sustain, and update templates to match future changes required by the VQI Registry. **DISSEMINATION:** Continue to work with the Vascular Surgeons and orient new residents/ fellows to the VQI data collection process.

LESSONS LEARNED:
Data collection tools continues to evolve from using pen/paper to xls spreadsheets to Epic/EMR Templates.

Key factors include building content of the templates without redundancy of data, utilizing a VQI data expert who also has an in depth knowledge of Epic documentation, and collaborating consistently with the IT team and the Vascular Surgery Department. The success of our new process using Epic/EMR is dependent upon the utilization of the VQI specific Brief Op Notes in a timely manner as close as possible to the procedure time. Understanding that improving clinical outcomes is only possible with complete, accurate, and timely data therefore, it is an imperative first step to implement structured op notes that are accessible at the point of care.

2018 UCSF Health Improvement Symposium

Safe Transitions Pathway in Neurological Surgery

Jennifer Viner, NP

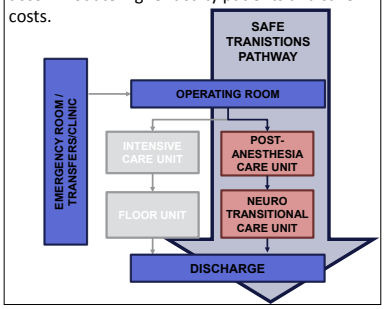
Aldea Meary-Miller, MBA, MPH

UCSF Department of Neurological Surgery, UCSF Center for Healthcare Value

Background

Most craniotomy post-operative patients board in the neuro-intensive care unit (NICU) their first night then transfer to the floor. These patients are clinically well, with uncomplicated post-operative courses and are anticipated to be discharged home post-operatively after two days.

In FY 2015 the NICU was one of the most expensive units in Moffitt Long. A majority of the direct costs can be attributed to room and board. The neurosurgery team identified patient populations that can safely bypass the ICU to accommodate higher acuity patients and save costs.



Project Goals

This project aims to reduce direct cost per case for eligible procedures by $5,526 from fiscal year 2017 to fiscal year 2018.
The direct cost per case for FY17 for eligible procedures was $23,100/case. Our goal is to reduce it to $17,575/case for FY18.

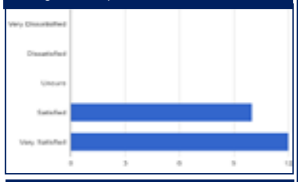
Other project goals include:

- Decreased post-operative length of stay
- Increased frontline nursing satisfaction
- Increased patient satisfaction by creating a more comfortable environment
- Increased availability of NICU beds to the community

Project Plan and Interventions

1. **Patient population identification:**
   - Simple supra-tentorial brain tumors [meningiomas, metastases, gliomas]
   - Chiari decompression
   - Microvascular decompression
   - Arachnoid cyst decompression
2. **Nursing education to support care of new patient populations:**
   - Neuro-Transitional Care Unit (6 Long)
   - Post-Anesthesia Care Unit (PACU)
   - Operating Room Nurses (OR)
   - Neurosurgery Nurse Practitioners
3. **Physician engagement:**
   - Workflow redesign to create program awareness
   - Creation of dedicated order sets in APeX
   - Nurse surveys to demonstrate competency
4. **Patient preparedness:**
   - Ongoing patient experience surveys
   - Surgical pathway pamphlet development

NTCU Nurse Survey Excerpt:
What has your overall experience been like working with STP patients?



Patient Education Pamphlet Covers

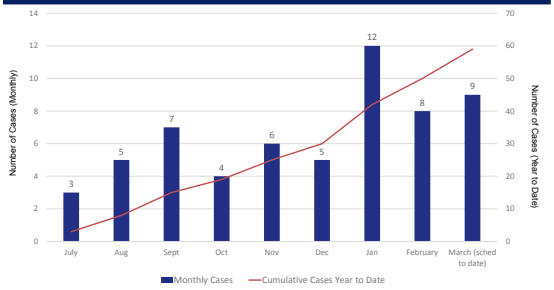
Project Evaluation & Impact

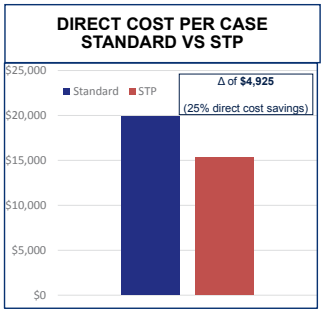
Since July 1 2017, 55 cases have gone through the Safe Transitions Pathway.

- 5 microvascular decompressions
- 11 chiari malformations
- 39 tumors

In quarter one and two of fiscal year 2018, the difference in direct costs for cases going through the safe transitions pathway versus cases standard pathway cases eligible to go through was $4, 925.

Number of cases going through the safe transitions pathway in FY18 by month and cumulative





	Q1 (July-Sept)	Q2 (Oct-Dec)
Savings	$81,413	$50,862

	Q1/Q2 Post-Op LOS in Days	
	N	Mean
STP	29	1.34
Non-STP	115	1.57
Difference		0.23

Next Steps, Dissemination & Lessons Learned

Next Steps:
Ongoing APeX builds
Ongoing monitoring of safety and quality outcomes
Ongoing physician recruitment for program
Follow-up nurse and patient surveys to ensure sustainability

Dissemination:
Identify additional patient populations suitable for pathway in both neurological surgery and other services
Publish and present results nationally to help other institutions replicate model.

Lessons Learned:
Changing culture is slow and requires patience; this cannot be achieved without full nursing engagement.
Clinical pathway improvements require the input and support of multiple disciplines and teams. Electronic medical record modification is not always possible.

2018 UCSF 3rd Annual Improving Value Together Forum

Use of Non-Provider Protocols to Decrease Verbal Orders

UCSF Health

Ambulatory Clinical Services

Women's Health OBGYN Ambulatory Practice

Background

Context:

- Health systems are examining processes, like verbal orders, to reduce errors, increase efficiency, and improve the quality of patient care.
- Verbal orders are orders from providers to registered nurses (RNs) either in-person or over the phone.
- Verbal orders allow for timely and efficient care, but can create risks due to potential for miscommunication.
- The Joint Commission requires health systems to minimize use of verbal orders that are not urgent/emergent.

Current State:

- Between January – September 2017, ~ 100% of serum quantitative hCG tests and ABO/Rh typing tests were verbal orders in the Women's Health OBGYN Ambulatory Practice.
- This process improvement project examined how use of non-provider protocols can affect the number of verbal orders taken by the RNs when responding to telephone and electronic messaging triage for new patients.

True North Pillar Impact:

- Patient Experience: Decreasing verbal orders can improve the patient experience by improving timeliness and consistency of care.
- Quality & Safety: Non-provider protocols facilitate standardized practice and are evidence-based.
- Our People: Non-provider protocols increase RN and provider satisfaction by allowing RNs to work at top-of-license; improved satisfaction can impact turnover rates.

Project Goals

- To reduce the number of verbal orders by 50% for serum quantitative hCG tests and ABO/Rh typing tests.
- Between January 2017 and September 2017, there was a quarterly average of 90 verbal orders for serum quantitative hCG tests and 51 ABO/Rh typing tests.
- Between October 2017 and February 2018, RNs were not ordering labs via verbal orders, because RNs had been notified not to use this order mode for orders that were not urgent/emergent.
- Nurses were either messaging nurse practitioners on a case-by-case basis or pending orders for providers to authorize. Data from both of these methods were not available.

Project Plan and Intervention(s)

Figure 1 shows implementation plan for instituting non-provider protocols.
The data collection period focused on an RN training session and establishing SmartPhrases to correspond with the non-provider protocols. SmartPhrases were used to validate and document that RNs asked patients the appropriate questions to order the lab tests (refer to Figure 2 for example).

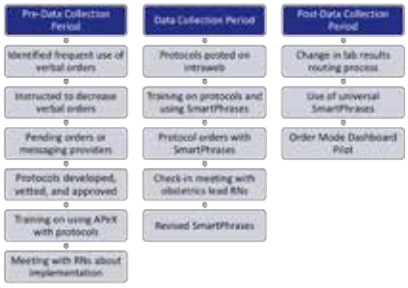


Figure 1: Key Tasks and Time Periods for Implementing the Protocols

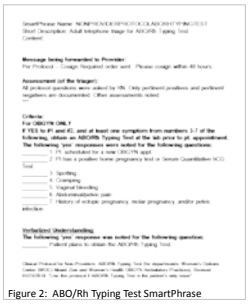
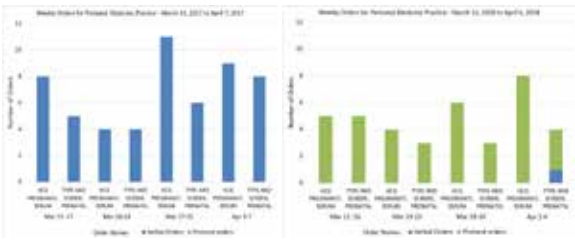


Figure 2: ABO/Rh Typing Test SmartPhrase

Project Evaluation & Impact

*ABO/Rh Typing Test = Prenatal Type and Screen



- There was a greater than 50% decrease in verbal orders and an increase in use of non-provider protocol orders between January 2017 and April 2018. After September 2017, there was a significant decline in the number of verbal orders. Use of non-provider protocol orders increased after March 12, 2018. Between March 12, 2018 and April 6, 2018, there was 1 verbal order and 37 protocol orders.
- A comparison of the data from the same 4-week periods in 2017 and 2018 provides a contrast between before and after implementation of non-provider protocols. While the orders clearly shifted from verbal to non-provider protocol, the volume of orders are different between the 4-week period. It is unclear whether this variation is due to changes in actual orders or if there are missing data.

Next Steps, Dissemination & Lessons Learned

Next Steps:
Nurse Managers should continue to monitor use of verbal orders by utilizing the Order Mode Dashboard. The Order Mode Dashboard provides data on other orders that could potentially be non-provider protocols.

Dissemination:
These findings indicate that non-provider protocols could be used in other UCSF Health settings to potentially reduce the use of verbal orders that are not urgent/emergent.

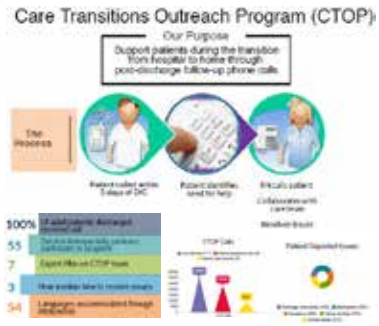
Lessons Learned:
Effective use of non-provider protocols is associated with a decrease in the number of verbal orders for new patients needing serum quantitative hCG tests and ABO/Rh typing tests.

Bridging Silos
Improving Work Experience & Efficiency of Care

Care Transitions Outreach Program & Adult Case Management

M. Wheeler, M. Shane, M. Meador, A. Snyder, A. Hoyt, L. Farin, M. Barrere, E. Maxon

Background



Our People: Creating an Optimal Work Experience

CTOP has been expanding and improving since September, 2013, and has formal escalation processes with School of Pharmacy to resolve complex medication/Rx issues and the Patient Relations Department to address satisfaction concerns.

Barriers to receiving home health services are addressed by CTOP RNs on post-discharge calls. As of November, 2017, CTOP did not have a formal escalation process with Case Management (CM) to resolve complex home health issues.

The CTOP and CM silos created inefficiencies and lack of understanding, which in turn resulted in staff dissatisfaction.

Project Goals

Baseline: no measurement of staff satisfaction (anecdotal RN dissatisfaction only), no formal CM partnerships or escalation workflows

Goal: improve staff satisfaction with CTOP/CM communication process; we also wanted to design & implement a formal CTOP → CM escalation procedure

Target: increase CTOP RN satisfaction from 2.4/5.0 to 3.0/5.0; any increase in CM satisfaction (from 3/5); completed escalation process

Barriers Identified by CTOP:

- Coordinating Care but not Case Managers
  - Trying to identify and solve problems without training
- Playing Middle Man
  - 5 calls to address one case
- Respecting Relationships
  - CMs and HHA Liaisons
- Dispersing Knowledge of Issues
  - CMs who did the work knowing when it broke down
  - UCSF system issues versus agency-specific issues

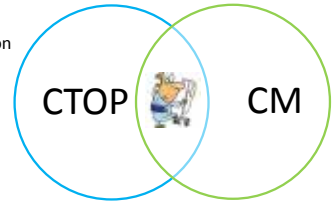
Project Plan and Intervention(s)

Barriers/Challenges:

- Scheduling/arranging shadowing opportunities & presentation
- Limited response rates for pre- and post-surveys

Keys to Success:

- Leadership buy-in and support of new workflows
- Motivated CTOP staff & receptive CM staff
- Face-to-face interactions
- Using real patient examples



Project Evaluation & Impact

Through an anonymous online survey, communicated to staff via email and during team meetings, we asked each team to rate their experience in communicating with the other.

< We saw a slight increase in the response rates of both teams, meaning more staff were willing to take the time to complete the survey after our intervention than before.

Staff answered the question, "How satisfied are you with the current communication process with CTOP/CM?" on a 5-point Likert-style scale, ("very dissatisfied" = 1 point and "very satisfied" = 5 points).

> We saw an increase from 3.0/5.0 to 4.0/5.0 in CTOP; and an increase from 3.0/5.0 to 3.6/5.0 in CM. We are interpreting these data as an indication that staff are more satisfied, and thus our intervention was successful.

Next Steps, Dissemination & Lessons Learned

Next Steps:
As OPHAC & CM increase collaboration, it will be important to understand how to maintain and optimize the work experience of both divisions. Additional shadowing opportunities, presentations, & standard processes may be used to keep silos at bay.

Dissemination:
Simple interventions such as job shadowing and presenting at team meetings can have significant impact on staff satisfaction and communication. These interventions could apply to other siloed teams across UCSF.

Lessons Learned:
The patient was the bridge between the silos. The turning point in CTOP's presentation to CM was telling a real patient story. It demonstrated all the work CTOP does and where the two teams intersect. It also illustrated barriers to care identified by CTOP, despite CM work completion. There are always factors beyond the control of the inpatient teams, and that reinforces the importance of CTOP's safety net. Additionally, increased understanding of scope/roles of each team improved quality of staff interactions.

2018 UCSF Health Improvement Symposium

Travel Patterns for Patients Undergoing Stone Surgery in the State of California, 2005-2016

Scott Wiener MD, David Bayne MD, David Tzou MD, Thomas Chi MD, Marshall Stoller MD

Department of Urology

Project Plan and Intervention(s)

- **Data**: CA OSHPD Database, 2005-2016, procedure level counts.
- **Inclusion Criteria**: ICD-9/10 + CPT Codes for URS, PCNL or SWL plus nephrolithiasis
- **Exclusion Criteria**: Codes for malignancy or ureteral stricture
- **Geographic regions**: CA labor market economic sub-regions
- **Statistical Analysis**: Multivariate Logistic Regression
- **Maps**: ARCMap 10.1 software (ERSI, Redlands, CA)

Background

- 62.2% of counties in the United States have no practicing urologists.
- 89.3% of urologists practice in metropolitan areas.
- 3 main procedures for treating kidney stones:
  1. Ureteroscopy (URS)
  2. Shockwave Lithotripsy (SWL)
  3. Percutaneous Nephrolithotomy (PCNL)

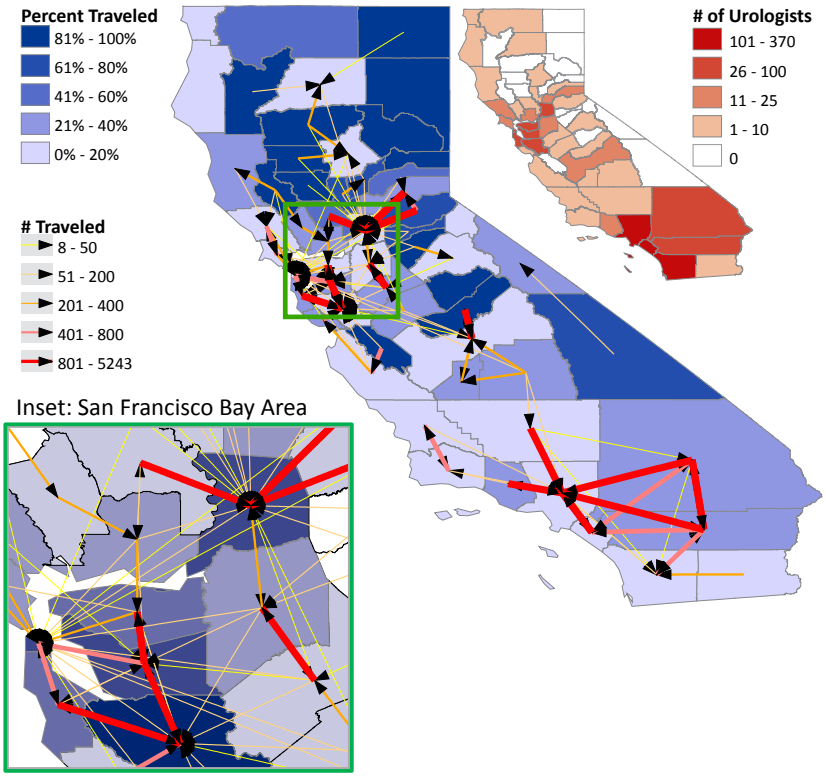
Project Goals

- To determine the pattern and factors associated with kidney stone patients traveling to undergo ureteroscopy (URS), shockwave lithotripsy (SWL), and percutaneous nephrolithotomy (PCNL) in California (CA).

Next Steps, Dissemination & Lessons Learned

- Patients are more likely to receive SWL locally than PCNL or URS.
- Non-white patients or those on Medicaid are significantly more likely to receive care locally, if available
- Study is important for identification underserved populations, the establishment of hospital network satellite facilities, and targeted marketing.

Project Results



- 356,829 surgeries (2005-2016).
- Patients left their county for 61,679 (17.3%)
- Mean distance traveled: 70 miles (112 km)

- SWL was associated with a decreased likelihood of travel independent of age, race, gender, and payer group ($p < 0.01$ for all).
- URS and PCNL were not associated with travel out of the patient's county.

- Independent of procedure type, and controlling for the number of urologists, having private insurance or Medicare was associated with travel within ($p < 0.001$; OR 11.4) and out of a region ($p=0.008$; OR = 2.67).

- Non-white race was negatively associated with travel within ($p <0.001$; OR 0.07) or out of ($p=0.034$; OR = 0.45) a region.

- Overall, patients tended to travel from areas with few urologists to areas with many urologists and rarely travel great distance (Figure).

Elimination of Chest Radiographs with Electrocardiogram Tip Confirmation System for Peripherally Inserted Central Catheters

Vivian Phan, RN, BSN, CCRN, VA-BC

Elizabeth Sin, RN, MS, CCRN

Vascular Access Support Team

Background

The ECG Tip Confirmation System (TCS) is an alternate FDA approved methodology in confirming new peripherally inserted central catheter (PICC) replacing the need for post PICC insertion chest radiographs (CXR).[1]

Confirmation of tip location by post procedure CXR is less accurate and while acceptable, a less preferred method than real time electrocardiogram in isolating the cavoatrial junction (CAJ).[2]

Tip confirmation by CXR is costly, causes delays in treatment and medication therapies and exposes patients to unnecessary radiation.[3]

Project Goals

True North Pillars:

Patient Experience: Reduce patient discomfort by reducing PICC manipulation post insertion. Allow timely medication and therapy administration.

Quality and Safety: Reduce radiation exposure from confirmatory CXR and reduce delay in initiation of infusion therapies.

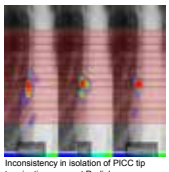
Financial Strength: Reduce cost of care by eliminating unnecessary confirmatory CXRs in adult patients who require bedside PICC placements by the Vascular Access Support Team (VAST).

Project Plan and Intervention(s)

1. **Collaboration with Radiology team**:
   50 random CXRs for PICC confirmation reviewed by Radiology Attendings, Residents, and VAST RNs.
2. **Retrospective chart review** of > 800 PICC
   placements with post procedural CXR confirmations compared to ECG confirmations. Acceptable PICC tip termination should be within 3 cm above or below the cavoatrial junction.
3. **Review volume of PICC insertions over volume of CXRs** for PICC tip confirmation pre and post ECG Tip Confirmation System for placements.

Note: Patients with cardiac conditions where P-waves were not present or altered were excluded. (e.g. Afib, severe tachycardia, or pacemaker-driven rhythms).[1]

Challenging visibility of PICC tip termination with CXR

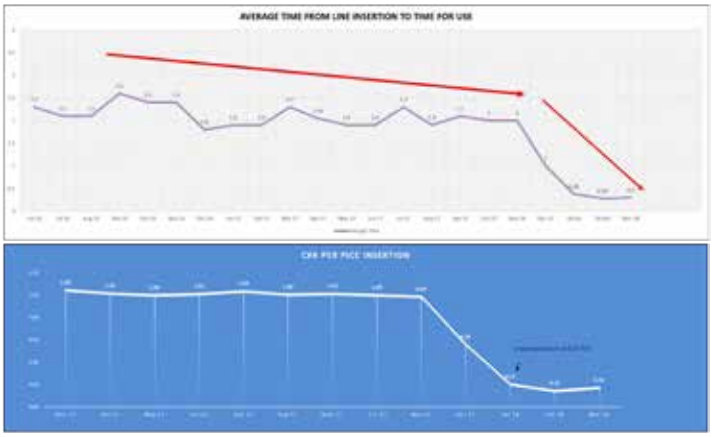


Inconsistency in isolation of PICC tip termination amongst Radiology Attendings, Residents, and VAST RNs.

ECG Tip Confirmation System with maximum P-wave elevation

Project Evaluation & Impact

- Over 800 PICC placements achieved 97% accuracy using ECG TCS technology.
- Since implementation of ECG TCS with elimination of confirmatory CXR:
  - 80% reduction of confirmatory CXRs related to PICC placements
  - 85% reduction of time between PICC insertion to placement confirmation



Next Steps, Dissemination & Lessons Learned

Conclusions

Since the implementation of ECG TCS in December 2017, there is a significant decrease in confirmatory CXRs. Consequently, there is a reduction of time from line insertions to placement confirmations or when lines are released for use.

The monthly operational cost for PICC confirmatory CXRs pre-ECG TCS approximated at $30,000. Initial implementation suggested a 80% reduction in confirmatory CXRs in PICC placement equivalent to about $24,000 savings in CXRs cost per month.

In summary, ECG TCS improves cost of care, timeliness of infusion therapy and patient safety by reducing radiation exposure and accuracy of PICC placement at the bedside.

Acknowledgements

The authors would like to acknowledge the entire Adult Vascular Access Support Team for the amazing teamwork and support. The authors would also like to acknowledge Travis S. Henry, MD, Department of Radiology and Biomedical Imaging and Robert Kerlan, MD, Medical Director for Vascular Access Support Team, Director of Department of Radiology and Biomedical Imaging for their collaborative work and support in this initiative.

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Disparities in Blood Pressure Control in a Primary Care Practice

Anne Montgomery, MD

Erin Andersen; Nicole Appelle, MD; Elisabeth Askin, MD; Mackenzie Clark, PharmD; Sara Coleman, MPH, MBA; Celia Kaplan; Sonya Kedzior; Brent Kobashi, MD; Rosemary Lam; Cynthia Rios; Tasha Toliver; Leah Karliner, MD

Division of General Internal Medicine (DGIM)

Background

Hypertension (HTN) is a major risk factor for cardiovascular disease, which is the number one cause of death in the U.S.

African Americans are more likely than Whites to have hypertension and are less likely to achieve blood pressure control even when treated.

- Within DGIM, 34% of African American patients with hypertension were uncontrolled compared to 21% of White patients.*

Studies have shown that **combination therapy** can improve adherence for all patients and that **promotion of self-efficacy** and **home blood pressure monitoring** can be particularly effective for African American patients.

*Based on JNC8 definitions as of 9/20/2017.

Project Goals

To improve blood pressure management for African American patients within DGIM:

- Understand patient preferences for blood pressure control.
- Test multiple pilot interventions based on patient preferences and existing evidence, assessing acceptability, feasibility, and scalability along the way.
- Specific goal of a **10% reduction in the disparity between blood pressure control between African American and White patients,** which correlates to an absolute improvement of 1.3%.

Project Plan and Interventions

Patient Survey and Needs Assessment
African American patients with both controlled and uncontrolled HTN contacted; 60 out of 400 patients responded via telephone or email.

"I think monitoring is the key. Using my cuff at home and my regular check ups with my provider are the best things to maintain a healthy blood pressure."

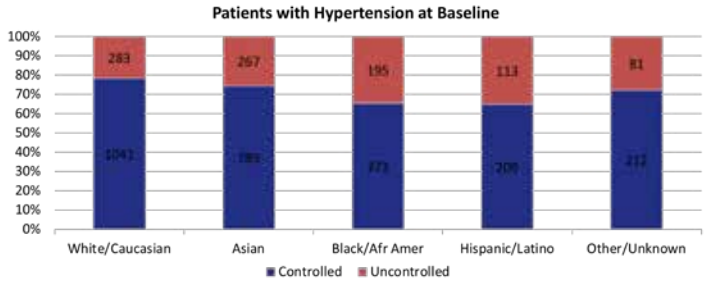
"Too many medications and still cannot control the blood pressure."

Survey Results
- Every patient agreed it was important to manage blood pressure
- The majority of patients had a blood pressure cuff at home or were interested in using one
- About half of patients were interested in a combo pill to reduce medication burden

Pilot Nursing Intervention
- Educational mailings and BP cuff vouchers sent to patients with upcoming visits
- RN engages in health education regarding diet and exercise before or after PCP visit
- RN performs blood pressure cuff calibration and instructions for home monitoring

Pilot Combination Therapy Intervention
- Pharmacists develop formulary of combination meds for most common insurance plans
- Distribution of formulary to resident PCPs
- Targeted outreach to resident PCPs suggesting possible combo meds for patients with upcoming visits

Project Evaluation & Impact



Pilot RN Intervention

Patients with uncontrolled HTN scheduled for PCP appointment in March 2018 (N=10) → Patients receive health education materials and home blood pressure cuff voucher before visit → 8 patients attend RN BP education visit; 1 patient declines RN visit; 1 patient rescheduled PCP visit

Initial response from patients and providers very positive:
- Patients excited about home BP monitoring and exercise resources
- PCPs able to use time more effectively during subsequent visits

Pilot Combination Therapy Intervention

Formularies developed by pharmacy team members → Outreach to resident PCPs regarding possible combo med regimens based on formularies → 20 PCPs contacted; 10 patients eligible for medication changes

Next Steps, Dissemination & Lessons Learned

Next Steps:
- Determine feasibility and scalability of nursing visits
  - Perform time study during upcoming "flow" Kaizen
  - Integrate RN visits with MA check-in
- Determine feasibility and scalability of combination meds
  - Collect feedback from resident PCPs re: combo med formulary
  - Distribute formulary to attending PCPs and clinic-wide
  - Solicit ongoing pharmacist time for medication support

Lessons Learned:
- Patients value blood pressure control and are open to new interventions
- Nursing visits are time and effort-intensive but generally well-received by patients and providers
- Implementing multiple interventions at once makes it difficult to assess the impact of any single intervention

2018 UCSF Health Improvement Symposium

Optimizing opioid prescription practices for ambulatory breast surgery

Jane Yu, MD
Azul Galvez
John Feiner, MD
Christina Inglis-Arkell, MD

Department of Anesthesiology

Background

Opioid abuse remains a major public health crisis in the United States despite awareness of the epidemic for the past 2 decades. Complications from opioid abuse remain high. According to the CDC, opioids were involved in 42,249 deaths in 2016 and the number of deaths from opioids was five times higher in 2016 than 1999.

Both prescription and non-prescription opioids play a role in the epidemic. Studies have shown that opioids are frequently over-prescribed in the postoperative period and that initial prescription patterns by providers are associated with long-term risks of chronic opioid use. Additionally, if unused, excess opioid pills may be stored and eventually diverted for non-medical use.

The UCSF Mount Zion Surgery Center is an ambulatory surgical center where the majority of patients are sent home with opioid prescriptions for postoperative analgesia. The general approach to postoperative pain management and opioid prescription practices varies amongst surgical services and from provider to provider. There are also variable practices in utilization of non-opioid analgesics such as NSAIDs and gabapentinoids. Furthermore, there currently is no follow-up for patients to properly dispose of pills that go unused.

Project Goals

This quality improvement initiative was implemented to better understand opioid prescribing practices for patients undergoing ambulatory surgery.

The ultimate goal of this project is to decrease opioid over-prescription by identifying patient and surgery characteristics that are associated with over-prescription.

Several types of ambulatory surgery are performed at MZ: breast, OHNS, plastics, endocrine, gynecology

- Data on the opioid prescription practices of each subspecialty will be analyzed
- The focus of this report is on breast surgery

Project Plan and Intervention(s)

All patients who underwent ambulatory surgery at Mount Zion received a follow-up phone call on POD 5 to inquire about their pain control and analgesic medications use. Patients were asked the following questions:

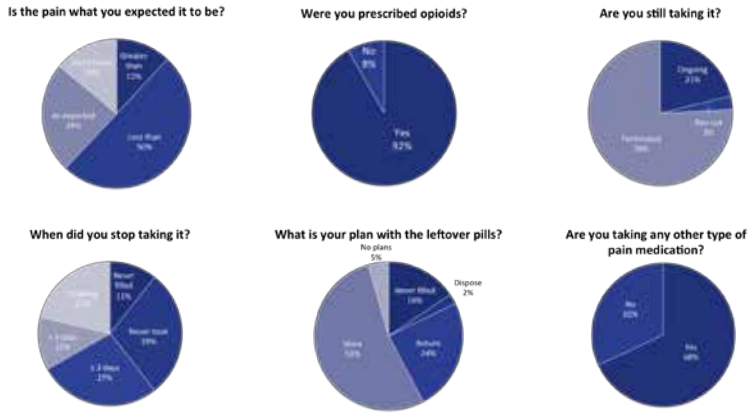
①On a scale of 0-10, what is your current pain score at site of surgical procedure?
②Would you describe your pain as mild, moderate, severe, or none at all?
③Is the level of pain what you expected it to be?
④Were you prescribed opioid pills for pain after your surgery?
- Are you still taking them?
- When did you stop taking them?
- How many pills did you take or have taken so far?
- What are your plans with the leftover pills or do you think you will finish the bottle?

⑤Are you satisfied with the way your pain is controlled?
⑥Are you satisfied with your pain control education
⑦Are you taking non-opioid pain medications?
⑧Have you received any information from your care team about the use of non-opioid pain medication?
⑨Have you received any information from your care team about the use of pain control methods that don't involve medication?

Data was obtained from September to December 2017 and was analyzed according to type of surgical subspecialty.

Project Evaluation & Impact

Breast surgeries accounted for 25.8% of all patients surveyed (72/279). The type of breast surgeries performed included axillary node dissection, breast biopsy, and variable degrees of mastectomy (total, partial, unilateral, bilateral) with or without BSO.



Next Steps, Dissemination & Lessons Learned

The vast majority of patients undergoing outpatient breast surgery were prescribed opioids (92%). Of those who received prescriptions, 40% never used any and only 21% used beyond 5 days. Of those who had stopped taking opioids at the time of phone follow-up, the average total number of pills consumed was 1.9 ± 5.5, which was similar to that of the general study population (2.3 ± 5.2, p = 0.15).

Almost all patients (96%) reported general satisfaction with their pain control. This, in combination with the percentage of patients who do not require opioids for postoperative analgesia, suggests that opioid prescription for ambulatory breast surgery can be reduced, especially if non-opioid analgesic adjuncts are utilized beyond current practices.

This data will be presented to the Mount Zion ambulatory breast surgical service. Knowledge of the opioid usage patterns for their patient population along with encouragement of use of non-opioid and non-pharmacologic measures will hopefully decrease opioid prescriptions while maintaining high patient satisfaction scores. In addition, development of venues for patients to properly dispose of unused opioids will be an ongoing collaborative effort as current proper disposal rates are low.

2018 UCSF Health Improvement Symposium

Patient & Family Advisory Councils (PFACs): Recruiting and Supporting Members from Diverse Communities

UCSF Division of Hospital Medicine

James Harrison, Wendy Anderson, Maureen Fagan, Edmondo Robinson, Jeffrey Schnipper, **Jim Banta, Gina Symczak,** Martha Carnie, Cathy Hanson, **Sherry Chen, Jonathan Duong,** Celene Wong, **Andrew Auerbach**

Background

- Over 50% of acute care hospitals have Patient & Family Advisory Councils (PFACs) – UCSF has 13 Councils.
- PFAC members (patients, family members and caregivers) share their lived experiences of healthcare which can guide health system patient-centered care efforts.
- Ensuring PFACs have diverse membership are representative is a challenge.

Project Goals

- To describe strategies to recruit and then support members from diverse and vulnerable communities on hospital-based PFACs.

Project Methods

- We formed a team comprising of patient advisors, researchers, physicians, nurses and quality improvement experts to guide this project.
- Nine Academic Medical Centers including UCSF took part in this project.
- We conducted eight focus groups and 19 individual interviews with 80 participants including 45 PFAC members, 12 PFAC leaders, 11 researchers and 12 hospital leaders.
- Focus group and interviews explored participants' experiences of recruiting and supporting diverse PFAC members.
- We analyzed data were using qualitative content analysis.
- Findings were organized into coding categories and included representative quotes.

This project was funded by a Patient Centered Outcomes Research Institute (PCORI) Eugene Washington Engagement Award (Harrison #3455)

Project Findings

Figure 1: Recommendations for Recruiting Diverse PFAC Members

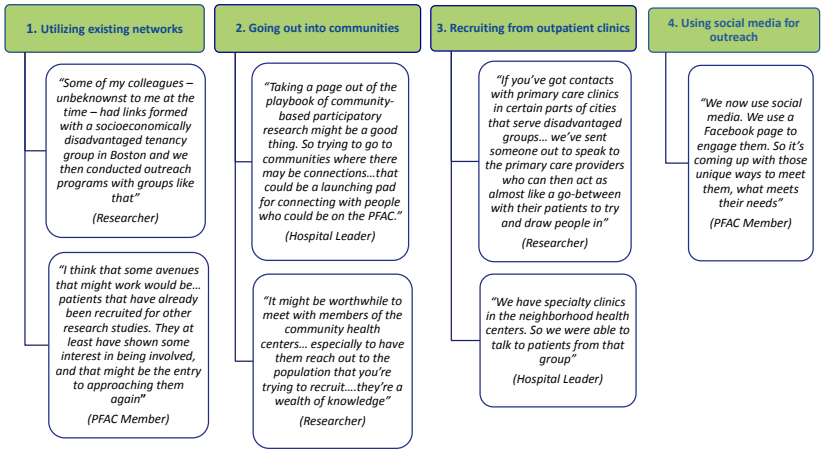
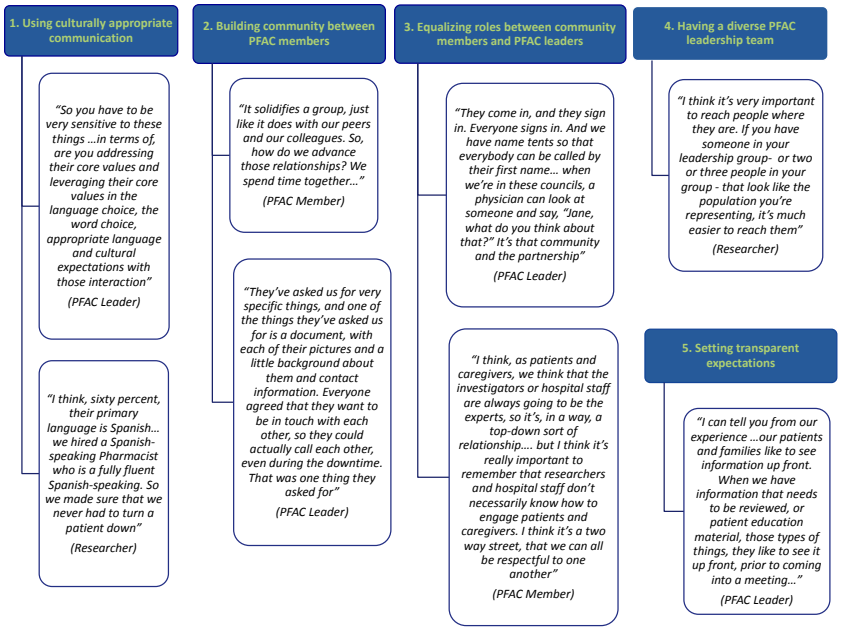


Figure 2: Recommendations to support inclusion of diverse PFAC members



Discussion & Lessons Learned

- Hospital leaders should venture into the communities that they seek to recruit PFAC members from. Examples include outreach at community health centers, or clinics, and using social media.
- PFACs should be operationalized to support the inclusion of diverse members though the use of interpreters and team activities that build cohesion between PFAC members and leaders.
- Our study has identified a number of recruitment methods to increase the diversity of hospital-based PFACs and approaches to ensure members from diverse communities can fully participate.

Quality & Safety: A look at Nurse Practitioner Contribution to Value-Based Care

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Linda Stephan, MSN, RN, PNP
Shira Winter, MSN, RN, FNP-BC
Department of Pediatrics
School of Nursing

Background

Literature on value related to nurse practitioner role examines value through the lens of cost and cost-savings, and in the context of practice and reimbursement policies (Naylor and Kurtzman, 2010).

Traditional methods of assessing value are revenue generation by RVUs (relative value units) (Pickard, 2014).

MACRA (Medicare Access and CHIP Reauthorization Act) is legislation designed to focus on quality, cost, and effective use of electronic health record systems (Mulvany, 2016).

As healthcare institutions transition away from RVUs to value-based reimbursement under MACRA, it is timely to measure how NPs' roles on healthcare teams may influence MACRA metrics, and to investigate how contributions to value are documented and measured by institutions.

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Aims

Investigate nurse practitioners (NPs) contribution to the healthcare system including healthcare teams and patient care.

Assess how these activities are measured and documented.

Identify how NP contributions operate in the context of value-based care.

Method

Type of Study: Mixed-methods, cross-sectional study
Study Setting: A large academic medical center, in ambulatory care
Sample Population: Pediatric NPs in ambulatory pediatric medical specialties (n=11)

Phase 1
- observation to obtain contextual data
- Field notes reviewed and discussed to inform interview guide

Phase 2
- 1 hour face-to-face semi-structured interview
- Interviews were transcribed, thematically coded, and discussed

Phase 3 (in progress)
- collection and analysis of de-identified administrative data
- Analysis of quantitative data

Results (Phase 1 & 2)

NPs conduct activities that may not directly generate revenue, however, still contribute to institutional and healthcare value.

Some ways pediatric NPs perceive their contribution to patient care include teaching and communication.
"I think that because I have a foundation in nursing, my education for teaching patients how to do [treatment] is a different approach…"
"… and sometimes I'll take extra time to really explain something regarding their [disease] or [treatment]. I feel like they go home really understanding this [disease]. Because if they go home not understanding when to use [treatment], that defeats the purpose of the whole visit."

NPs coordinate care for patients and serve as an agent of continuity in their divisions.
"I think, at least in my particular position, too, there is that continuity piece that really, I think, is of value that maybe isn't appreciated. But when you're dealing somebody with a chronic condition, you need somebody that's going to be there kind of throughout that time period. And so I think the NP role lends itself to that continuity too."
"So all the providers in our practice will ask me to help with basically anything infusion-related or specialty medication related."

NPs develop quality improvement activities that improve patient experience.
"I wrote up the protocol, and then everyone else kind of helped to revise it, and we finally got it going."

Levels of NP role satisfaction are associated with role clarity within the healthcare team.
"…that's what I liked about being an NP, seeing my own patient, making the medical changes, and providing the education. But [in my former role], I ended up, on most days, doing more of an RN role."
"… if I want to see some sort of growth curve in my career, it's not going to be doing more care coordination…."

Most NPs interviewed had only minimal understanding of value-based payment legislation.

Implications

With the national shift from fee-for-service to value-based payment models, further understanding the activities and contributions of nurse practitioners in specialty care, and how that contribution is recorded, is essential to navigating their role in patient care, care teams, and healthcare institutions, and their role in improving health outcomes.

NPs in specialty care contribute to quality improvement activities, patient satisfaction and experience, and patient access in ways that may not be systematically documented, directly billed, or quantified on an institutional level.

There is a need to better understand how to systematically assess NP contribution to value based care metrics. This understanding can inform further development of NP role definition. Clarity of role can serve to enhance NP job satisfaction and foster inter-professional practice.

Funding: UCSF Department of Pediatrics; Acknowledgements: Dr. Jim Huang, Mitchel Erickson, and The Robert Wood Johnson Foundation

An Evaluation of the Effectiveness of Liposomal Bupivacaine (Exparel®) Administered Intraoperatively in Open and Robotic Cystectomy as Part of the Enhanced Recovery After Surgery (ERAS®) Program

Lauren Law, PharmD,[1] Tracy Lin, PhD,[1] Candy Tsourounis, PharmD,[1] Rosa Rodriguez-Monguio, PhD, MS,[1] Lee-Lynn Chen, MD,[2] Sima Porten, MD[3]

[1]Department of Clinical Pharmacy—Medication Outcomes Center, [2]Department of Anesthesia, and [3]Department of Urology, University of California San Francisco, San Francisco, CA

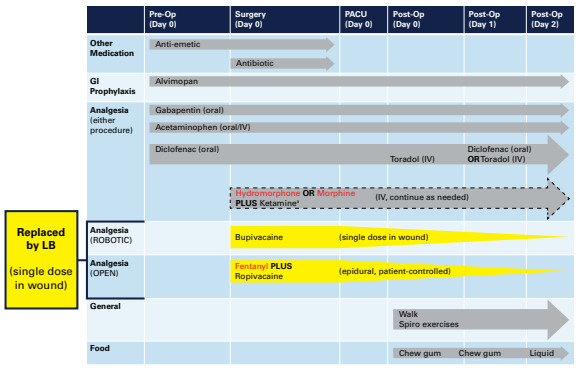
INTRODUCTION AND OBJECTIVES

- Liposomal bupivacaine (Exparel®, LB) is a slow-release DepoFoam® formulation of bupivacaine
- LB is indicated for postsurgical, local analgesia in adult patients[1]
  - It is administered as a single dose, via infiltration at the surgical site
- The FDA approved LB in 2011 based on two randomized, double-blind, placebo-controlled phase III trials in patients undergoing bunionectomy and hemorrhoidectomy[1–3]
- Radical cystectomy with urinary diversion presents a complex set of challenges for postoperative recovery and pain management
  - Incidence of postoperative ileus is highly variable[4–7]
  - Postoperative exposure to opioids increases the risk of ileus, lengthens the time to first flatus, lengthens the time to oral diet, and increases the length of hospitalization[8]
- The aim of this study was to assess whether the use of LB reduces postoperative opioid use, pain, length of hospital stay, and overall direct healthcare costs in patients undergoing radical cystectomy

METHODS

- We compared clinical outcomes and healthcare costs in two patient cohorts undergoing radical cystectomy at the University of California, San Francisco (UCSF) Mission Bay Campus
  - The retrospective cohort included patients who had surgery between October 1, 2016, and November 7, 2017, and who had received standard postsurgical analgesia (ie, epidural or patient-controlled analgesia)
  - The prospective cohort included consecutive patients who had surgery on or after November 8, 2017, and received LB for postsurgical analgesia
- Patient selection
  - Patients must have undergone one of the following procedures at the surgeon's discretion: radical open cystectomy (OC) or radical robotic cystectomy (RC)
  - Inclusion criteria: patients undergoing radical cystectomy (OC or RC) with urinary diversion for bladder cancer, based on ICD-10 (670–679) and primary encounter MS-DRG (MS653–MS655) codes
  - Exclusion criteria: any other surgical procedure (eg, tumor resection or nephrectomy), radical cystectomy for an indication other than bladder cancer, patients treated before the most recent revision of the perioperative care protocol known as Enhanced Recovery After Surgery (ERAS®) (October 1, 2016)
- Study treatments
  - Retrospective cohort: standard postsurgical analgesia consisted of the following, depending on the cystectomy procedure
    - OC: fentanyl and ropivacaine administered via an epidural catheter
    - RC: a single subcutaneous dose of bupivacaine HCl (BHCL) administered into the surgical wound
  - Prospective cohort: a single dose of LB (266 mg bupivacaine in 20 mL), administered prior to skin closure, by supra- and subfascial injection
- All patients were treated according to the UCSF ERAS protocol **(Figure 1)**[9,10]
  - At UCSF, the ERAS program for patients undergoing cystectomy was launched in 2015 and finalized in the fall of 2016
  - Patients in ERAS may receive postoperative opioids as needed; however, attempts are made to reduce unnecessary opioid use through multimodal pain management
- Study end points
  - Primary: opioid use in the first 3 days after surgery (converted to oral morphine equivalent units)
  - Secondary: patient's self-reported pain scores using visual analog scale, duration of hospital stay, and time to ambulation
  - Overall direct healthcare costs will be analyzed for both study treatments
- Data analysis
  - Pearson's chi-squared and Mood's median test are used to evaluate categorical and continuous baseline characteristics, respectively. Mann-Whitney and t-tests are employed to evaluate outcome variables further. Bivariate and multivariate regression analyses will be performed after patient enrollment is complete

Figure 1. ERAS® Perioperative Care Protocol



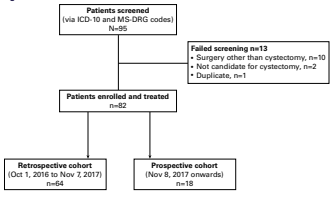
*Ketamine added if patient is opioid-tolerant.
Abbreviations: ERAS®, enhanced recovery after surgery; LB, liposomal bupivacaine (Exparel®); PACU, post-anesthesia care unit; pre-op, preoperative; post-op, postoperative.

RESULTS

Enrollment

- Screening of medical records by ICD-10 and MS-DRG codes yielded 95 patients expected to undergo cystectomy during the current ERAS protocol (ie, after October 1, 2016)
  - The disposition of these patients is summarized in **Figure 2**
- Enrollment into the retrospective cohort was completed on November 7, 2017, with a total of 64 patients
- As of April 2, 2018, the prospective study cohort consists of 18 patients
  - New patients continue to enroll, at a rate of approximately seven patients per month

Figure 2. Patient Flow



RESULTS (continued)

Baseline Patient Characteristics

- Baseline patient characteristics, to date, are summarized in **Table 1**
- There were no statistically significant differences between the demographic characteristics of the two cohorts
- The rate of prior opioid use was significantly higher in the retrospective cohort than in the prospective cohort (37.5% vs 11.1%, P=0.03)

Table 1. Patient Characteristics at Baseline

	All Patients N=82	Epidural/PCA (Retrospective Cohort) n=64	LB (Prospective Cohort) n=18	P*
Sex, n (%)				
Female	25 (30.5)	19 (29.7)	6 (33.3)	0.82
Male	57 (69.5)	45 (70.3)	12 (66.7)	
Age at cystectomy (years)				
Median (range)	66 (32–85)	66 (32–85)	67 (36–83)	0.82[b]
Race, n (%)				
White	63 (76.8)	50 (78.1)	13 (72.2)	0.60
Black/African American	2 (2.4)	2 (3.1)	0 (0.0)	
Asian	6 (7.4)	4 (6.3)	2 (11.1)	
Native Hawaiian or Pacific Islander	2 (2.4)	2 (3.1)	0 (0.0)	
Other	7 (8.6)	4 (6.3)	3 (16.7)	
Unknown/Declined	2 (2.4)	2 (3.1)	0 (0.0)	
Marital status, n (%)				
Married	42 (51.2)	32 (50.0)	10 (55.5)	0.93
Divorced	6 (7.3)	5 (7.8)	1 (5.6)	
Single	25 (30.5)	19 (29.7)	6 (33.3)	
Unknown/Declined	5 (6.1)	4 (6.3)	1 (5.6)	
Widowed	3 (3.7)	3 (4.7)	0 (0.0)	
Other	1 (1.2)	1 (1.5)	0 (0.0)	
BMI (kg/m²)				
Median (range)	28.3 (18.9–44.5)	28.2 (18.9–44.5)	28.8 (22.1–40.7)	0.60[b]
Opioid use prior to admission, n (%)				
Yes	26 (31.7)	24 (37.5)	2 (11.1)	0.03
No	56 (68.3)	40 (62.5)	16 (88.9)	
Urinary diversion, n (%)				
Ileal conduit	68 (82.9)	54 (84.4)	14 (77.8)	0.51
Neobladder	14 (17.1)	10 (15.6)	4 (22.2)	
Surgical procedure, n (%)				
Open	68 (82.9)	52 (81.3)	16 (88.9)	0.45
Robotic	14 (17.1)	12 (18.7)	2 (11.1)	

Abbreviations: BMI, body mass index; LB, liposomal bupivacaine (Exparel®); PCA, patient-controlled analgesia.
[a]Mood's median test, unless otherwise noted. [b]Pearson's chi-squared test.

Outcomes

- Interim outcomes, to date, are summarized in **Table 2**
- LB was associated with a statistically significant reduction in opioid use during postoperative days 0, 1, 2, and 3 compared to standard analgesia (P<0.001, all days)
  - Intra-operative opioid use was significantly higher in the retrospective cohort than in the prospective cohort (P=0.02); this difference cannot be attributed to LB or standard analgesia, which were initiated at the end of surgery
- Use of LB was also associated with a statistically shorter length of hospital stay (P=0.02)
- Change in pain scores and time to ambulation were similar and did not show a statistically significant difference between the two cohorts

Table 2. Interim Outcomes

	Epidural/PCA (Retrospective) n=64 Median (range)	LB (Prospective) n=18 Median (range)	P value*
OME (mg)			
Preop	0 (0–12.01)	0 (0–0)	0.45
Intraop	95.51 (8–663.25)	62.26 (30–150)	0.02
PACU	15.23 (0–82.95)	13.51 (0–63.51)	0.53
POD 0-3	244.92 (7.5–1432.77)	48.75 (0–357.63)	<0.001
Pain score (visual analog, 0 to 10)			
Preop	0 (0–8)	0 (0–5)	0.44
Postop	0 (0–10)	4.5 (0–8)	0.075
Length of stay (days)	6 (2–36)	5 (3–10)	0.02
Time to ambulation (hours)	14 (2–38)	13.5 (5–25)	0.37

Abbreviations: Intraop, intraoperative; LB, liposomal bupivacaine (Exparel®); OME, oral morphine equivalents; PACU, post-anesthesia care unit; PCA, patient-controlled analgesia; preop, preoperative; POD 0-3, postoperative days 0 to 3.
[a]Mann-Whitney test.

DISCUSSION

- This study reflects a real-world patient population, with a typical mix of cystectomy procedures (OC and RC)
  - Prior opioid use was more frequent in the retrospective cohort, and this may have contributed to the higher intra-operative use of opioids in this cohort compared to the prospective cohort
  - It is unknown whether more frequent opioid use prior to admission influenced outcomes such as postoperative opioid use or length of stay in the retrospective cohort
- This study has several limitations
  - Preliminary results and descriptive statistics were reported
  - Small sample size may not be able to detect significant differences and may limit the ability to generalize findings
  - Use of a retrospective control group rather than a concurrent, randomized control group means that causality cannot be established
  - OC and RC represent two different procedures; combining them within the same cohorts may influence results
  - Patient-related pain scores are nonspecific and can reflect discomfort from sources other than surgical incisions (eg, bowel pain)
  - Patient enrollment remains incomplete at this time, with 64 patients in the retrospective cohort and 18 patients in the prospective cohort
  - Further enrollment and evaluation is ongoing to adequately control confounding variables and to assess the added health benefits of LB in cystectomy; future analyses will also examine the impact of LB on overall direct healthcare costs

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Best Practice Alert and Cost Transparency Information for High Cost Oncology Medications

UCSF Health

Pelin Cinar[1], MD, MS; Tracy Kuo Lin[2], MSc, PhD; Rosa Rodriguez-Monguio[2], PhD, MS; Lisa Kroon[2], PharmD; Kevin Rodondi[2], PharmD; Bret Brodowy[2], PharmD

[1]UCSF Medical Center, Department of Oncology

[2]Medication Outcomes Center, School of Pharmacy

Background

Recent work on addressing high cost drugs conducted by the Medication Outcomes Center at UCSF found that oncology medication cost is typically not addressed as part of therapy decision process until issues arise with payer denial. As a result, patients may face an unexpected financial burden associated with treatment plans, leading to depression, anxiety, and decision to discontinue or not adhere to treatment. With the rapid introduction of higher cost therapies and the economic burden of cancer care shifting to patients, communication about cost is crucial. Recognizing the above, we introduced Best Practice Alert (**BPA**) and Cost Transparency Information (**CTI**) for high cost oncology medication in Beacon and evaluated its impact from the providers' perspective.

Project Goals

BPA

- To alert providers to high-cost oncology drugs when they prescribe regimens containing them
- To refer patients at risk to Social Work to facilitate discussions on cost and to identify potential resources

CTI

- To provide transparency regarding cost of oncology drugs
- To make cost data easily accessible in Beacon.

Methodology

- Pilot study was implemented in Gastrointestinal and Breast Oncology groups and ten high-cost oncology drugs were identified in these groups.
- When a high-cost treatment plan was selected:
  - **BPAs** were triggered to alert the providers.
  - Automated referrals were placed to Social Work.
  - When automated referrals could not be placed, physicians were asked to manually enter referral to Social Work.
- The wholesale acquisition cost of drugs were listed in the **CTI** and the cost of comparable treatment plan(s) were provided in Beacon.

Project Plan and Interventions

Time Frame: 6 months (Oct 23, 2017 to April 23, 2018)

The impacts of the **BPA** and **CTI** were evaluated with pre-intervention and post-intervention surveys. A sample of oncologist not included in the pilot also completed the surveys and was included as the control group. Descriptive statistics and t-test were employed to evaluate if **BPA** and **CTI** influence oncologists' perception, behavior, and attitude toward cost of cancer treatment.

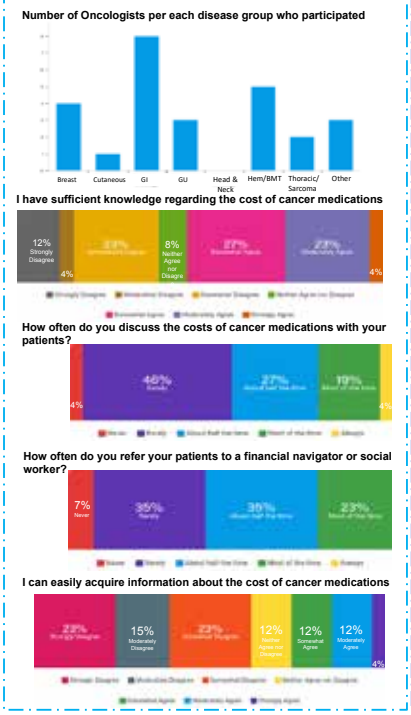
Limitation: Patient out-of-pocket cost was not available.

Intervention #1
High Cost Chemo/ Social Work Best Practice Alert (BPA) in APeX

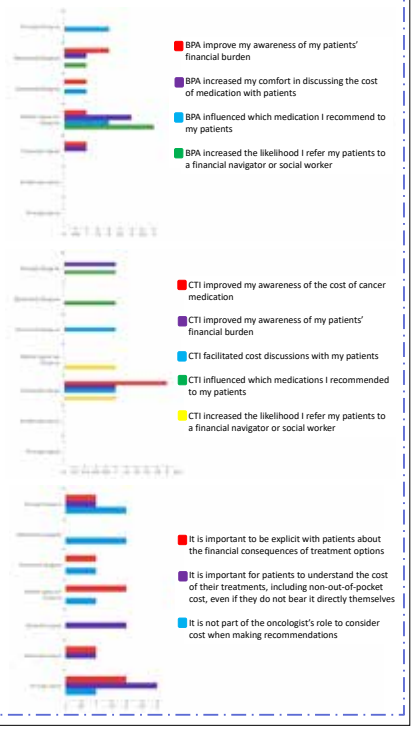
Intervention #2
Cost Transparency Information (CTI) in Beacon

Project Evaluation & Impact

Pre-Intervention Survey (n=26, 50% response rate)



Post-Intervention Survey (n=23, 44% response rate)



Next Steps & Dissemination

Next Steps:

No statistical significant difference in oncologist behavior and perception were captured in the surveys. In order to present providers with a more effective tool for preventing financial toxicity in patients, we plan to administer survey to patients to understand patient out of pocket payment and associated financial burden.

Dissemination:

This pilot study evaluated the potential for a **BPA** intervention and **CTI** at mitigating financial toxicity. The potential lack of statistically significant difference in the behavior and perception between the pre-intervention group, post-treatment group, and control group may be due to a low survey response rate. The comments from the oncologists and social workers suggest that the cost information was useful, but not enough to help patients avoid financial toxicity. This pilot presented a proof of concept which demonstrated that the implementation of **BPA** and **CTI** alerted providers, triggered automated referrals and provided transparency information on cost of treatment.

2018 UCSF Health Improvement Symposium

Employing Best Practice Alert To Identify Oncology Medications With High Out-of-Pocket Payment

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[1]UCSF Medical Center, Department of Oncology

[2]Medication Outcomes Center, School of Pharmacy

Background

Recent work on addressing high cost drugs conducted by the Medication Outcomes Center at UCSF found that oncology medication cost is typically not addressed as part of therapy decision process until issues arise with payer denial. As a result, patients may face an unexpected financial burden associated with treatment plans, leading to depression, anxiety, and decision to discontinue or not adhere to treatment. With the rapid introduction of higher cost therapies and the economic burden of cancer care shifting to patients, communication about cost is crucial. Recognizing the above, we introduced Best Practice Alert (**BPA**) for high cost oncology medication in APeX and evaluated its impact on patients using claims data.

Project Goals

BPA in APeX

- To alert providers to high-cost oncology drugs when they prescribe regimens containing them
- To refer patients at risk to Social Work to facilitate discussions on cost and to identify potential resources

Project Plan and Interventions

Intervention Implementation

- Pilot study was implemented in Gastrointestinal and Breast Oncology groups and ten high-cost oncology drugs were identified in these groups.
- When a high-cost treatment plan was selected:
  - **BPAs** were triggered to alert the providers.
  - Automated referrals were placed to Social Work.
  - When automated referrals could not be placed (e.g in cases where physicians prescribed additional medications outside of a treatment plan), physicians were asked to manually enter referral to Social Work.

Project Evaluation

Time Frame: 6 months (Oct 23, 2017 to April 23, 2018)

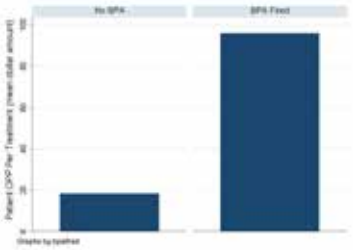
Methodology: Descriptive analyses were conducted to evaluate the difference in patients' out of pocket payments (OPP) between treatment plans that initiated the BPA system and treatment plans that did not initiate it. The analyses combined datasets including (1) GI and breast cancer treatment plans prescribed in the six-month pilot period (using APeX), (2) fired BPAs to alert providers (using APeX Beacon), and (3) UCSF reimbursement data (UCSF billing).

Limitation: The analysis only contains zeroed-out accounts where the payments are completed and does not include information on claims that were not (yet) paid.

Impact

Total Payment per Treatment (mean dollar amount)

Patient Out-of-Pocket Payment per Treatment (mean dollar amount)



Descriptive Statistics

	Minimum	Maximum	Mean	Standard Deviation	Median	90% Quartile
Total Payment Per treatment	0	273,065	44,882	163,236	0	102,134
Patient OPP Per treatment	0	1,384	52	199	0	3

Statistical Difference Between Treatment Plans where BPA fired and BPA not fired

Statistical Evaluation	Total Payment		Patient OPP	
90% Quantile Regression	110,737.8 (SE= 23736.83) (p<0.001)	Treatment plans in the group where BPA fired had higher paid amount	430.08 (SE= 84.43) (p<0.001)	Patients in the group where BPA fired experienced higher OPP
Mann-Whitney	Z = -8.91 (p<0.001)	Two groups do not have equal distribution of Total Payment	Z = -6.50 (p<0.001)	Two groups do not have equal distribution of OPP
Mood's Median	χ^2 =51.51, (p<0.001)	Observed frequencies in the two groups differ from expected frequencies in equal groups	χ^2 =38.44, (p<0.001)	Observed frequencies in the two groups differ from expected frequencies in equal groups
T-test	Diff = 52,788.21 (p<0.001)	Treatment plans in group where BPA fired had higher mean paid amount	Diff = 77.70 (p<0.001)	Patients in the group where BPA fired experienced high mean OPP

Next Steps & Dissemination

Next Steps:

BPAs were able to identify high cost treatment plans and treatment plans that lead to high OPP for patients. In order to present providers with a more effective tool for preventing financial toxicity in patients, we plan to administer survey to patients to understand patient OPP and associated financial burden.

Dissemination:

The electronic BPA intervention implemented to alert clinicians on the high cost of oncology medications and to catalyze discussion regarding treatment cost with their respective patients was effective in highlighting cost of treatment. The BPA mechanism has accurately identified patients who were at risk for bearing a high financial out-of-pocket burden, but additional studies are necessary to minimize patient financial burden in the future.

Blood Bank Ambassadors Bridge Communication Gap and Sustainably Improve Workflow via "Project Connect"

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Division of Transfusion Medicine

Background

Every step in the transfusion process from blood receipt to issuing is tightly regulated by the Code of Federal Regulations (CFR) 210, 211 and 606. Blood products are within the biologics and high risk medication category, therefore, adequate workflows to ensure appropriate attention to detail is necessary.

Blood Bank (BB) operations can be significantly impacted by interruptions due to phone calls which negatively impact laboratory workflow and potentially affect patient care.

Improving communication is known to positively affect healthcare operations and patient safety.

Here we report the experience of a newly formed operation taskforce on improving internal workflow and interdepartmental communication with Parnassus Infusion Center (PIC).

PIC is one of the hospital areas requiring blood products. Some PIC patients have complicated BB work-up and challenging transfusion needs.

Calls from nursing personnel are regarding whether units have already been allocated, what is the issuing time frame, when can the pick-up slip be released, unsatisfactory specimen or a need for additional specimen for crossmatch.

Each call takes at least 5 minutes to check the laboratory information system (LIS) and sometimes the investigation requires up to 30 minutes per case in addition to the time needed for documentation.

Project Goals

General:

The aim of this study was to improve communication with the PIC nursing personnel by addressing the issues and concerns directly affecting the workflow, processes and the existing standard operational procedures (SOPs).

Specific:

- To form an operational taskforce dedicated to improving communication
- To clarify expectations from PIC and BB staff and address concerns.
- To explain the transfusion service processes, workflow and specific SOPs to PIC personnel.
- To reduce the number of phone calls from PIC and the time spent by the BB staff on addressing concerns.
- To encourage nursing staff to utilize Apex, Nursing Guidelines and "Finding Blood Order Status in Apex" flyer when questions can be answered through these readily available help resources before contacting Blood Bank.

Project Plan and Intervention(s)

The operational taskforce, Blood Bank Ambassadors, was assembled to bridge the communication gap and clarify workflow for nursing personnel. This group was formed by supervisors, a specialist and a medical director. Project CONNECT emerged with the specific aim of improving communication with PIC personnel.

Intervention strategies included:
- Establishing a platform to safely share ideas
- Identifying champions of change on both sides
- Outlining and addressing most significant concerns on both teams
- Clarifying common goals and ownership
- Establishing baseline and follow-up metrics

Initial meetings were held between Blood Bank Ambassadors and nursing team composed of the PIC Nursing Manager, Project Director-Experience Improvement, a charge nurse, a bedside nurse and an information technology specialist.

Issues/Problems specifically identified:
- Duplicate blood product orders
- Transfusion requirements not matching patient's file or transfusion guidelines
- Unreturned copy of the pick-up slips for units issued via the pneumatic tube
- Rejected samples for Type and Screen, ABO/Rh confirmation and additional specimen for crossmatch
- Turn-around-time and blood product availability

ACC MONITORING FORM, ACC ISSUES monitored for 30 days (From 11/02/17 to 12/03/17) after the Nov. 01, 2017 meeting.

Code	The issues are coded with letters. Please fill up the columns.	Idea	PI, MRN	RN/Provider	Tech/D pts' Time
A	Duplicate "Prepare RBC" Requisition				
B	Duplicate "Prepare PLT" Requisition				
C	Duplicate "Prepare FFP" Requisition				
D	Duplicate "Prepare Cryo" Requisition				
E	Tube Pick-up slip copy (Not sent until a follow up was made)				
F	Duplicate TYSC				
G	Duplicate ABO/Rh confirmation				
H	"Prepare RBC" order without TYSC				
I	"Prepare RBC" order without ABO/Rh Confirmation				
J	Calling BB about allocated units (Apex NOT checked)				
K	Calling BB about allocated units (Not in Apex 1 HR post STAT order)				
L	Calling BB about allocated units (Not in Apex 2 HRS post routine order)				
M	Calling BB for time frame				
N	Requisition not received (Due to improper release)				
O	Requisition not received (Due to computer problem)				
P	On Demand pick-up slip (improperly accomplished)				
Q	On Demand pick-up slip (improperly accomplished)				
R	Rare patient (Sample NOT sent at least 24 HRS. prior)				
S	Patient with antibodies and/or difficult transfusion requirements (No sample 24 HRS. prior)				
T	Non collection manager TYSC (No PHeb ID/Signature/Date/Time)				
U	Non collection manager ABO/Rh confirmation (No PHeb ID/Signature/Date/Time)				
V	Non collection manager TYSC (With PHeb ID/Signature/Date/Time, NO Res.)				
W	Non collection manager ABO/Rh confirmation (With PHeb ID/Signature/Date/Time, NO Res.)				

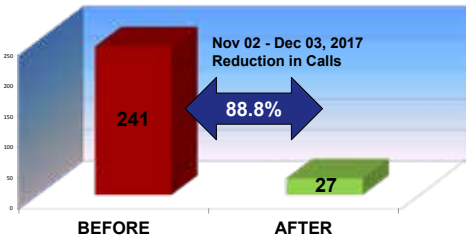
For other issues not listed, please specify on the supplemental form.

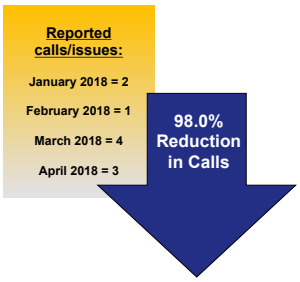
Table 1. Metrics to monitor communication issues

The initial meeting was followed by additional clarifications and regular communication via email.
Pre- and post-intervention metrics were the number of calls to Blood Bank and estimated time spent by Blood Bank staff to clarify issues and concerns raised by nursing personnel (See Table 1).

Project Evaluation & Impact

- Baseline data showed an average of 241 calls per month (October 2017) made by PIC nurses. Approximately 20 hours per month were spent on clarifying issues related to the BB workflow to the nursing unit.
- Post intervention, call number was reduced to 27 per month, then further decreased to an average of 2.5 calls per month for four consecutive months (January to April 2018).
- This represents a reduction of more than 98% from baseline call number and estimated time spent on phone calls.





PIC responses when asked about the "Project CONNECT" benefits:
- Nurses are better able to identify where in the process the blood products are by looking in the computer instead of calling.
- Knowing what to expect has decreased nurse and patient frustration.
- Nurses learned when to trust the system and when to call the blood bank.
- Nurses are willing to trouble shoot issues with unit experts before calling the blood bank.
- This decreases the extra work for nurses and the blood bank so that no blood is allocated if not necessary.
- Nurses are clear on labeling guidelines of type and screen, possibly decreasing unsigned tubes being sent over to the blood bank.

Next Steps, Dissemination & Lessons Learned

Next Steps and Dissemination:
- Via Project CONNECT, Blood Bank will connect with other departments (O.R., I.C.U.s, E.D. and other nursing units) to improve specific workflows. Further experience with other teams may reveal key factors for successfully implementing organizational change.

Lessons Learned:
- Through a dialogue, issues that affect the Blood Bank's workflow and pose risks to patient safety can be mitigated.
- Blood Bank Ambassador's Project CONNECT significantly improved interdepartmental communication by asserting common leadership and goals.
- Internal workflow was positively affected by a dramatic reduction in phone calls and time spent on clarifying concerns.
- The biggest take away is the improved relationship between PIC and Blood Bank, so even when we run into issues, they are addressed with professionalism and respect and a satisfactory solution is identified for both parties.

Acknowledgments:
Huge thanks to:
- All Blood Bank Staff for documenting calls during the monitoring period.
- Hanna Baluyot-Tia for helping with the matrix design
- PIC NURSES
- Tricia Maxfield, Rachelle Moore, Nicole Gelinas, Brianna Cala and Patrick Finn for cooperating and impacting this project.

Quality Rounds Boost P.R.I.D.E. Core Values Within Transfusion Medicine Team at UCSF Moffitt-Long Hospital

Joseph Akin, Rulla Alshikhley, Adrian Alvarado, Ana Aprentado, Jose Baluyut, Rachelle Barrinuevo, Alison Bonser, Mila Braganza, Leslie Buchanan, Roan Chiong, Heather Choi, Sompob Cholsiripunlert, Amy DeCourten, Cherry Pie DeVeyra, Raquel De Witt, Ellen Eagan, Noel Estebal, Juan Fernandez, Sarah Fisher, Kristine Garcia, Gina Giannarelli, George Hsuang, Antonio Insigne, Geoffrey Juinio, Gunter Klingbergs, Lashaunda Lawson, May Li, Mee Mee Lin, Herman Lum, Rosaline Ma, Jennifer Martinez, Eric Pablo, Maria Elena Paulo, Patricia Romero, Claudia Russo, Abigail Schrock, Brian Taylor, Russell Thorsen, Hanna Tia-Baluyot, Ameliza Tisbe, Jason Ue, Clarissa Vannier, Jasper Wu, Tom Yu, Jennifer S. Woo, Sara Bakhtary, Morvarid Moayeri, Elena Nedelcu, Ashok Nambiar

Department of Laboratory Medicine

Division of Transfusion Medicine

Background

- Blood transfusion is the most common hospital procedure and issuing the correct blood products is critical for patient's safety.
- Essential factors that influence the safety and quality of the services provided by Transfusion Medicine include adequate staffing, appropriate policies and standard operation procedures (SOPs), adequate monitoring of the processes, and continuous quality improvement.
- Interaction between team members is known to affect personal and collective well-being, and potentially affect workflow processes and team efficiency.
- UCSF culture fosters specific core values: Professionalism, Respect, Integrity, Diversity and Excellence (P.R.I.D.E)
- UCSF North Pillars strategic goals serve as a guide for alignment o team efforts.
- We aimed at aligning our team efforts to the specific North Pillar strategic goal of creating an optimal work experience.

Project Goals

- The goal of this study is to assess the effect of Quality Rounds implementation on self-reported P.R.I.D.E. core values of Blood Bank personnel.
- Staff engagement and positive feedback in of more that 50% in each core value was established as desirable baseline.

Project Plan and Intervention(s)

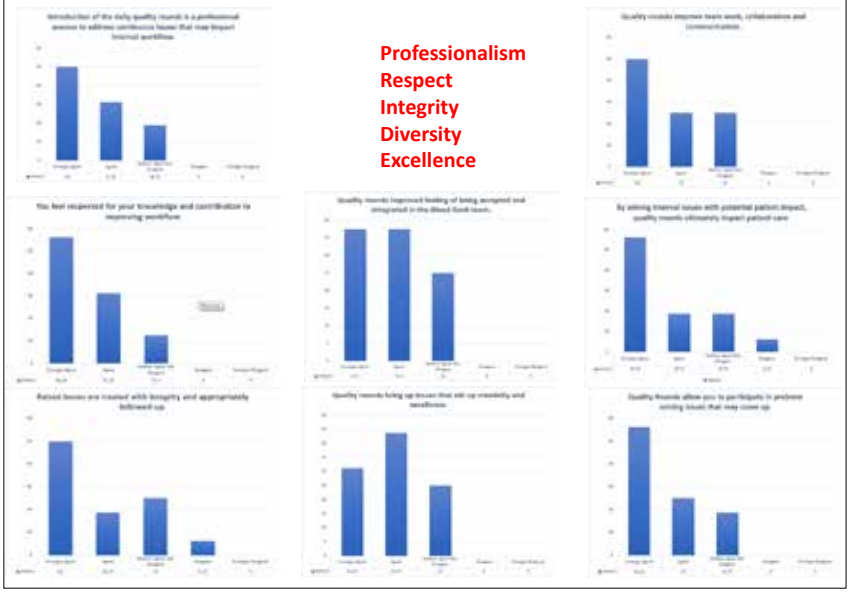
- Quality Rounds have been implemented at the Moffitt-Long Hospital Blood Bank in October 2017 to offer a platform for addressing in real-time issues related to workflow, patient testing, and communication.
- The Quality Rounds consists of daily planned interaction between leadership (supervisors, medical directors), Clinical laboratory Scientists (CLSs) and Hospital Laboratory Technicians (HLTs) .
- The aim of the Quality Rounds has been to capture direct information in order to assess opportunities for improvement and increase work efficiency on specific work stations: Blood Issuing, Specimen Receive and Entry, Traffic (Charge Tech), Immunohematology (Blood Bank testing), and Instrumentation (Erytra).
- Opportunities for improvement were discussed and prioritized, tasks were delegated and follow-up was performed according to urgency, impact and available resources. Some were solved ad-hoc, such as immediate patient-related issues, others have become projects requiring dedicated taskforce, such as the emergence of Blood Bank Ambassadors, a self-driven team aimed to improve communication with other hospital departments.
- In short time, the Blood Bank personnel has become increasingly engaged in reporting issues and finding solutions reinforcing a culture of safety, creativity and resourcefulness.
- An anonymous survey was initiated in May 2018 to retrospectively assess the effect of Quality Rounds on perceived P.R.I.D.E. core values.

Project Evaluation & Impact

Results of the anonymous survey administered to day-shift CLS and HLT personnel:

- Respondents were 16 of 21 invited, with a survey response rate of 76%
- Responses were 75% or greater in combined "Agree" and "Strongly Agree" categories
- Opportunities for improvement are identified in:
  1) Project follow-up and completion
  2) Integration of additional work stations and team members in the Quality Rounds

Professionalism
Respect
Integrity
Diversity
Excellence



Next Steps, Dissemination & Lessons Learned

Next Steps:

- Further analysis of accomplished and developing projects could highlight key individual and team factors determining project success.

Dissemination:

- This model could be adopted/adapted in other UCSF Health settings, such as Mission Bay and Mt. Zion Blood Banks.

Lessons Learned:

- Since the Quality Rounds have been implemented, unexpected opportunities and challenges have arisen.
- One of the most important lesson learned about our team's efforts is the immeasurable sense of shared vision, team power and common values.

Implementation of a Fully Automated, Gel-based, High-Throughput Analyzer in the Parnassus Blood Bank

Antonio G. Insigne, Leslie Buchanan, Gina Giannarelli, Joseph Akin, Amy Decourten, Noel Estebal, Tom Yu, Adrian Alvarado, Clarissa Vannier, Rosaline Ma, Transfusion Service MDs

Department of Laboratory Medicine
Division of Transfusion Medicine

Background

The workload in the Transfusion Service continually increases. The old analyzer, in use since 2007, was only able to perform three STAT Type and Screens per 45 minutes, tremendously impacting testing turn-around-times (TAT).

Due to TATs with the old analyzer, a high volume of samples were tested manually in order to try to reach acceptable TATs of one hour from sample receipt to resulting, while other important tasks compete for the CLS's time. It has been a struggle meeting it on a monthly basis

The new automated analyzer, Grifols Erytra can rapidly perform testing because of the features unique to this machine including, organized software, continuous sample feeding, true STAT capability, a total loading sample capacity of 96 samples, 2 probes, 2 centrifuges, 4 incubators, 2 barcode readers, 2 detector sensors, ability to load a total of 400 gel cards, a 15 minute incubation time, and a centrifugation time of only 9 minutes. Its modular, vertical design provides the operator with the flexibility to interact with it at any time while in use. With its three operational levels (upper, middle and lower), samples, reagents, diluents, gel cards, wash solutions, and solution and card wastes, are easily managed.

Project Goals

➢**To provide continuous improvement through the use of technology, the new Erytra analyzer can help sustain the upward trend along with other process improvement efforts to meet a 90% TAT for STAT Type and Screen orders.**

➢**To install a fully automated analyzer that can work by batch or by individual sample and can handle STATs effectively.**

➢**To configure the analyzer to fit our requirements: worksheet layout, user profiles and priorities.**

➢**To keep a bidirectional interface system with our LIS and enable results crossover.**

➢**To utilize a true walk-away instrument with the ability to continuously load samples without interruption.**

➢**To eventually bring antibody identification on to the automated platform**

Project Plan and Intervention(s)

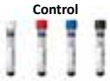
❖Installation, Operational and Performance Qualifications were performed on two new analyzers in 2017.

❖Correlation testing with the old analyzer was performed for the ABO/Rh and antibody screening. The donor unit ABO confirmations, DAT-IgG and Rh & K antigen typings were correlated with tube testing.

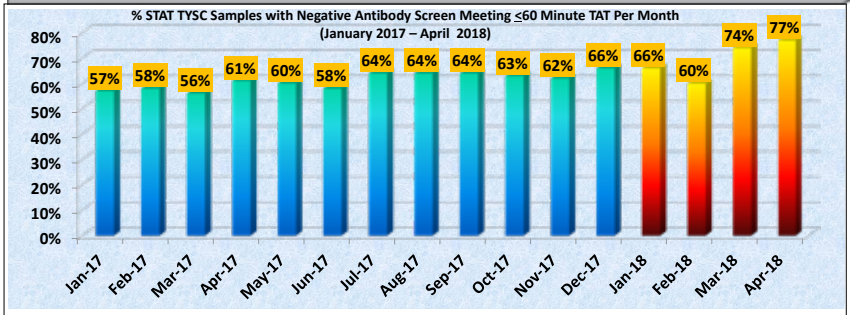
❖Discrepancies and discordance for results between the two analyzers were carefully evaluated and resolved using tube methodology. In conjunction with automation, tube methods are used when indicated.

❖SOPs for the operation, maintenance and quality control of the Erytra analyzers were written based on the Erytra Operator Training Manual and Instructions for Use (IFU).

❖Turn Around Time (TAT) for STAT TYSC samples with negative antibody screen will be compared before and after the Erytras were implemented.



Project Evaluation & Impact



✓On February 14, 2018, Erytra analyzer, a fully automated walk-away instrument was implemented. February 2018 was the adaptation month for all the CLS 's, just after successfully passing the training and competency assessment.

✓Configured to fit the testing requirements including worksheet layout, profiles and interface system, the rate of improvement in TAT is expected to slope upwards.

✓ The continuous improvement efforts towards reaching our 90% TAT goal can be demonstrated with the upward trend and the 20% improvement from January 2017 through April 2018.

✓Erytra analyzer is efficient and flexible in delivering highly reliable results, in as little time as possible.

Next Steps, Dissemination & Lessons Learned

Next Steps:
1. To validate crossmatch testing and antibody identification.
2. A software upgrade to v4.0 will include many enhancements, such as the ability to detect new reagent lots that need QC testing and auto-validation and exporting of QC and patient results that fit acceptable criteria, while correcting several issues identified to date.

Dissemination: The Erytra is expected to improve workflow and mitigate the problems in sample processing. In turn, delays in providing products for regular transfusion could be prevented.

Lessons Learned:
1. Given variability in sensitivity of different platforms, monitoring of instrument performance continues post implementation.
2. Weak ABO reverse grouping – A new profile (A1B-INC) was introduced with extended R.T. incubation to 15 min from I.S. Results were compared to tube methodology and submitted to Grifols for analysis.
3. Incorrect volume errors – Typically due to splatter on gel cards or bubbles in samples. Currently, results are rejected and tests repeated. The v4.0 upgrade is expected to help mitigate these errors.

Preoperative autologous blood collection: Iatrogenic anemia, high rates of transfusion and waste- An opportunity to improve patient blood management at UCSF

Solmaz Manuel, M.D., Russell Thorsen, Elena Nedelcu, M.D., Sara Bakhtary, M.D.

Departments of Anesthesiology & Laboratory Medicine

Preoperative autologous blood donation (PABD): the donation of one or more units of a patient's own blood before high anticipated blood loss elective surgery; this blood is stored at the blood bank and is available for transfusion during and/or after surgery.

Timeline of PABD

1980s — PABD became popular and widely adopted in the 1980s and1990s with rising concerns over transfusion-transmitted HIV and non-A non-B hepatitis, physician fear of legal liability for adverse events, and the misperception that PABD carried almost no risk.

1990 — California passed the "Paul Gann Blood Safety Act", mandating that physicians discuss PABD with patients.

2000s — Wide-spread public health measures, rigorous pre-donor screening, and increased donor blood testing (serological and nucleic acid testing assays), significantly reduced risk of transfusion-transmitted HIV or HCV: now less than the risk of being killed by lightning in the US

2016 -17 — Despite waning indications (see below), PABD and transfusion of autologous blood remains a frequent practice at UCSF. We therefore sought to understand the impact of this practice to our patients by performing a retrospective audit of the PABD program at our institution over a two year period (2016-2017).

2018 — After uncovering increased potential risks to our patients, high rates of wastage, and high utilizers; we now have targets for focused interventions to decrease inappropriate use of the PABM program.

Decline of PABD

Many factors have contributed to the decreased interest in PABD:

- **Viral infection is no longer a significant threat**
- Current risks of transfusion-transmitted viral infections:
- HCV: Estimated Risk of Transmission is 1:1,800,000
- HIV: Estimated Risk of Transmission is 1:2,300,000
- HBV: Estimated Risk of Transmission is 1:800,000

- **Risk is the same between auto & allo units**
- A Cochrane meta-analysis did not find a significant difference in the rate of infection in patients randomized to autologous vs. allogenic blood transfusion.
- Autologous transfusion also shares many other risks with allogenic blood transfusion, including: risk of bacterial contamination, hemolysis (ABO incompatibility due to administrative errors), volume overload (TACO), and transfusion-associated acute lung injury (TRALI).

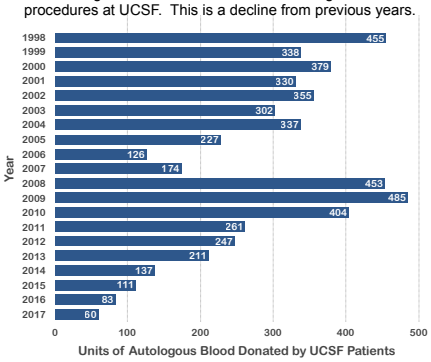
- **PABD exacerbates preoperative anemia**
- HB consistently decreases by ~1 g/dL for each auto unit donated. Compensatory erythropoesis has not occurred after PABD in clinical studies.

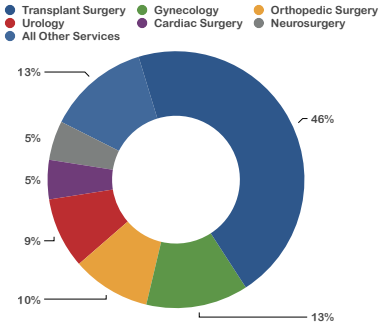
- **PABD increases risk of transfusion**
- The Cochrane Review on PAD showed that the risk of receiving any blood transfusion increased with PABD by 24% (RR=1.29: 95%CI: 1.12,1.48).

- **PABD is expensive**
- Estimates have shown the total cost of autologous units to be more than 70 times the costs of allogeneic units.

Preoperative Autologous Blood Donation at UCSF

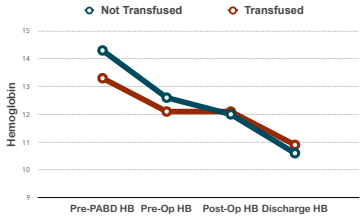
In 2016 & 2017, 118 patients underwent PABD and donated 143 autologous red blood cell units before surgical procedures at UCSF. This is a decline from previous years.



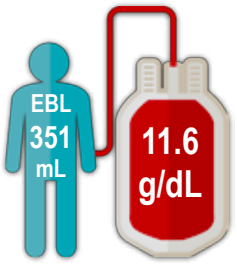


Over 2016-2017, the four most common clinical services using the PABD program were liver transplant (45%), gynecology (13%), orthopedic surgery (10%), and urology (9%). Of the 143 units, 64% were collected for surgeries performed by four surgeons.

Trend in mean HB values before PABD, immediately before surgery, after surgery, and at discharge.



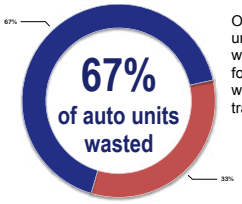
PABD is known to increase the risk of perioperative anemia. Compensatory erythropoiesis requires more than three weeks. Patients at our institution do not show signs of HB regeneration before surgery. All but 4 donors experienced a drop in HB values from baseline (prior to autologous blood unit donation) to immediately before surgery. The mean drop in HB was 1.3 g/dL (±0.9).



Predonated autologous PRBC were transfused to 33% of patients. Mean pre-transfusion HB in patients receiving autologous blood was 11.6 g/dL (± 1.2): 88% had HB > 10 g/dL.

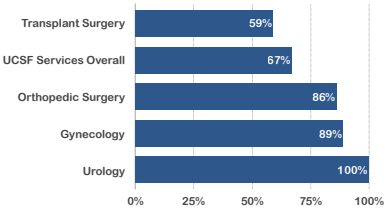
Mean EBL was 351 mL.

Of the patients who were transfused autologous units, 6 patients received allogeneic blood products in addition to autologous units, and 80% of patients had post-operative Hgb>10 g/dL.



Of the 118 patients who underwent PABD, surgery was canceled or postponed for 9%. 67% of units were wasted and 33% were transfused.

Autologous Unit Wastage Rate by Service



Conclusions & Next Steps

There are multiple important takeaways from our QI analysis:

- PABD is still utilized with some physicians and clinical services being higher utilizers than others.
- Autologous donors consistently had post-PABD HB drops, and therefore lower starting HB values on day of surgery.
- Autologous donors are at high risk for exposure to perioperative transfusion, perhaps due to lower preoperative HB values after PABD or minimization of risks of autologous blood transfusion.
- Autologous blood was transfused before critically low HB values were reached: physicians are less likely to adhere to a restrictive transfusion approach when autologous blood is available.
- There is a high rate of waste of autologous units as they cannot be transferred to the general pool if not used by their donor.

While the benefits of PABD may outweigh the harms for some patients (those with antibodies making crossmatching difficult, those who refuse allogeneic transfusion for strong personal reasons), these groups are in the minority. The practice of routine PABD needs to be re-evaluated. Clinicians should be aware of the current understanding of risks vs benefits of this practice and counsel patients appropriately.

Next steps:

- *Education! Education! Education!* Education of both clinical services and patients about optimal perioperative blood management and alternative options for avoiding allogeneic blood transfusion.
- Recruit champions from various surgical departments and divisions to understand and promote evidence-based blood management.
- Exploration of other non-transfusion alternatives (preoperative iron or erythropoietin, acute normovolemic hemodilution) in high-risk donors.

2018 UCSF Health Improvement Symposium

Perioperative Communication Project

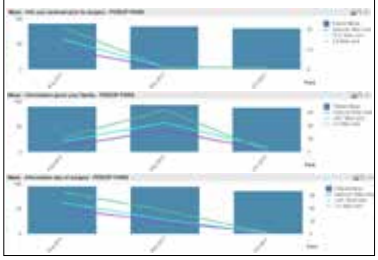
Team Members: Sandra Wienholz, Shirley Darwish, Erika Grace, Kimberly Grossweiler, Sara Nedkov, Lisa Newton, & Scott Pasternak.

ML PACU & Perioperative Services

Background

Problem identified:

- Opportunity for improvement on communication with patients throughout the Perioperative experience seen on Experience Dash.
- Patients and families did not feel they received helpful or effective information prior to and during surgery.
- Post-op phone calls indicated lack of information on After Visit Summary. Patients found to have questions about their wound care that was not clearly communicated.
- Impacts True North pillar: Patient Experience to create an exceptional patient customer experience.



Project Goals

How success is measured:

- Instructions home care/patient education:
  - Increase Experience Dash metric to a mean of 92.
- Institute Preop phone calls and evaluate Post-op phone calls:
  - Increase Experience Dash metric to a mean of 80.
- Information about delays:
  - Increase Experience Dash metric to a mean of 94.5.

Project Plan and Interventions

Barriers to adequate communication:

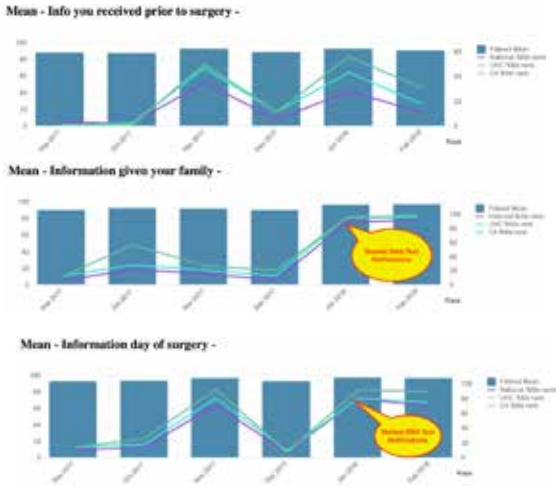
- Uncertain what information patients and families needed to prepare for surgery.
- Multiple calls and inconsistent communication given to patient prior to surgery=unaware what department was communicating what.
- No reliable way to communicate to family while patient in surgery.
- Home care instructions difficult to follow, long, and did not provide most important information at the forefront of the document. Did not include adequate information to care for oneself after surgery.

Interventions to improve communication:

- Initiated FY18 IAP goal for decreasing post-op phone calls related to wound care. Created sticker to place on dressings reminding patients when to remove their dressing. PACU RNs began highlighting key wound care information on AVS.
- Surveyed Patient Family Council requesting what information is needed prior to surgery to be prepared.
- Developed Preop Phone call script including information found from survey. Preop phone calls initiated in November 2017.
- Activated text/email notifications to families on December 1, 2017. Family members receive canned messages notifying of patient status throughout Periop. OR and PACU nurses send additional messages about their care.
- Edited Post-op phone call script for better patient ease and understanding.

Project Evaluation & Impact

Marked improvement noted in all areas:



Next Steps, Dissemination & Lessons Learned

Next Steps:

- Continue to improve and evaluate Preop phone call process.
- Develop website including critical information outlined in Patient-Family Council survey. Future patients and families to reference prior to surgery.
- Adjustments made to text-email notifications. Additional options added for staff to utilize for family notification.

Dissemination:

- All of our interventions could be adopted and formatted as needed for every department throughout UCSF Health

Lessons Learned:

- What we as clinicians believe patients want may be different than what is expected.
- Simple tests of changes can provide a real difference to the Patient Experience.

Informatics Failures and Innovative Solutions
Nursing Best Practice Advisory (BPA) for Delirium and At-Risk Patients

UCSF Health

Rhiannon Croci BSN,RN-BC[1]; Amy Kuwata MSN,RN-BC, CNS[1]; Craig Johnson MSN, RN-BC, FNP[1]; Stephanie Rogers MD[2]; Vanja Douglas MD[3]; Kate Chater BSN,RN[4]; Brian Holt MHA[5]

[1]Health Informatics, [2]Department of Medicine, [3]Department of Neurology, [4]Clinical Systems, [5]Strategic Improvement

Background

- Fundamental EHR maintenance, practice improvements, health system expansion, and the changing regulatory landscape leaves **little time to examine informatics failures**
- Projects implement informatics solutions in a rapid-cycle approach (Plan-Do-Study-Act [PDSA])

- When projects do not succeed in meeting their objectives, they are frequently abandoned, halting the PDSA cycle
- These **failures are key and should be studied**
- Best practice advisories (BPA) are one of the many types of informatics solutions that fail in meeting objectives

A nursing BPA (BPA#1), for patients screened positive for delirium or at-risk was implemented in September 2017.

The advisory objectives were:

1) Ensure nursing notified providers if a patient screened positive so that providers could place a delirium order set

2) Prompt nurses to initiate a nursing care plan for delirium

Project Goal

Demonstrate how re-examining an informatics failure can be used to redesign, develop, and inform an improved solution to achieve desired outcomes.

Project Plan

Four months after implementation, BPA#1 was declared to be ineffective.

BPA Improvement Plan:

1) Collection and analysis of qualitative data

2) Further analysis of quantitative data

3) Application of human-computer interaction design principles

METRIC	Sep-17	Oct-17	Nov-17	Dec-17
PATIENTS WITH A POSITIVE SCORE	470	486	464	512
PATIENTS WITH BPA#1 SHOWN	394	416	379	410
BPA#1s GENERATED	1519	1602	1604	1745
USERS SHOWN BPA#1	473	529	501	566
BPA#1 WITH CAREPLAN APPLIED	123	154	108	134
BPA#1 WITH LINK CLICKED TO PAGE CARETEAM	0	4	0	5
POSITIVE PATIENTS WITH CAREPLAN STARTED	167	200	161	189
POSITIVE PATIENTS WITH ORDER SET	196	228	256	259
POSITIVE PATIENTS W/ORDER SET AFTER BPA#1	84	100	107	112
POSITIVE PATIENTS W/ORDER SET BEFORE BPA#1	95	114	126	125

Interventions

Analyze BPA#1

Small, bold text, hard to read
BPA advises two actions:
- Notify provider
- Initiate care plan

Survey end-users N = 26

0% Used link in BPA to notify provider

65% Did NOT recognize that the BPA advises two actions: Notify provider AND initiate delirium care plan

Redesign based on survey feedback—BPA#2

Larger, selectively bolded text
Moved instructions into body of BPA
Automatically initiates care plan

Removed 'notify provider' link to align with established workflows
➥ Focus shifted to overall effect on objectives rather than BPA as vehicle to accomplish actions to meet objectives

Survey end-users N = 19

95% Found redesigned BPA easier to understand

100% Felt that automatically adding delirium care plan is a significant improvement

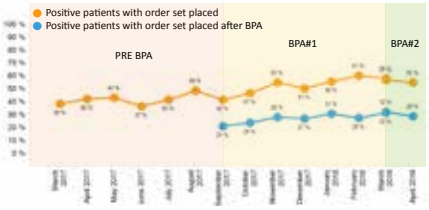
Project Evaluation and Impact

Objective: Delirium Order Set **Percent of positive patients with order set placed after BPA appeared**

4% Improvement

PRE BPA	BPA#1	BPA#2
**	27%	31%

Changes not statistically significant (p-value=0.108) from BPA#1 to BPA#2, however only two months of data have been collected since implementing BPA#2

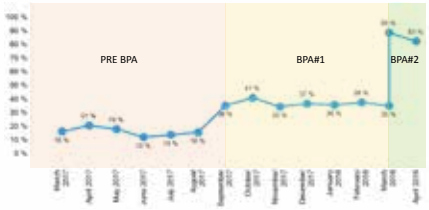


Objective: Delirium Care Plan **Percent of positive patients with a delirium care plan initiated**

49% Improvement

PRE BPA	BPA#1	BPA#2
16%	37%	86%

Changes are statistically significant (p-value=0.018) from BPA#1 to BPA#2, however only two months of data have been collected since implementing BPA#2

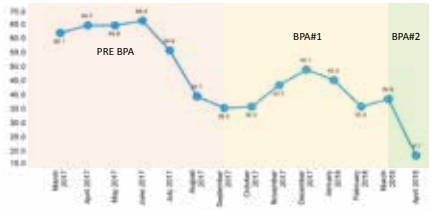


Objective: Delirium Care Plan **Hours from positive screening to delirium care plan initiation**

19h Reduction

PRE BPA	BPA#1	BPA#2
59.1	41.0	21.8

Although an effect was observed with BPA#1 in decreasing the lag to delirium care plan initiation, BPA#2 cut this time nearly in half.



Lessons Learned

1) Measuring your successes and failures can be challenging and should always include qualitative components. Additionally, all metrics should be identified prior to implementation of any solution.

2) Nursing Informatics adds undeniable value when fusing technology and clinical care (i.e. performing a technology assessment, involving end-users).

3) Examining failures can trigger growth, lessons learned, inform future work, and foster wisdom.

2018 UCSF Health Improvement Symposium

UCSF Child & Adolescent Chronic Illness Center

Mental Health Working Group

Co-Leaders:
Eva Ihle, MDPhD
Khyati Brahmbhatt, MD

Group Members:
Emily von Scheven, Caitlin McNamara, Brian Lasofsky, Rachel Hale, Rosa Kelekian, Nancy Cushen-White, Nancy Netherland, Laura Quill, Camryn Barker, Alexa Hughes, Sonia Milbank, Mariel De La Paz, Marcella Arregui Reyes, Kristin Flores, Jori Bogetz, Mary Lesh, Efrat Lelkes, Amy Whittle

Background

UCSF Medical Center's True North pillars provide long-term objectives and guides for prioritizing their initiatives. In alignment with the True North Pillar: Patient Experience Dr. Emily von Scheven established the UCSF Child and Adolescent Chronic Illness Center (CIC). The vision is for multidisciplinary teams of clinicians and caregivers to join forces with patients, families, and the community, to transform healthcare for children living with chronic illness.

Addressing mental health needs is essential to optimizing the wellbeing of children with chronic illness as they grow into adulthood. The Mental Health Working Group (MHWG) was established to develop strategies to support the emotional well-being of children and adolescents who are coping with chronic illness. The framework for this project was derived from research on post-traumatic growth (salutary adaptation to stressful life events) and trauma-informed care (treatment that takes into account the influence of trauma and recovery).

https://childhoodchronicillness.ucsf.edu/

Project Goals

The goals are:

1. To develop a better understanding of coping and resilience of patients with a chronic illness

2. To define factors that impact coping and resilience

3. To identify factors that can be modified to promote positive psychological growth

4. To provide education and support to stakeholders - clinicians, caregivers, patients, families, and community organizations.

Project Plan and Intervention(s)

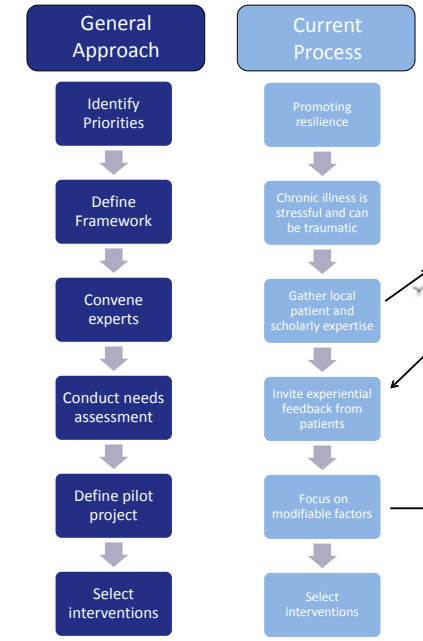


Figure 1. Flowcharts representing the process followed in establishing the Project Plan. The dark blue flowchart represents the general approach, while the light blue indicates how we are developing the MHWG.

Our project promotes both attitudes and behaviors that support a strengths-based approach to enhancing emotional well-being in patients with chronic illness. As a start, we are highlighting concepts such as medical trauma, post-traumatic growth, resilience, and trauma-informed care. The overarching goal is for everyone to understand that mental health needs to be factored into the treatment plan for chronic illness (there is no health without mental health).

YAC Youth Advisory Council

Family Advisory Council

Figure 2. Radial Venn diagram representing some of the factors that contribute to youth resilience. The red circles (right) are factors that are more difficult to modify, while the green circles (left) are the potential targets of interventions.

Project Evaluation & Impact

We anticipate that the CIC MHWG will have a positive impact on patient experience by enhancing the emotional well-being of chronically ill patients and their families by promoting positive psychological growth. The impact of the CIC MHWG will be evaluated through assessment of clinical and process outcome measures, such as changes in the scores of Brief Resilience Scale.

As we continue to prioritize our patient and family advisor partnership we will foster consistent, current qualitative data gathering and analysis.

Lessons Learned, Next Steps, & Dissemination

Lessons Learned (Patient stakeholder feedback):

1. Coping is fluid
2. Mentors are helpful
3. Expectations need to be mourned, then reset
4. Chronic illness is traumatic

Next Steps:

1. Conduct more in-depth research to further our knowledge and resources available to support positive mental health.
2. Raise awareness among UCSF and the community about the Child and Adolescent CIC mission.
3. Continue to partner with our patient and family advisors.
4. Implement best practices to improve quality of life across all chronic illnesses and throughout the lifespan of chronically ill children, adolescents, and their families. *The MHWG will lead an initiative to incorporate resilience screening of patients and their family members into CIC clinic visits.*

Dissemination:

An approach to patient care that emphasizes emotional well-being can easily be adapted for use in other UCSF Health settings.

UCSF Child and Adolescent Chronic Illness Center

Creating Wellness For Children Growing Up with Chronic Disease

Director: Emily von Scheven

Workgroup Co-Leads: Bhupinder Nahal, Mariel dela Paz, Rachel Hale, Erica Lawson, Megumi Okumura, Eva Ihle, Khyati Brahmbhatt, Marissa Raymond-Flesch

Group Members: *Marcela Arregui-Reyes, Samantha Bell, Brittany Blockman, Paul Brakeman, Nina Boyle, Kimberly Dequattro, Juno Duenos, Linda Franck, Christina Frenzel, Rebecca Gates, Sharon Gee, Jennifer Graves, Bekah Hale, Rachel Hale, Mel Heyman, Becky Higbee, Caroline Hill, Manisha Israni, Caitlin McNamura, Ben Meisel, Nancy Netherland, Noga Ravid, Samareen Shami, Sara Smith, Elizabeth Simonetti, Joe Sullivan, John Takyama*

Background

Although medical advances have resulted in improved treatments for many childhood diseases, most treatments have not resulted in cure. Thus, children continue to live with their disease as they enter adulthood. Unfortunately, over time, many conditions lead to secondary morbidities, both due to the underlying on-going disease and the associated long-term treatment. Thus, in addition to carrying their underlying chronic disease with them to adulthood, these children often acquire new morbidities as they age. Management of disease become complicated and it last forever [Fig. 1]. The "best practice" for these children is poorly defined.

To address these issues, Dr. Emily von Scheven, established the UCSF Child and Adolescent Chronic Illness Center (CIC) (http://childhoodchronicillness.ucsf.edu). Her vision is for a multidisciplinary team of clinicians and caregivers to join forces with patients, families, and the community, to build a team that provides unique, coordinated and collaborative care that spans a lifetime [Fig. 2].

Ultimately, the center will provide the infrastructure needed to deliver and evaluate personalized care for each child with a chronic disease.

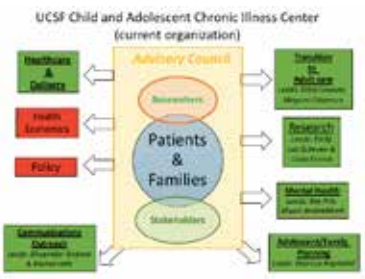
Project Goals

The overall goals of the Child and Adolescent Chronic Center are:

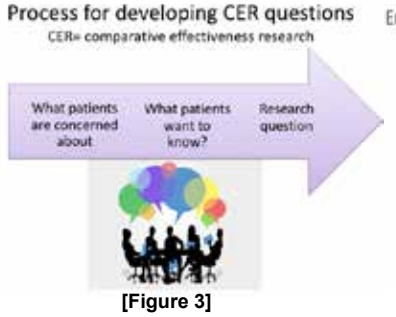
- To help children and adolescents with chronic illness achieve wellness over an entire lifetime.
- To create a new kind of health care system, that takes "the long view".

Project Plan and Intervention(s)

[Figure 1]



[Figure 2]



[Figure 3]

[Figure 4]

Project Evaluation & Impact

We anticipate that the UCSF Chronic Illness Center will support a number of UCSF-wide missions including the goals of developing innovative and collaborative approaches to health care and research that span disciplines as well as delivering high quality patient-centered care.

We plan to measure impact using the following metrics:

- Review of stakeholder representation
- Google Analytics of Chronic Illness Center website
- Number of presentations
- Number of grants submitted
- Diversity Assessments [Fig.4]

Next Steps, Dissemination & Lessons Learned

Next Steps:

- Develop research questions inspired by parent/caregiver, adult, and youth focus groups [Fig.3]
- Seek out funding for project through grant writing
- Continue to develop programs and support the ongoing efforts headed by each of the sub-workgroups in *Transition*, *Mental Health* and *Communications & Outreach*
- Secure a physical space to serve as UCSF's Child & Adolescent Chronic Illness Center

Dissemination:

This improvement project is creating a new kind of healthcare system that will transform how UCSF currently approaches childhood chronic illness

Lessons Learned:

- Common, overlapping issues and solutions do exist across all chronic conditions.
- Focus groups serve as a unique opportunity for patients and families to create social connections and support for one another.
- By engaging all specialties and disciplines for the common purpose of the Chronic Illness Center, a comprehensive list of services and resources has been catalogued, which can be used to improve efficiency and care at UCSF.
- Recruiting and retaining a diverse representation of patients and families to actively participate in Chronic Illness Center efforts is an ongoing challenge.

UCSF Health

UCSF Child and Adolescent Chronic Illness Center

Improving Pediatric-to-Adult Care Handoffs

Director: Emily von Scheven

Transition Work Group Co-Leads: Erica Lawson & Megumi Okumura

***Group Members**: Marcela Arregui-Reyes, Khyati Brahmbhatt, Nancy Choi, Elizabeth Colglazier, Melissa Crisp-Cooper, Hillary Copp, Diana Dawson, Daya Sneha, Mariel Dela Paz, Kimberly DeQuattro, Elyse Foster, Jessica Fuller, Lindsay Hampson, Ian Harris, Sara Haro, Caroline Hill, Angelica Hogan, Manisha Israni, Michael Kattah, Rosa Kelekian, Michael Lang, Courtney Laub, Mary Lesh, Ben Meisel, Sonia Milbank, Aris Oates, Claire Parker, Katie Peters, Peggy Powers, Laura Quill, Marissa Raymond-Flesch, James Riddel, Meredith Russel, Taryn Shappell, John Takayama, Bonnie Taft, Bianca Valdivia, Tabitha Vase, Sofia Verstraete, Lan Vu, Emily von Scheven*

Background

With improved treatments for previously fatal diseases, more children are surviving into adulthood with chronic health conditions. These young people face a lifetime of disease, and may develop new problems as a result of long-term exposure to their underlying condition or the medications used to control it. They also face the challenges inherent in a lifetime of navigating the health care system.

The UCSF Childhood Chronic Illness Center is a multidisciplinary, interdepartmental initiative that aims to develop innovative approaches to care, addressing the unique challenges faced by children growing up with chronic illness. http://childhoodchronicillness.ucsf.edu

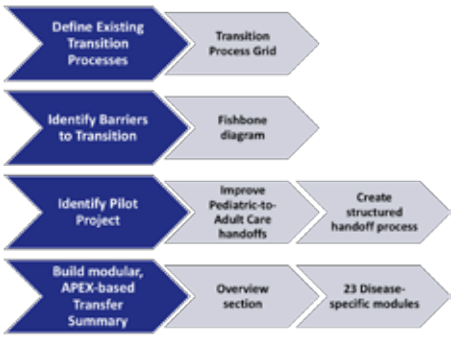
As they transition to adulthood, young people with chronic illness must learn to manage their health condition and navigate the transition from pediatric- to adult-oriented health care. The CIC Transition Work Group aims to improve this transition by better preparing patients to manage their health independently, and by optimizing UCSF health care systems to meet patient care needs during this transition.

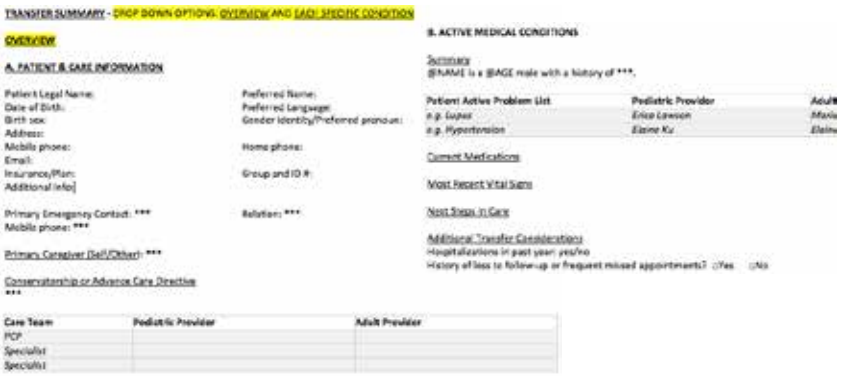
Project Goals

Data demonstrate that poor handoffs are prevalent when patients with childhood-onset chronic conditions transfer from pediatric to adult care settings (CHOP PolicyLab, 2017). Poor transfer of information negatively impact both the provider and patient experience of care.

At UCSF there is no system in place to support comprehensive, concise and effective transfer of information when patients with longstanding chronic illness move from pediatric to adult care. To address this gap, our work group chose to create a modular, structured, APEX-based transfer summary intended to provide the information adult providers need when assuming the care of a young adult with longstanding chronic illness.

Project Plan and Intervention(s)




TRANSFER SUMMARY - DROP DOWN OPTIONS: OVERVIEW AND EACH SPECIFIC CONDITION

OVERVIEW

A. PATIENT & CARE INFORMATION

B. ACTIVE MEDICAL CONDITIONS

Project Evaluation & Impact

- Support awarded by Mount Zion Health Fund to pilot structured handoffs at Mount Zion Primary Care.
- Target Population:
  - Young adults age 19 and up
  - Cared for in the UCSF pediatric system (primary care and/or subspecialty) in the past 12 months
  - Plan to transfer primary care to Mount Zion DGIM

Structure:
- Provider education program preparing DGIM providers to care for adults with childhood-onset conditions

Process:
- Use APEX queries to identify pediatric patients ready to transfer to adult primary care
- Implement transfer summary

Outcomes:
- Transfer summary utilization
- Provider & patient satisfaction with first DGIM visit

Next Steps, Dissemination & Lessons Learned

Next Steps:
- Create Transfer Summary template in APEX
- Identify project coordinator
- Develop APEX queries to identify pediatric patients ready to transfer to UCSF adult care
- Begin structured handoff pilot July 2018

Mount Zion Health Fund

Dissemination:
- Implement structured handoffs for patients transferring to adult care outside the UCSF system

Lessons Learned:
- Multidisciplinary engagement from project start is key to success.
- Maintaining patient engagement is challenging.
- APEX modifications are difficult to execute.

UCSF Benioff Children's Hospitals Chronic Illness Center

Telepathology Implementation

Grochowski J, Agarwal S, Chu S, Juan I, Khanafshar E, Kim GE

Department of Pathology

Background

Historically, cytopathologists provided rapid on-site evaluation (ROSE) of image-guided fine needle aspirations (FNA) using a conventional microscope onsite. In recent years, the demand for ROSE in large medical centers has dramatically increased, which costs cytopathologists' valuable time (travelling to multiple physical locations for the procedures) and affects other clinical, academic and administrative duties.

These factors influenced FNA turn around time (TAT) which negatively impacted UCSF Health's True North Pillar of delivering an outstanding patient experience.

Project Goals

This study aimed at evaluating efficacy of dynamic telepathology in ROSE with onsite cytotechnologist and remote pathologist without compromising our standard of care and with achieving the comparable adequacy rate. Steven Chu, Pathology IT, needed to research and create a telepathology system to meet our needs.

Project Plan and Intervention(s)

Telepathology (Cisco Jabber TM Video for Telepresence/ Jabber ®Video) was implemented in June 2016 for performing remote ROSE of FNAs done after a validation and cytotechnologist training phase with 20 real cases. Images were captured via Luminera Infinity HD camera connected to on-site microscope (see Image 1). 270 FNAs were evaluated for adequacy using telepathology where a trained cytotechnologist went onsite, prepared and streamed slides on Jabber® video; simultaneously communicating with remote pathologist over a secure network. The adequacy as well as further steps was guided by pathologist. The data on adequacy of each sample, time spent by pathologist on phone, and total time spent by cytotechnologist was recorded. The Data was compared with 251 cases of ROSE without telepathology.

Project Evaluation & Impact

- Unsatisfactory rate of the samples was comparable with and without telepathology with no significant difference (see Table 1, Figure 1).
- Cytopathologist time was significantly reduced on average from 36 minutes to 9 minutes/patient, which potentially reduced sign out turn-around time (TAT) for fine needle aspirations (FNA) and other diagnostic services.
- As part of the True North Staff Engagement and Growth, we expanded the role, clinical knowledge, professional development, and satisfaction for our cytotechnologists.

Table 1. Number of Ultrasound-guided FNA specimens in each final adequacy category, with and without telepathology (12 month period).

	ROSE Without Telepathology	ROSE With Telepathology
Unsatisfactory	14	7
Satisfactory	237	263
Total	251	270

Figure 1. Final adequacy rates for both methods are comparable.

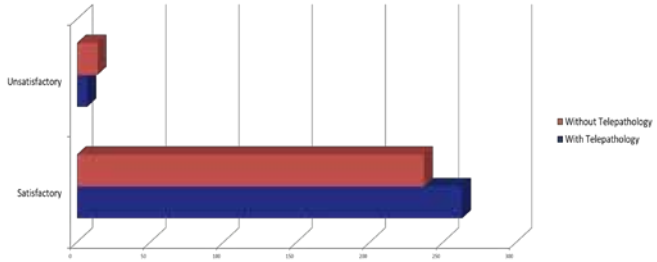
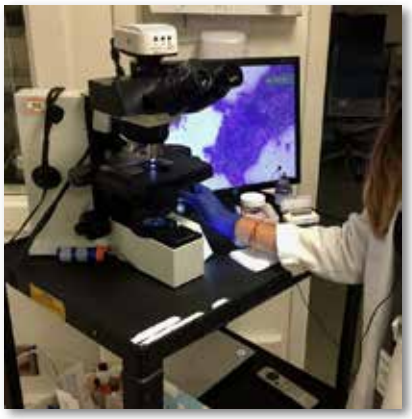
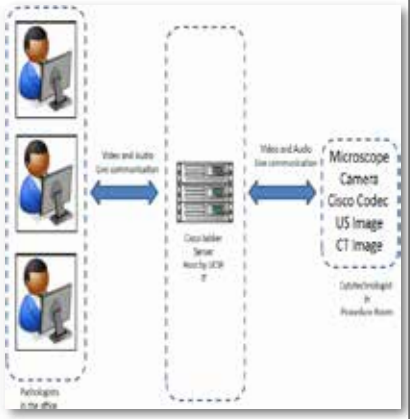


Image 1. Telepathology cart/Telepathology





Next Steps, Dissemination & Lessons Learned

Next Steps:
- To design a new cart for PCMB with further improvements such as higher speed and higher resolution software/hardware, an ergonomic height adjustable table, and wireless headsets.

Dissemination:
- Cytotechnologists are skilled and experienced in rapid evaluation of image-guided fine needle aspirations and their willingness to take on this task has proven to be beneficial in increasing productivity.
- Other departments may be able to identify and educate staff who are then able to extend the capabilities of duties performed by medical staff.

Lessons Learned:
- Cytopathologists have saved valuable time after implementation of telepathology for rapid adequacy assessment of image-guided fine needle aspiration procedures without compromising adequacy. Overall, telepathology is an ideal alternative method.

Utilization of 2D Barcodes to Track Chain of Custody for All Surgical Pathology Specimens

Grefka R, Cho S, Chu S,
Law G, Kim GE

Department of Pathology

Background

For Fiscal Year 2016-2017, two specimens were lost following gross evaluation (grossing) and were never located. This negatively impacted UCSF Health's True North Pillar of creating an outstanding patient experience.

Fiscal Year 2016-2017

- 68,144 specimens were accessioned among the three separate campuses (Mt. Zion, Moffitt-Long and Mission Bay).
- 33,277 specimens were grossed at the hospital of origin.
- 34,867 specimens were sent via our courier network to a second hospital for grossing and storage.

History

- 2D barcodes are generated from our Laboratory Information System (CoPath) and placed on specimen containers at the time of receipt (accessioning).
- Specimens were tracked up until the time of grossing.
- Following grossing, specimens were manually filed onto shelves at all three campuses.
- Specimens were held for 20 days after the pathology report was finalized (signout).
- 20 days after signout, specimens were discarded by generating a list from CoPath and manually reconciling the specimens from this list.

Problems

- Misfiled specimens required extensive searching.
- Missing specimens and specimens discarded prematurely could lead to compromised patient care and potentially incomplete and/or inadequate diagnoses.

Project Goals

To create a system that enables all specimens to be tracked from the time of accessioning to the time of discard. In the event of a missing specimen, this system should allow us to re-trace our steps to identify the last known location of a specimen. The ideal system:

1. Should be easy to use.
2. Should be easy to train new users.
3. Should have minimal disruptions to the established workflow.

Project Plan and Intervention(s)

- Each specimen storage shelf at all three campuses was assigned its own unique 2D barcode.
- A new tracking system was created in CoPath in which the 2D barcode on the appropriate shelf is scanned, followed by the 2D barcode on the specimen container.


- A new tracking system was created in CoPath for tissue discard in which all containers are scanned prior to discard.

- If containers are not ready for discard an error message is displayed which users cannot over-ride.

Project Evaluation & Impact

- All specimens are tracked from time of receipt to time of discard.
- Gross room staff, trainees, managers and Medical Directors have all been supportive of this system.

➔ ***Since implementation, no specimens have gone missing.***

Next Steps, Dissemination & Lessons Learned

Next Steps:

- Currently, there is no system in place to measure compliance. Random "spot checks" are performed which show that users are consistently scanning containers to the appropriate shelf.

Dissemination:

- Other laboratory divisions that are currently utilizing a manual filing system could benefit by implementing a similar system.

Lessons Learned:

- Implementing a new system is always challenging. It is critical to provide proper training and support when new systems are put into place.

2018 UCSF Health Improvement Symposium

7 Long Rehabilitative Services Scheduling Pilot

7E/L Rehabilitative Services

Devan Block OTR/L, Emery Heffernan OTD, OTR/L, Maya Manning PT, DPT, and Maureen May, rehab aide

Background

Rehabilitative services are essential to patients' recovery and discharge planning on a busy musculoskeletal floor, but there are many barriers to seeing patients in a timely, efficient manner. Often therapists plan to see a patient, but they are turned away because the patient is inadequately pre-medicated, off the floor for a procedure or imaging, working with another discipline, or mentally or physically unprepared.

Unsuccessful attempts to see patients can result in care delays, repeated attempts to see a single patient – sometimes at the expense of seeing other patients – and a less efficient or productive day. Many barriers to seeing patients when intended are preventable or avoidable, but with an improvised daily schedule known only to the treating therapist, other team members do not have the opportunity to coordinate care to minimize barriers or interruptions.

The 7 Long Rehabilitative Services Scheduling Pilot project improves timely access to patients through setting and communicating a daily therapy schedule to the interdisciplinary team. This positively impacts the Strategic Growth True North Pillar by expanding our reach and optimizing access to patients and works toward our department goal of working individually and with a larger interdisciplinary team to ensure "right service, right patient, right time."

Project Goals

Therapists in the Rehabilitation Department are expected to evaluate/treat 6 patients each day. The goal of this scheduling pilot is to enable therapists to meet this productivity goal as reflected by percentage of the core team of PTs and OTs working on 7E/L.

Current State:

•58% of core therapists on 7E/L meet productivity of 6 or more patients/day

•Team average is 5.6 patients/day

**Weekdays February 1-28/2018*

Target State:

•80% of core therapists on 7E/L will meet productivity of 6 or more patients/day

•Team average will be 6 or more patients/day

**Weekdays April 2-May 4/2018*

Project Plan and Intervention(s)

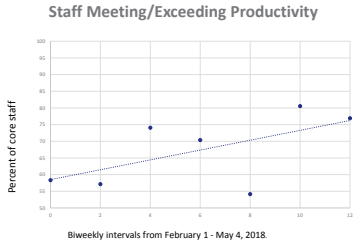
Through an A3 Analysis, we identified common root causes of unsuccessful attempts to see patients for therapy: patient is inadequately pre-medicated, patient is off the floor for a procedure or imaging, patient is working with another discipline, or patient is mentally/physically unprepared for therapy. We hypothesize that by communicating a therapy schedule to the multidisciplinary team, these barriers could be minimized, access to patients could be improved, and efficiency/productivity would improve in turn.

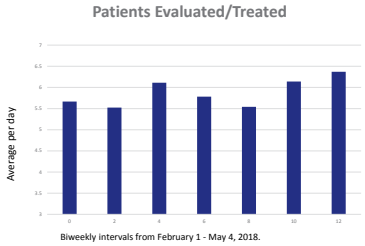
To communicate a therapy schedule, our rehabilitation aide created laminated cards to be used in the existing communication slots outside patient rooms. The cards are assigned to each room on 7L and have a designated space for the name of the PT and OT and what time each plan to see the patient. Every morning, therapists go from room to room and write their name and planned time on the cards with erasable marker and every afternoon before the end of the standard therapy work day (8:00 am – 4:30 pm) the rehabilitation aide wipes the cards clean in preparation for the next day.

The card placement is clearly visible to anyone entering the patient's room and is generally posted by 9:30 am when most therapists begin seeing patients.

Project Evaluation & Impact

The scheduling pilot was successful in improving the percentage of core staff meeting productivity expectations with an increase of over 10% of therapists seeing 6 or more patients per day, starting at 58% and improving to 73%. The team average productivity increased from 5.60 to 6.06 patients per day. The figure below represents percentage of team members seeing 6 or more patients per day in two-week intervals.





Qualitative feedback on the scheduling trial has been positive.

"It's nice to know when therapy is coming so we're not guessing...I can see who is assigned, but now I know when." – Christina O. RN

"The scheduling is great. It's what patients can expect if they are going on to acute rehab." – Chrstine O.M. NP

"I love the scheduling. It helps me prepare patients and it sets the expectation that they're going to participate in therapy." – Jay G.F. PA

Next Steps, Dissemination & Lessons Learned

Next Steps:
The next phase of our scheduling trial is to train and enact the scheduling system among therapists beyond the core therapists (i.e., per diem, float, students, etc) who work on 7E/L and analyze the effect of scheduling on the broader group. We also hope to digitize the scheduling system so that it is more easily viewable and modifiable.

Dissemination:
This scheduling system could be generalized to rehabilitative services on other acute care floors.

Lessons Learned:
The scheduling system would be difficult for non-core team members to implement as per diem and float therapists often cover multiple floors in a given day and may not start their day on 7E/L to write up their schedule. The schedule can be difficult to modify or adjust as the day goes on given that updating it requires walking room to room and adjusting times.

Addressing Obstetric Hemorrhage at UCSF: Implementing a Quantitative Blood Loss (QBL) Protocol

Marichele Punla, RN, Jennifer Airhart, RN,
Joane- Marie Manantan, RN,
Audrey Lyndon, PhD, RNC, FAAN,
Nina Manke, RN
Diane VonBehren, RN, Stephanie Lim, MD
Melissa Rosenstein, MD

UCSF Birth Center
Perinatal Services

Background

Obstetric hemorrhage is one of the leading causes of severe maternal morbidity and mortality in California and across the country. In the U.S., the overall rate of postpartum hemorrhage increased 26% between 1994 and 2006. This increase was driven primarily by a 50% increase in uterine atony cases. In 2017, the UCSF annual rate was 22.8%, compared to 22.3% across the UC system.

Problems with recognition, treatment, and poor communication have been shown to contribute to maternal death. These factors include denial and delay of hemorrhage, under estimation of blood loss, and lack of skill in accurately assessing Quantitative Blood Loss (QBL).

Advanced planning is critical in launching a rapid, coordinated response. Evidence has shown that implementing systematic protocols for recognizing and responding to hemorrhage have demonstrated improved outcomes such as decreased use of blood products and higher level interventions.

In April 2018, UCSF rolled out a new protocol to improve standardization and accuracy of blood loss estimation to reduce hemorrhage risk and improve patient care.

Project Goals

This initiative is part of the statewide pay-for-performance program called PRIME (Public Hospital Redesign Incentive Program), which aims to promote evidence-based methods to improve health outcomes across CA's public hospitals.

The PRIME program includes ambitious targets across 55 metrics that span nine care delivery domains, including Perinatal Care. One of the main goals in perinatal care is to ensure and support best practices to prevent morbidity and mortality associated with obstetrical hemorrhage.

The OB Hemorrhage Safety Bundle is a perinatal care metric, which requires hospitals to complete 16 elements to help ensure timely recognition of hemorrhage as well as an organized and swift response.

One of these 16 elements is developing and implementing a protocol for QBL. The target is >80% of births must adhere to the new QBL protocol by June 2018.

Project Plan and Intervention(s)

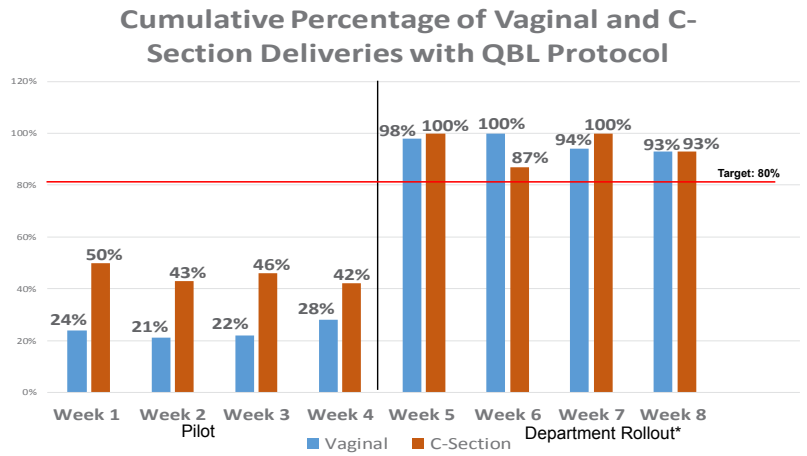
With the presented background and goal it was evident that the Birth Center needed to change and align with the current practice recommendations. A core planning group was formed to plan this huge practice change. We identified several barriers that would be our biggest challenge. Some of the barriers include: 1) nurses reluctant to perform QBL given history of this practice roll out in the past, 2) adding another task to daily duties of nurses, 3) providers not wanting to admit to large blood losses, and 4) COMMUNICATION.

Our first priority was gaining buy in from all staff (nurses and MD's). A TeamSTEPPS approach was used for communication and implementation. Test runs of QBL were completed in vaginal and c-section deliveries. By doing test runs, QBL was present on the floor, allowed staff to give input and feedback and in turn was the driver in developing the process. The development process encompassed creating a workflow that would be realistic and sustainable at the bedside and building tools to aid in the calculation of QBL. A QBL flowsheet calculator and audit report was developed for APEx as our technical analytic project components.

Once the workflows were established dissemination of this information was our next task. We leveraged the unit Annual Skills Validation (ASV) to educate 200+ staff on QBL process. The ASV session comprised of a 30 minute lecture and a hands on skills station. A soft roll out was implemented 4 weeks prior to the GO LIVE date. The soft rollout allowed us to collect data prior to GO LIVE to measure progress.

A group of 30 superusers/experts supported both day and night shift during the GO LIVE. Superusers helped design the workflow and were trained on it. QBL superusers were also given guided expectations on their role. This role included being present at births and completing a skills checklist for staff. With the assistance of PRIME we were able to support our unit with 24/7 coverage of superusers during the first 2 weeks of QBL GO LIVE. After the 2 weeks our QBL superusers were assigned to the Resource RN role to provide continued support for QBL. Daily audits of all births paired with real time feedback to staff has helped with sustaining our goals.

Project Evaluation & Impact



Department Rollout	Week 5			Week 6			Week 7			Week 8		
	Delivery	# QBL	% QBL	Delivery	# QBL	% QBL	Delivery	# QBL	% QBL	Delivery	# QBL	% QBL
Vaginal	45	44	98%	48	48	100%	49	46	94%	29	27	93%
C-Section	17	17	100%	15	13	87%	17	17	100%	15	44	93%
Total	62	33	98%	63	61	97%	66	63	95%	44	41	93%

*Note: all data represented is cumulative. Data abstracted from QBL flowsheet and manual chart review for C-Section cases.

Next Steps, Dissemination & Lessons Learned

Next Steps:

- Develop QBL flowsheet calculator for anesthesiologists to document in OR for C-Sections and integrate into analytic coding for report audit
- Continue to collect data of wet lap weights in the OR, review overall QBL and discrepancies and continue to collect feedback from first line users to improve process.
- Continue momentum on the unit by providing weekly updates on progress and give real time feedback when performing chart audits. Identify barriers in situations that QBL is not completed and what we can do to help QBL continue to be a success.

Dissemination:

Delayed recognition of excessive blood loss is a leading cause of postpartum morbidity and mortality. Accurately identifying blood loss is crucial in providing safe on time care. This improvement work would be useful in possible settings where blood loss can also be detrimental if not treated correctly.

Lessons Learned:

- Value in partnering with UCLA to learn how they were doing, both around QBL and TeamSTEPPS. Allowed the team to make what was thought to be impossible → possible.
- Don't make big changes all at once - give people time to learn and adjust to new processes/practice.
- Invest time and resources in superusers/experts who can help train and mentor clinical staff.
- Launch a "soft rollout" to gather input from clinicians and test on-the-ground implications.
- Provide standardized education and training.
- Medical Center financial and administrative support is crucial.

2018 UCSF Health Improvement Symposium

Work Place Violence Prevention

UCSF Health

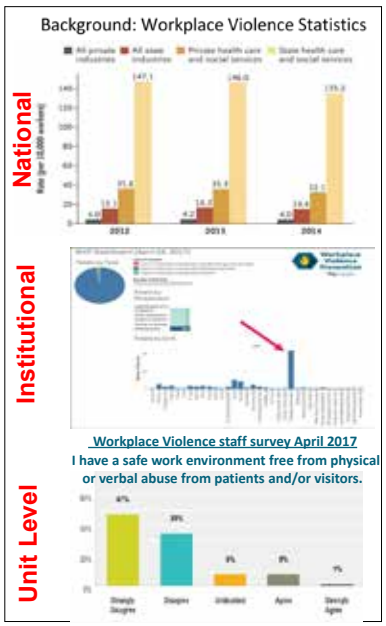
Parnassus ED

UBLT

Laura Jacobson ED manager, Steve Polevoi Medical director, Liz Kwan MD, James Beach RN

Psych Work Group

Background



Project Goals

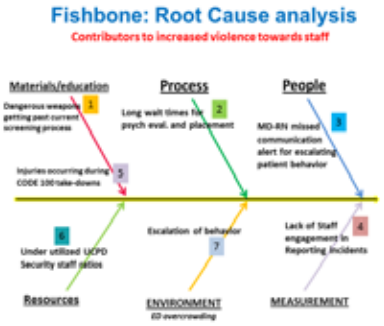
We strongly desire to see NO violence in our workplace, however we must approach our target goals with a realistic expectation of the environment in which we work.

The Emergency Dept. is the frontline of care for acutely psychotic, drug and alcohol abuse patients.
This population presents challenges for the unanticipated events of violence towards our staff.

Therefore we choose to set our target goal to a reduction of 10% to 26 total incidents of workplace violence for three consecutive months during FY18.

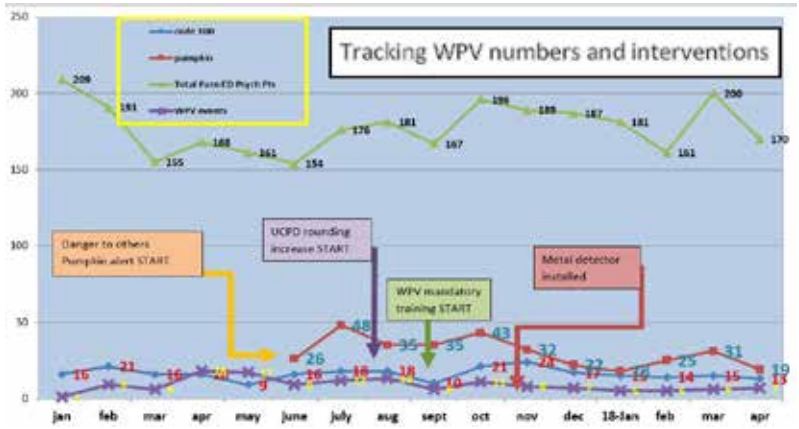
We have exceeded our goal, and continue to disseminate our findings to staff and explore new approaches to create a safe environment of care

Project Plan and Intervention(s)



	Countermeasures
1	Addition of metal detector to waiting room Ambulance entry patients wanded
2	Monthly Psych working group – includes LPPI psychiatric MD, security, UCPD, Social workers, PCTs RNs, Workplace Violence Prevention representatives, Facilities
3	APeX update PUMPKIN alert- track board flag for patients displaying "violent of threatening behavior"
4	Campaign to increase reporting of incidents, shift report reminders to staff
5	Monthly mock CODE 100's with de-brief sessions Annual Safety training for frontline staff in use of restraints, de-escalation and take-down strategies
6	Request to UCPD to increase rounding, Locate a UCPD sub-station in ED waiting room increase security staffing 24/7
7	Mandatory training to frontline staff (RN, security, PCT) for recognition, prevention, interventions of de-escalation techniques.

Project Evaluation & Impact



Workplace Violence staff survey Dec. 2017
I have a safe work environment free from physical or verbal abuse from patients and/or visitors.

Strongly Disagree	36.25%
Disagree	28.75%
Undecided	16.25%
Agree	17.50%
Strongly Agree	1.25%

Next Steps, Dissemination & Lessons Learned

As of May 2018: 1,700 items confiscated at waiting room point of entry
Most common items are knifes, pepper spray, Tasers

The Clinic Quarterback: A New Play on Partnering with Cystic Fibrosis Patients

Adult Cystic Fibrosis Center

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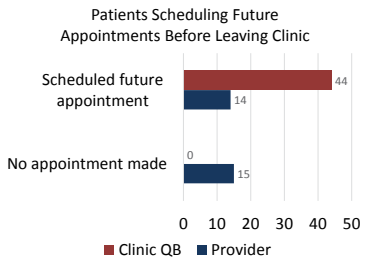
Background

- The Cystic Fibrosis Foundation (CFF) Adult Care Guidelines recommend four visits with the care team, one sputum culture and two pulmonary function tests (4V+1S+2P) per year.
- Through the CFF patient care registry the UCSF Adult Cystic Fibrosis Center tracks its performance relative to this measure. In 2016 only 45% of patients achieved the standard of 4V+1S+2P. This was below the national average of 53.6%, and below the Center's 2015 achievement of 54%.
- Low participation in CF clinic undermines the opportunity to detect and address care needs, and to provide care team support to patients in sustaining complex daily care.

Project Goals

Global Aim: We aim to provide care consistent with standards outlined by the CFF at, or exceeding the average performance of CF Care Centers nationwide.

Specific Aim: We aim to increase the percentage of patients who have 4V+1S+2P to at least 54% by the end of 2018.



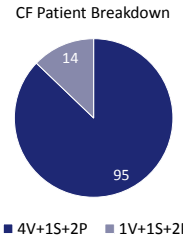
Project Plan and Intervention(s)

Hypothesis: If the CF Center expanded the pool of available appointments, and proactively managed patient relationships by tailoring communication and clinic visits, a higher proportion of patients will achieve the guideline care of 4V+1S+2P.

Limited Clinic Sessions	Environment	Patient Relationships	Measurement
• Wednesday mornings from 9 A.M. to noon only • 284 available appointments; 363 appointments needed to achieve guideline care	• Infection prevention and control practices add 30 minutes to each appointment • Limited to four exam rooms; competition for work space	• Expectations for clinic attendance not well defined • Patients reliably communicate about illness related issues, but are less motivated to attend routine, well visits	• No system in place for tracking each patient's progression towards achieving guideline care • No staff owning the role of scheduling patients, organizing care and managing non-clinical issues
Opened an additional Tuesday afternoon clinic session	Clinic QB → Reconfigured appointment template, personalized visit itinerary, directed clinic flow, concluded visit with summary and future appointment	Clinic QB → Evaluated communication preference	Clinic QB → Identified patients requiring 4V+1S+2P. Created a roster to track appointments.

*Year-end data from 2017 showed clinic expansion alone did not produce the desired results: only 50% of patients achieved 4V+1S+2P.

Project Evaluation & Impact

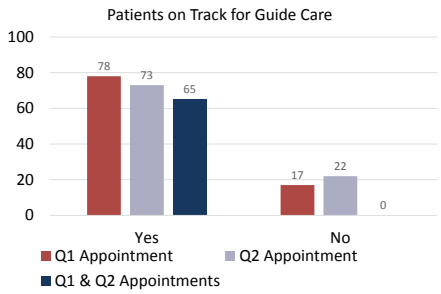


Clinic Flow Study January 23, 2018 through April 4, 2018

Session	Number	Patients Seen	Providers / Visit	Length in Minutes (Avg.)	Transition Time
Tues.	8	Avg. 4 Range 3-5	Avg.3 Range 1-5	79	9
Wed.	8	Avg. 4 Range 3-5	Avg. 4 Range 1-6	87	11
Total	16	68		**Average 83**	**Average 10**

*data do not reflect 30 minutes required for infection prevention and control practices if fewer rooms were available

- 61 patients shared their preferred method of contact: 44 (72%) prefer text messages
- 67% of patients are enrolled in the electronic medical record patient portal (My Chart)
- Year-to-date data suggests 65 patients (68%) will complete 2 visits with the care team by the end of quarter 2.



Next Steps, Dissemination & Lessons Learned

Next Steps:
- Work with pulmonary practice leadership to transition clinic quarterback roles to medical assistant(s).
- Create system for pre-clinic communication with patients to organize visit itinerary.
- Gauge interest in Tele-health.
- Coach adult CF patients on recognizing their role in partnering with the care team.

Dissemination:
- Ambulatory practices serving patients with chronic diseases may benefit from a medical assistant in a 'clinic QB' role.
- A designated cellphone for communication, scheduling appointments and managing patient relations is useful.

Lessons Learned:
- Clinic coordination and patient relations do not require a registered nurse; a medical assistant can fulfill the role.
- Tailored communication strategies and personalized agendas for each clinic visit are important ways to partner with patients in achieving guideline care.

2018 UCSF Health Improvement Symposium

A Systematic Approach to Identifying Invasive Fungal Infections (IFI) in Hospitalized Patients

Laurel Gibbs, Ho Lom Lee, Amy Nichols, Lynn Ramirez, Jonathan Schouest, Kim Stanley, Lusha Wang, Deborah Yokoe

Hospital Epidemiology & Infection Control

Data Management Unit

Background

Fungi can cause severe and life-threatening infections among immunocompromised patients. Hospital outbreaks of mold infections associated with construction activities or hospital ventilation issues have been described. Detection of hospital-acquired invasive fungal infection (IFI) cases allows for timely investigation to look for possible breaches in air handling, construction barriers or other measures put into place to prevent mold intrusion and enables rapid mitigation to prevent ongoing risks to vulnerable patients. Two recent cases of apparent hospital acquired mold infection at Mission Bay highlighted a weakness in an otherwise comprehensive surveillance program: We did not have a systematic way to proactively identify cases of fungal infection.

Microbiologic culture of clinical specimens for mold is insensitive. Antigenic and molecular technologies are emerging as more sensitive and rapid indicators of IFI. Results from these technologies combined with clinical features and radiology results can be used to produce a profile that identifies patients likely to have IFI. We needed a system to efficiently gather the data elements that would help us recognize hospital onset fungal infection in a timely way and a consistent process to use these results to initiate appropriate investigation.

Project Goals

Goals of the project included:

- Develop a tool to efficiently and consistently utilize automated data available in Apex to identify patients with possible IFI
- Create a format that would facilitate prioritization of patients for review.
- Develop consistent case definitions that include criteria for hospital vs. community acquisition
- Create a response algorithm that can be followed when cases of concern are identified
- Incorporate fungal surveillance into the routine tasks of the data management unit to ensure timely review of patients and identification of hospital onset cases
- Create an process for communicating findings within HEIC units, and to nursing unit, ancillary and clinical personnel as needed

Project Plan and Intervention(s)

We modeled our surveillance elements on a algorithm obtained from Brigham and Women's Hospital in Boston, MA based on published IFI definitions[1]. Data elements were defined and extracted from Clarity with the goal of minimizing "noise" (false positive results) in order to generate a comprehensive picture of patients in whom there was a clinical concern for fungal infection including:

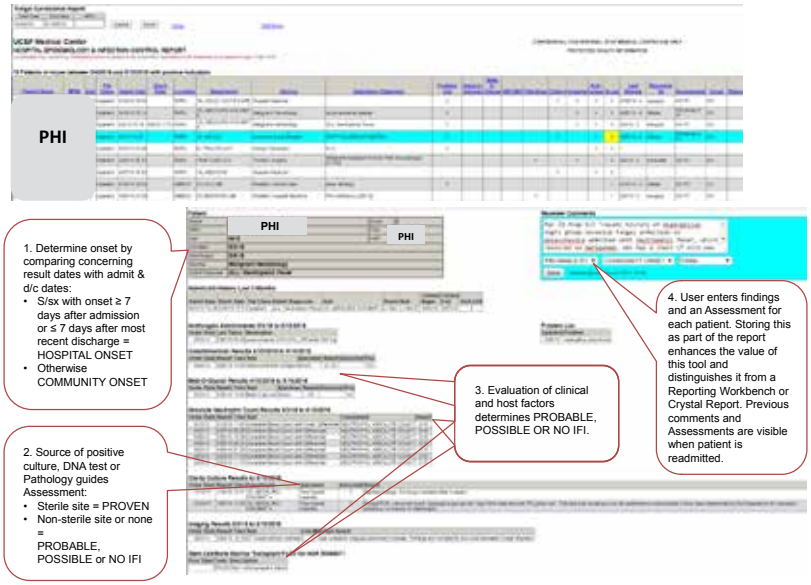
- Problem list entry indicative of fungal infection (or concern for it)
- Positive galactomannan antigen
- Positive β-D-glucan
- Universal Microbial DNA test positive for a mold
- Mold identified on a microbiology culture
- Pathology or radiologic imaging results suggestive of fungal infection
- Receipt of any of a list of specific antifungal medications

Recognizing the need to have results available on demand without the intermediate step of a request to the programmer, the report evolved into a web-based tool that directly queries Clarity to produce a line list of patients with new results from the past week and includes a score indicating the number of "hits" on the elements above which aids in prioritizing patient review. A drill down can be performed on any patient on the list to show detailed results and to allow the reviewer to minimize time spent performing chart review.

Each weekday, HEIC Data Management staff evaluates each case with a score of 3 or higher to evaluate for hospital vs. community onset, as well as the likelihood of true fungal disease vs. colonization. Hospital onset cases of probable or proven fungal infection are communicated to HEIC Field Unit for further follow up.

[1]De Pauw B, et al. *Clin Infect Dis* 2008;46:1813-1821

Project Evaluation & Impact



Next Steps, Dissemination & Lessons Learned

Next steps:

- Continue work with Infection Control Medical Directors to refine IFI case definitions tailored to UCSF patient populations
- Assess whether additional flags need to be added in the tool to ensure review of all potential cases
- Analyze data to identify possible contributing environmental factors for proven IFI cases
- Perform an interrater reliability study to determine if reviewers are interpreting the definition the same to a sufficient degree. We should have a high level of agreement when reviewing the same sample of cases

Dissemination:

- Integrate IFI surveillance and follow-up into routine HEIC activities
- Share tool and findings with providers from relevant services (e.g. Adult/Peds Infectious Diseases, Malignant Hematology, etc.) should they be interested in having it available for their use

Lessons Learned:

- Utilization of a standardized definition in itself is a huge advancement in reducing the "noise" and variability in the cases we choose for further review and escalate to clinical staff for additional follow up and management

CAUTI Reduction
Adult Hematology/Oncology/Blood and Marrow Transplant Units

11 Long/12 Long

Adult Hematology/Oncology/ Blood and Marrow Transplant

Florlina Agudelo, BSN, RN, BMTCN

Karri Ballard, MSN, RN, OCN

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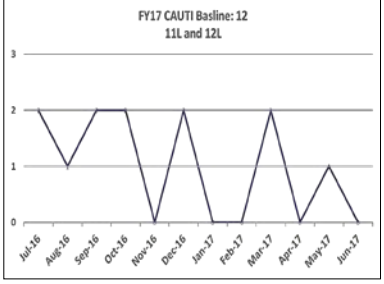
Background

In FY17, the Adult Hematology/Oncology/Blood and Marrow Transplant units of 11 Long/12 Long had 12 catheter-associated urinary tract infections (CAUTI). This was a significant increase from the FY16 total of 2 CAUTI events.

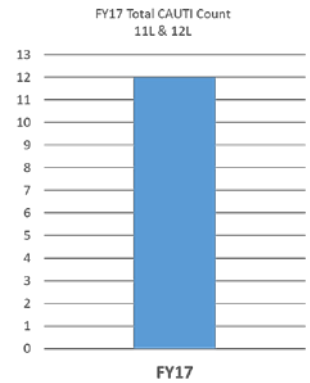
Due to the significant rise in FY17 CAUTI events, it was imperative that 11L/12L address this metric in FY18. CAUTI events can ultimately increase a patient's length of stay (LOS), and overall hospital costs.

CAUTI is a hospital-acquired condition (HAC) and negatively impacts UCSF Health True North pillar of Quality and Safety and our organizational goal to achieve zero harm.

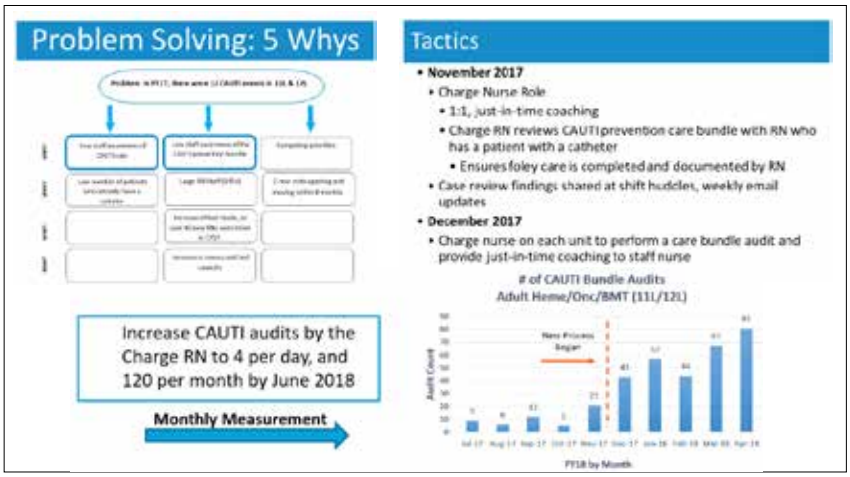


Project Goals

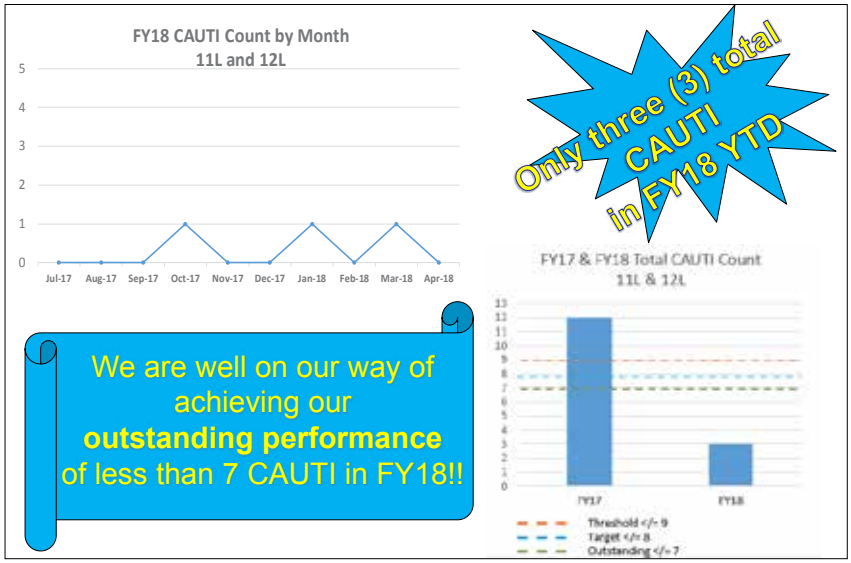
Reduce the number of CAUTI events on 11 Long & 12 Long from a FY17 baseline of 12 events, to </= 8 events in FY18.



Project Plan and Interventions



Project Evaluation & Impact



Next Steps, Dissemination & Lessons Learned

Next Steps:
Continue to coach the charge nurses to hardwire the practice of performing one CAUTI prevention care bundle each shift and provide just-in-time coaching to the staff nurses on maintaining the care bundle components.

Dissemination:
This improvement work has been shared with the other Adult Inpatient Nursing units on a quarterly basis.

Lessons Learned:
The high CAUTI count in FY17 provided the unit with an opportunity to improve patient safety and quality. One of the challenges was identifying unit champions to raise awareness of the patient care issue and be resources to the clinical nurses. Identifying the charge nurse group as the champions provided the best opportunity to have a core group of RNs who covered both A and P shifts.

Improving Appropriateness of Vascular Access Device Use in Adult Patients with Ultrasound Guided Peripheral Intravenous Catheter Insertions by the Vascular Access Support Team

Michele Nomura, MSN, RN, CNRN, VA-BC
Elizabeth Sin, MS, BSN, CCRN

Background

Background

Peripheral venous access is the most frequently used procedure in hospitals to obtain blood samples and to infuse intravenous (IV) medications and fluids.[1] However, the incidence of failed attempts among emergency department patients is about 10% to 21%.[1] There are many challenging patient populations which make peripheral intravenous (PIV) access difficult without the use of an ultrasound (e.g. IV drug abusers, obese patients, dehydrated patients, and patients who have undergone chemotherapy). [1] In a prospective, observational study conducted by Au, et al. 2012, ultrasound guidance prevented the need for central venous catheter (CVC) placement in 85% of patients deemed difficult IV access. [2] An international panel of experts developed The Michigan Appropriateness Guide for Intravenous Catheters (MAGIC) using a validated method to define appropriate indications for inserting the right vascular access device across patient populations.[3]

Project Goals

- Improve cost of care by providing the appropriate vascular access device for patients and reducing inappropriate use of Peripherally Inserted Central Catheters (PICC).
- Improve patient experience by reducing insertion attempts for patients with challenging venous access and obtaining reliable access using ultrasound guided peripheral intravenous catheters (USGPIV) in optimal vessels.

Suboptimal PIV Sites

Project Plan and Intervention(s)

In December 2016, the UCSF Adult Vascular Access Support Team (VAST) assumed responsibility in supporting all challenging inpatient vascular access needs during the day. The PIV Insertion Algorithm was updated and distributed to all nursing units on how to consult VAST for assistance with ultrasound guided peripheral intravenous (USGPIV) catheters. VAST conducted educational outreach at unit staff meetings, just in time teaching, and hospital wide presentations at multidisciplinary rounds.

Educational Outreach Presentation

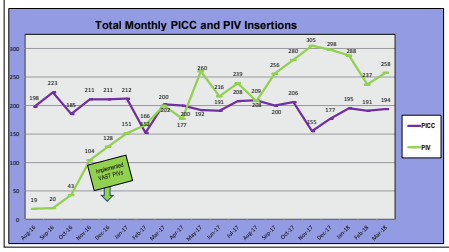
Revised PIV Insertion Algorithm

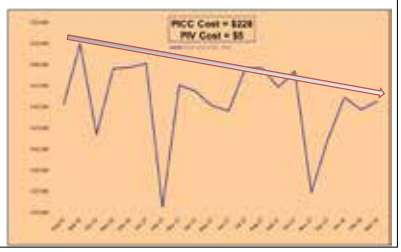
New and Improved Consult Requests for Contacting VAST

Project Evaluation & Impact

Performance Data

One year after implementation, VAST observed an increase in PIV insertions by 63% and a dramatic decrease in PICC insertions by 37% resulting in 298 PIVs and 177 PICCs. With a shift in less PICC insertions and an increase in PIV insertions, VAST achieved a reduction in total vascular access device costs. Expanding the scope of the Vascular Access Support Team in placing USGPIVs reduces the need for inappropriate CVC placements in patients with difficult IV access which in turn potentially reduces cost of care (PICC=$228 versus PIV=$5) and morbidity associated with CVCs (e.g. central line associated bloodstream infections CLABSI).





Next Steps, Dissemination & Lessons Learned

Next Steps:
With educational outreach and the ability to obtain reliable access with USGPIV in optimal vessels, VAST would like to further study:

- Will there be a decrease in inappropriate PICC orders?
- Will this effort decrease PICC line days and PICC associated CLABSI rates?

Dissemination: VAST continues to conduct educational outreach, just in time teaching and are readily available for consult via CareWeb.

Lessons Learned:
The use of an ultrasound eliminated repeat and unnecessary cannulation attempts which can cause patient discomfort, vascular injuries and delay in therapy. Having a dedicated team specialized in vascular access ensures the patient receives the appropriate device for infusion therapy. Total PIV insertions continue to outnumber the total PICC insertions each month which in turn reduces cost of care.

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Acknowledgements
The authors would like to acknowledge the entire Adult Vascular Access Support Team for the excellent teamwork and Sheila Antrum, RN, MSHA, Senior Vice President for her support in funding updated ultrasound equipment for this USGPIV initiative to improve patient experience.

UCSF Health

#UCSFHealthImprove2018

UCSF Health & Undergraduate Medical Education: Bridges Curriculum Clinical Microsystem Improvement Projects

Improving Hypertension Control for African Americans at UCPC

Christopher Cai MS1, Carmen Lee MS1, Jordie Martin MS1, Isabel Ostrer MS1, Noemi Plaza MS1, Ethan Zaccagnino MS1, Christopher Bautista MD

Background

- African-Americans comprise 12.2% of patients with hypertension at UC Primary Care (UCPC)
- The rate of uncontrolled hypertension among African-Americans was about 41%, compared to 25.7% uncontrolled in all other racial groups (Oct 2017)
- Hypertension increases the risk of cardiovascular comorbidities and complications
- Improving hypertension control for subpopulations supports the UCSF Health True North strategic priorities of 1) Patient Experience, and 2) Quality and Safety

Project Goals

To improve hypertension control for African Americans from 58.5% to 73%. Our study period is from July 2017 to the end of April 2018.

Project Plan and Intervention(s)

Gap Analysis:

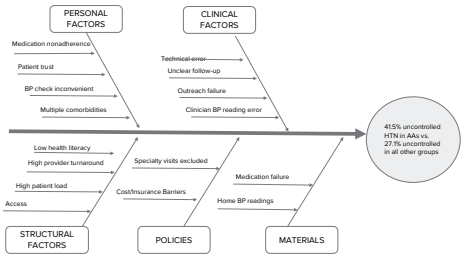
- A literature review revealed that the disparity in hypertension control rates in African Americans (AAs) was often the result of a complex interplay of personal, clinical and structural factors.
- Interviews with interdisciplinary team members, including 2 RNs, 1 LVN and a practice manager were conducted using a "5 Whys" root cause analysis yielding the analysis in Fig 1.

Intervention:

- Based on the gaps, we developed a phone outreach intervention for our African Americans with uncontrolled hypertension patients to:
  1) Schedule blood pressure check appointments and
  2) Understand patients' perceptions of gaps
  3) Schedule follow up office visits with nurse or PCP to address needs and barriers

- We asked patients:
  1) As of your last primary care visit what is your plan for controlling your blood pressure? How is it working for you?
  2) What medicines are you taking to control your blood pressure?
  3) What questions and concerns do you have about your blood pressure?

Fig 1. Analysis of gaps in care for hypertension control in African-American patients.



Project Evaluation & Impact

Fig 2. Prioritized barriers to hypertension control identified qualitatively through intervention.

Barrier to Control	Patient Examples
Health Literacy	Lack of information about the potential consequences and treatments of hypertension interacted with other causal factors to decrease adherence.
Intentional Nonadherence	Side effects (increased urination) at times discouraged patients from taking the full dose. Patients preferred non-medication interventions.
Unintentional Nonadherence	Patients lost or had medications stolen and had not refilled prescriptions. Did not know follow up plan.
Patient Care Access	Limited patient availability did not always match up with provider availability in the next month. For providers on leave, patients were not prepared to engage with a new PCP.

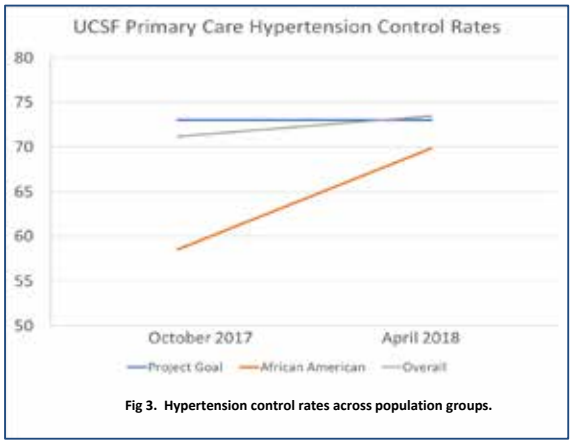


Fig 3. Hypertension control rates across population groups.

Impact:

- African American control rates across UCPC improved by 10%
- Hypertension control rates for our intervention group improved 37.5% (n=15)
- Our intervention led to the implementation of a new methodology for hypertension "control" measurement criteria in population health.

Fig 4. Hypertension control in study population versus other groups.

	October 2017	April 2018
Overall Control Rate	71.2%	73.5%
African-American Control Rate (*n*)	58.5% (55)	69.8% (67)
Intervention Group Control Rate (*n*)	0% (0)	37.5% (15)

Next Steps, Dissemination, & Lessons Learned

- Interprofessional collaboration--between students, clinicians, staff, and systems scientists--was crucial to identify and detail gaps that underlie healthcare disparities locally and across a population.
- African-Americans face barriers to accessing care for hypertension, and increased solicitation of concerns and follow-up by providers seems promising to overcome the identified gaps.
- Measurement of control rates (and other indicators) must include the full breadth of available patient data in the health record.

2018 UCSF Health Improvement Symposium

Management of Polypharmacy among Elderly Patients in an Academic Primary Care Clinic Using a Virtual Pharmacist Program (ViRx)

Sarah Tsou, BA[1]; Cooper Bloyd, MS[1]; Mackenzie Clark, PharmD[2]; Leslie Sheu, MD[1,3]

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Background

Interprofessional outpatient pharmacist programs are increasing nationally, with studies indicating a number of benefits for patient care.[1,2,3]

At UCSF, a **Virtual Pharmacist (ViRx)** program was established in 2015:

- Telephonic approach for pharmacists to co-manage primary care accountable care organization (ACO) patients with medication related issues (e.g. medication reconciliation, education, cost, access).
- In June 2017, a "Virtual Pharmacist Referral" order was created in the electronic medical record ("APEX") to facilitate direct referrals from physicians to the ViRx.

The visibility and adoption of the ViRx program within the Division of General Internal Medicine (DGIM) is unknown.

Needs Assessment: Provider Survey

Fifty-three of 111 DGIM providers (48%) completed an anonymous online survey:

Understanding/Utilization of the ViRx Program

- 98% agreed that collaborations with pharmacists would be helpful in providing care
- 87% reported insufficient understanding of the ViRx program and its APEX referral

Most Commonly Cited Barriers to Utilization:

- Lack of provider awareness about the program/its resources (47%)
- Difficulty identifying patients that qualify for ViRx (28%)

Target Subpopulations* for ViRx Medication Management Support

1. Patients with poor health literacy
2. Patients on 10+ medications
3. Elderly (65+) patients

*respondents were allowed to indicate top 3 choices

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Project Goals

Overall, our goals are to:

1. **Increase awareness of the ViRx program among DGIM providers**
2. **Increase utilization of the ViRx program, particularly among the high-risk ACO patient population**

	CURRENT (Jun-Nov 2017)	*TARGET (May 31, 2018)*
ViRx Awareness Among Providers	13%	85%
# (%) of Direct Referral Orders Placed for ACO Population	2 (0.8%)	25 (10%)

Project Plan and Intervention(s)

A significant gap exists between enthusiasm for provider-pharmacist collaboration and actual utilization of the current ViRx at the DGIM clinic. This appears to be due to:

a) **Overall low visibility of the program among DGIM providers, and**
b) **Difficulty identifying patients whose insurance programs would qualify them for ViRx care.**

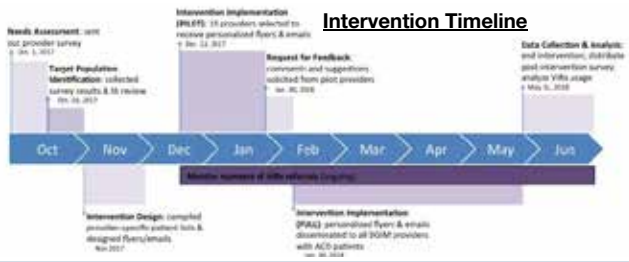
To address these limitations, we chose a multi-pronged intervention focused on:

1) **Increasing provider awareness of the ViRx program**
2) **Simplifying identification of eligible insurance plans, and**
3) **Targeting populations that would most benefit from medication management support**

Intervention

1. Laminated flyer with ViRx educational materials and customized lists of each DGIM provider's ViRx-eligible, high-risk patients
2. Customized email for each provider with lists of ViRx-eligible, high-risk patients, including the age, number of medications, and upcoming appointment times

Intervention Timeline



Project Evaluation & Impact

Goal #1: Increase Awareness

Goal #2: Increase Utilization

	Pre-Intervention (Jul - Nov 2017)	*Post-Intervention (Dec 2017 - May 2, 2018)*
ACO Pop. referrals	2	6
Total referrals	14	31

The top 3 reasons for ViRx referrals:
1. Medication reconciliation
2. Medication recommendation
3. Cost assistance

Next Steps, Dissemination & Lessons Learned

Next Steps:

- Continue to track the number of ViRx referrals per month for next several months.
- Analyze impact of ViRx through chart review of referred patients (PharmD/PCP notes, # of meds, etc).
- Review results of post-intervention survey of providers to assess changes in understanding and attitudes.

Dissemination:

- Thus far, we have presented this project at the CA-HI Regional SGIM Conference (Jan 2018) and at the UCSF DGIM Research Symposium (May 2018).
- Results may provide support for the expansion of outpatient pharmacist collaborations beyond the ACO population and across the UCSF health system.

Lessons Learned:

- Providers are enthusiastic about working with pharmacists in the primary care setting.
- Insurance payment is complicated; there is currently no time-efficient way for providers to access patient insurance provider/payor information to determine their eligibility for restricted programs.
- The need for outpatient pharmacist collaboration extends far beyond the currently eligible ACO population.

2018 UCSF Health Improvement Symposium

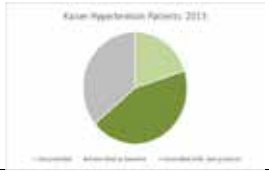
Home monitoring to improve blood pressure control

Joseph Garcia, Nicholas Hanson, Sarah Peterson, Sarah GaleWyrick MD

Background

Achieving adequate blood pressure control in patients with uncontrolled hypertension decreases the risk of long-term associated health problems. Hypertension raises risk of stroke, heart failure and other cardiovascular diseases. In the United States today, 1 in 3 adults, or 75 million people, have uncontrolled hypertension. As of 2012, 28.5% of adults in California (8 million) had uncontrolled hypertension.

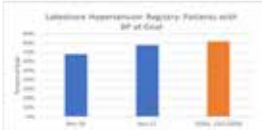
In 2013, Kaiser Northern CA implemented hypertension control protocols and saw blood pressure control among patients improve from 44% to 80% overall, surpassing national trends in the same time frame (55% to 63%). By implementing new protocols for hypertension control, Lakeshore aims to make similar improvements.



Project Goals

The current Lakeshore hypertension registry includes 1,915 patients who have a recorded blood pressure in the last 12 months. Of these, 78.18% were at goal in the last 12 months.

Despite implementation of a new hypertension control protocol in 2016, a significant number of Lakeshore's patients continue to have uncontrolled hypertension. Our goal is to increase the percentage of patients on Lakeshore's hypertension registry whose blood pressure is controlled by 4% (78.18% à 82%) by December 1, 2018. Control of hypertension is considered to be two consecutive measurements of blood pressure at or below patient's goal.



Project Plan and Intervention(s)

In 2016, Bridges students surveyed a sample of patients on the Lakeshore hypertension registry about their concerns and preferences regarding management of their hypertension. Key findings included:

83% of patients would prefer to check their BP at home vs. visiting the clinic; however, only 42% would prefer home monitoring if they had to pay for their own BP cuff.
92% of patients reported they would be interested in talking to a clinic staff member or medical student about making lifestyle changes to improve their BP.
100% of patients reported they would be more likely to check their BP regularly at home if they knew they were going to get a follow-up call.
When asked to consider potential barriers to monitoring their BP at home, patients' top concerns included "learning to use the BP cuff," "paying for the BP cuff" and "remembering to take my BP".

Based on this information, we developed two interventions:

Develop and distribute a patient handout with information on lifestyle changes to improve hypertension control and a template that patients can use to record daily BP readings and develop and track progress on a SMART lifestyle goal.
Pilot a home monitoring program for patients on the hypertension registry. Providers will identify candidates for home monitoring and who carry insurance that will cover a home BP cuff. Bridges students will invite patients to participate in this pilot program which includes 1:1 health coaching, setting a SMART lifestyle goal, instruction in use of a home BP cuff, and follow-up visits to assess progress toward lifestyle and BP control goals.

Project Evaluation & Impact

The home monitoring and health coaching pilot program was launched in November of 2017. Two patients have been enrolled in the pilot to date. Of these, one has completed the program and achieved goal for BP control and one was lost to follow-up.

One objective of the pilot program was to identify challenges in implementing home monitoring and lifestyle modification for patients. Major challenges identified to date include:

Variation in insurance coverage: Some insurance plans cover provision of a home blood pressure monitoring cuff at no cost to patients, but many do not. Cuffs must be prescribed by a provider and obtained at a pharmacy. The pilot has focused on recruiting patients who carry insurance coverage that provide a cuff at no cost. Regulatory restrictions prevent the clinic from providing durable medical equipment directly to patients.
Difficulty obtaining referrals: Providers in clinic were asked to identify appropriate patients who could be invited to participate in the program. Referrals have been generated by a small subset of providers.
Patient refusal: Approximately half of patients invited to participate in the pilot program declined, citing lack of interest in health coaching or home monitoring.

Efforts to identify and contact appropriate patients who are eligible for the pilot program continue. As additional patients are recruited into the program, we will have a clearer understanding of the impact of our intervention.

Next Steps, Dissemination & Lessons Learned

Next Steps:
We aim to enroll a greater number of patients in the home monitoring program to better evaluate the program's success, and if necessary, make appropriate changes to the program moving forward. We also plan to analyze demographic information in Lakeshore's hypertension database to identify new strategies for outreach and interventions.

Dissemination:
If success is observed in our pilot, the program will be publicized within the UCSF system beyond Lakeshore as an additional option for blood pressure control in hypertensive patients.

Lessons Learned:
Challenges to implementation include variations in patient insurance coverage for home medical equipment, regulations limiting purchase and provision of durable medical equipment, and recruiting suitable candidates for home monitoring and health coaching.

Understanding and Improving Provider Conversations about Depression and Suicidality in an Academic Primary Care Setting

Cecilia Im, MS1[*], Blythe Butler, MS1[*], Richard K. Perez, MS1[*], Jennifer Latimer, LCSW[2], Hannah Rapp[2], Leslie Sheu, MD[1,2]

[1]School of Medicine, University of California, San Francisco, [2]Division of General Internal Medicine, University of California, San Francisco

*Contributed equally to the project

Background

•In the absence of universal depression screening, only 50% of patients with major depression are identified (1).

•Patient barriers to proactively discuss depression include fear of stigmatization and belief that depression is a "personal flaw" (2).

•Untreated depression increases risk of suicide (3).

•Up to 75% of patients who commit suicide were seen by a primary care provider within prior 30 days (4).

•At the University of California, San Francisco Division of General Internal Medicine (UCSF DGIM), a pilot for universal depression screening using the PHQ-9 was implemented on one floor on September 11, 2017.

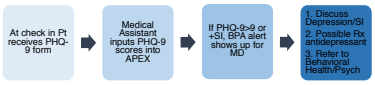


Figure 1. Flow diagram for universal PHQ-9 screening at UCSF DGIM.

Project Goals

1. Explore the prevalence of depression and suicidal ideation among the initial patients screened.
2. Understand provider attitudes and practices around discussing depression and suicidal ideation with patients.
3. Implement an intervention to increase conversations around depression and suicidal ideation when indicated.

Target Conditions	3-month goal Feb 28th, 2018	1-year goal December 28th, 2018
Increase the proportion of documented discussions about SI for patients with +SI on PHQ-9 from 63% to:	75%	90%
Increase the proportion of charts with detailed PHQ-9 score for patients with +SI on PHQ-9 from 12% to:	20%	35%

Table 1. Target conditions.

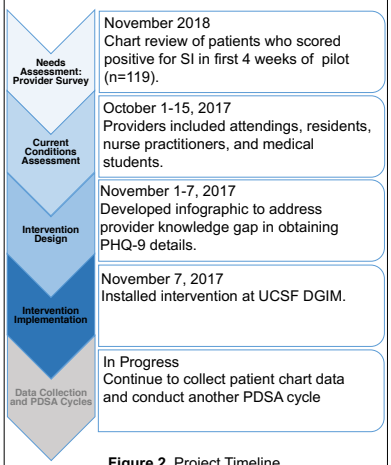


Figure 2. Project Timeline.

Project Plan and Intervention(s)

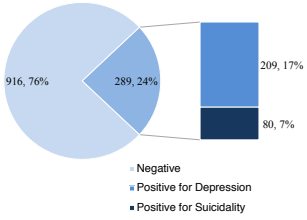


Figure 2. Screening results for the first 4 weeks of a universal PHQ-9 screening (n=1205).

Countermeasure	Specifics	Reasons	Impact	Effort
Infographic detailing how to access itemized PHQ-9. (Implemented)	Position an infographic detailing how to access the itemized PHQ-9 in the chart within the field of view of providers while they are charting.	Enable providers to access patient PHQ-9 surveys	High	Low
Direct messages to providers with patients that have a positive PHQ-9 results.(Implemented)	The Behavioral Health Integration team will send direct messages to the primary provider of patients that have a PHQ-9 score ≥ 10 or +SI.	Enable reminders about having conversations about suicidality	High	Medium
Provider Education Seminar. (Implemented)	A special seminar geared towards teaching providers skills to approach discussions about suicidality.	Predispose providers to facilitate conversations about mental health	Medium	Medium
Streamline Best Practice Alert (BPA). (Not Implemented)	Additional workflow improvements may allow a greater proportion of PHQ-9 scores to be entered before patient visit.	Enable consistency of alerts	Medium	High

Table 1. Pick Framework to guide intervention selection.

Thirty-two out of 56 providers (57%) completed the survey.

Understanding Provider Attitudes

•100% of providers indicated willingness to discuss SI if indicated.

•Attendings more likely to indicate comfort discussing depression and SI than residents (Figure 3).

Most Commonly Cited Barriers

•92% of providers did not know how to access details of PHQ-9, leading to wasted time/missed opportunities.

•100% of providers surveyed indicated time as a barrier to discussing depression and SI.

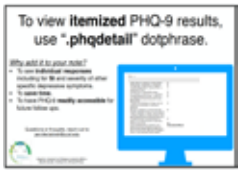


Figure 6. Infographic to access the itemized PHQ-9 results in APEX

- Largest gap initially identified: providers not viewing detailed PHQ-9 scores.
- Only 12% of charts had detailed scores; providers mentioned time was wasted searching for detailed PHQ-9.
- Without detailed PHQ-9, providers do not have context for +PHQ-9 and +SI.

Project Evaluation & Impact

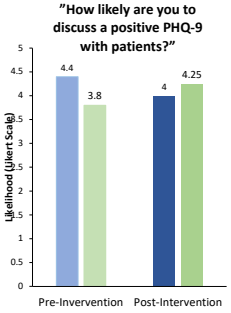


Figure 4. Attendings reported being more likely to discuss a positive PHQ-9 score with patients than residents prior to the intervention (p=.10). After the intervention, residents reported being more likely to discuss a positive PHQ-9 score with patients than attendings.

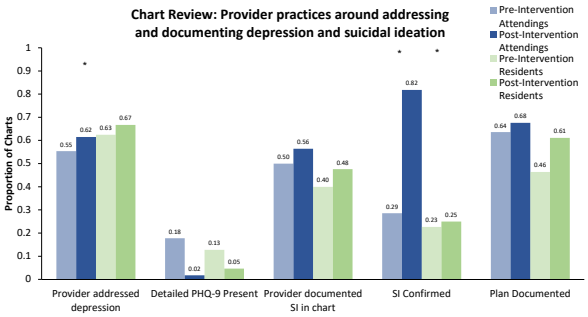


Figure 5. In a comprehensive chart review, there was an increase in proportion of charts that addressed depression, documented SI, and had a documented plan around depression for both attendings and residents. Notably, patients with +SI confirmed SI in 29% of attendings' charts before the intervention and 81% after the intervention (p<0.001). This is compared to residents, who only had 25% of patients with +SI confirm SI after the intervention.

Next Steps, Dissemination & Lessons Learned

Next Steps

• For our next PDSA cycle, we hope to create an intervention earlier in the workflow: If a patient indicates positive SI, the MA would add SI as a chief complaint. The onus would then be on the physician to delete or address the SI.

Dissemination

• This work has been presented at the CA/Hawaii Regional SGIM Conference (January 20, 2018) and the DGIM Research Symposium (May 2, 2018).

• In the future, we hope to share this work with other primary care settings at UCSF (China Basin, ZSFG, VA) and regional or national conferences for other academic primary care settings

Lessons Learned

• Although there was no significant improvement in the use of the .phqdetail dotphrase, other aspects of documentation around depression and SI improved.

• A breakdown in workflow occurred earlier than our intervention target, which may have negatively impacted the efficacy of our intervention.

•We unexpectedly found that patients were significantly more likely to confirm SI with attendings rather than residents, which warrants further investigation.

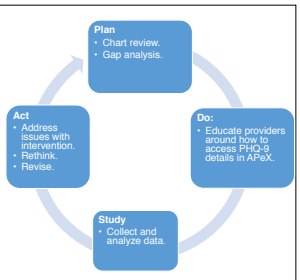


Figure 7. Proposed PDSA cycle

Citations

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2. Bell, Robert A., et al. "Suffering in silence: reasons for not disclosing depression in primary care." The Annals of Family Medicine 9.5 (2011): 439-446.
3. Moussavi, Saba, et al. "Depression, chronic diseases, and decrements in health: results from the World Health Surveys." The Lancet 370.9590 (2007): 851-858.
4. Feldman, Mitchell D., et al. "Let's not talk about it: suicide inquiry in primary care." The Annals of Family Medicine 5.5 (2007): 412-418.

Increasing Flu Vaccination Rates at UCSF Lakeshore

UCSF Lakeshore

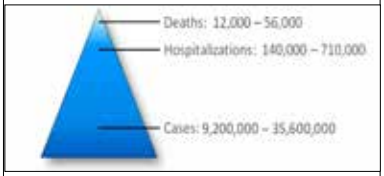
Claire Greene, Jacob Stultz, Colleen Carlston, Sarah Galewyrick

Family Medicine Clinic

Background

Flu vaccines are a critical part of health initiatives to increase wellness, and a part of the Quality & Safety pillar of the UCSF True North plan. The rate of documentation of vaccination or denial thereof falls short of the target 46%. This is a measure of quality as decided by the Patient Centered Medical Home PRIME recognition requirements. Patients have reported receiving flu vaccinations in various settings, but because the documentation is not centralized, it cannot be verified. To ensure our patients are receiving adequate preventative care, we must be sure that they both receive the vaccination and have it documented for their provider to verify.

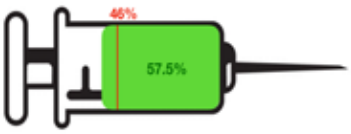
In the 2016-17 flu season, we were below average among primary care clinics at UCSF (37.2% of empaneled patients vaccinated at Lakeshore vs. 38.3% of empaneled patients) and were ranked 9th out of the 12 primary care clinics at UCSF.



Annual flu impact, CDC (https://www.cdc.gov/)

Project Goals

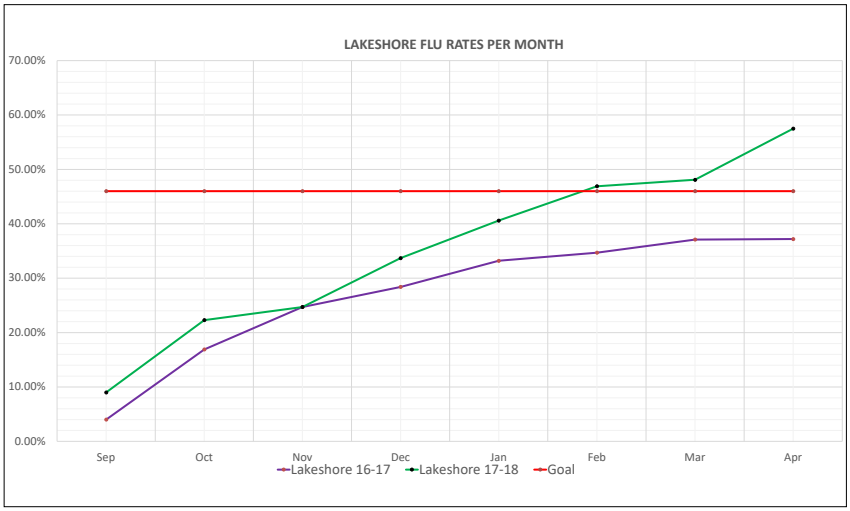
Our desired outcome is to have 46% (red line) of Lakeshore's empaneled patients both receiving a vaccination and having it documented in our EHR during the current 2017-2018 flu season. We are currently at 57.5% (green fill).



Project Plan and Intervention(s)

To increase the flu vaccination rates at Lakeshore we planned several efforts:
(1)Administer a written questionnaire to patients receiving flu vaccines in order to understand their preferences for outreach reminders about flu vaccination. The responses helped us understand what measures were working well, as well as potential gaps in outreach that we relayed to upper management (e.g. text message reminders). Responses also helped us formulate the measures below.
(2)We also gathered information from patients who were not yet vaccinated, and to understand their reasons for abstaining. We identified patients in APeX who had either never or inconsistently gotten flu vaccines in past years, and conducted phone interviews. These conversations helped identify patient barriers, as well as reinforce our hypothesis in the gap analysis that patients were likely getting flu vaccines elsewhere but not sharing this information with their PCPs. There was also the added benefit of counseling these patients and persuading some to receive their flu vaccine.
(3)Based on feedback that patients wanted more opportunities to receive a flu shot, we organized a student-run flu vaccine clinic. This operated via appointment on Wednesday mornings of our CMC days, and a Saturday Walk-in clinic at Lakeshore. This improved access for patients who did not need a full annual exam, but wanted to receive the flu vaccine as part of health care maintenance. The Saturday clinic was especially important for young professionals and families, since many patients have difficulty attending during weekday hours because of work or school.
(4)Patients wanted more reminders about flu vaccination, so we created an APeX *Smartphrase* for Lakeshore staff to use. With the help of our coach, we encouraged all staff to append the flu vaccine reminder at the bottom of any patient communications. This helped raise awareness of the need for vaccination, as well as publicize the flu clinics that Lakeshore has to offer.

Project Evaluation & Impact



Next Steps, Dissemination & Lessons Learned

Next Steps:
Our next steps are two-fold:

1) Find ways to bridge the "documentation gap" for more comprehensive records in our EHR
2) Investigate methods to change the minds of patients who decline flu vaccines. Lakeshore had an unusually high rate of vaccine declination last year, and we want to be sure all of our patients are protected.

Dissemination:
Clinic-wide use of SmartPhrase reminders are a low effort way to increase awareness of Flu season and UCSF's ability to administer vaccines. Though it takes more effort, other sites could also implement the Saturday clinics and train medical students to administer vaccinations.

Lessons Learned:
Patients differ in how they want to be reminded to get their flu vaccines, but almost all value convenience when obtaining their vaccinations.

Project Title

Sleepless in San Francisco: Using Sleep Kits to Promote Inpatients' Sleep in the Hospital

Francis Harrison, Shakkaura Kemet, and Marissa Silverman

UCSF Medical Center:

Floor 12, Moffitt Hospital

Background

Acute sleep deprivation has tremendous physical and mental health consequences A recent survey done at the University of Chicago hospital found that the average inpatient sleeps 5.25 hours per night (Arora paper "Awakenings"). In comparison to this benchmark, UCSF's inpatients average 6 hours per night. Studies have shown that less than 7 hours of sleep at night increase a patient's risk for immune dysfunction (Arik Prather).

Sleep deprivation is a key driver of delirium, which is linked to increased mortality, length of stay, falls, loss of independence, and discharge to a facility. Since Fall 2016, UCSF's Delirium Reduction Campaign has worked to prevent delirium, utilizing multiple efforts including sleep promotion.

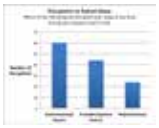
Most sleep improvement efforts focus on single interruptions at night such as vital signs, which does not reflect the importance of an environment conducive to sleep.

Improving sleep in the hospital aligns with UCSF Health's True North pillars to deliver an outstanding patient experience, achieve zero harm, continually improve patient care, lower costs, and create an optimal work experience.

Infographic created by HealthCentral

In an effort to better understand barriers to sleep in the hospital, a survey of 20 inpatients at UCSF Parnassus was conducted. 128 sleep disruptions across 17 different types of disruptions were identified. Most disruptions could be categorized as environmental factors (n=60), provider/system factors (n=44), or patient factors (n=24).

Environmental factors: e.g. alarm sounds, light, noise in hallway
Provider/system factors: e.g., vital sign checks, blood draws, medications
Patient factors: e.g. electronic devices, missing family/friends, pain



UCSF Parnassus currently has resources that are not systematically being utilized to address environmental disruptions to sleep, including: white noise machines, sleep masks, and volunteers who can help implement future sleep promotion efforts.

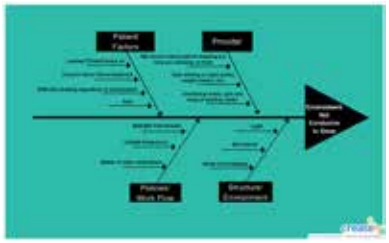
PROBLEM STATEMENT: *In 2016, 20 inpatients were surveyed for sleep disruptions. Of the 128 sleep disruptions cited, 60 (47%) were environmental factors. This is incongruent with UCSF's current sleep promotion efforts, which are focused only on single interruptions at night such as vital sign checks, blood draws, and medication delivery.*

Project Goals

TARGET GOAL: To implement a Sleep Promotion Program by September 2018 that both 1) leads to a mean 1-point increase in self-rated sleep quality among patients (measured on a 5-point Likert scale) before and after our intervention, and 2) that ultimately aligns with UCSF Health's True North pillars to deliver an outstanding patient experience, achieve zero harm, continually improve patient care, lower costs, and create an optimal work experience.

Time	Goal	Measure
By May 2018	Sleep Promotion Program addresses environmental disruptions experienced by inpatients	By September 2018, a mean 1-point increase in self-rated sleep quality among patients before and after our intervention

Project Plan and Intervention(s)



In order to better understand the problem of sleep at UCSF Medical Center, we interviewed patients and nurses on 15 Long. Our interviews unearthed several different contributors to creating an environment not conducive to sleep in the hospital, which fell into four categories (patient factors, provider factors, policies/work flow, and structure/environment). This data is displayed in the fish bone diagram. Of the various components presented in the fish bone diagram, we focused on structural/environmental factors because we determined they were the most feasible to modify.

To further investigate structural/ environmental factors that contribute to an environment not conducive to sleep, we interviewed 7 nurses, 3 patient care assistants, 8 physicians, and 16 patients on 15 Long using the 5 Why's method to identify root causes. We found that white noise machines had been installed in patients rooms on 15 Long to improve patient sleep, but a large barrier to their use was a lack of awareness about their existence by both patients and providers.

We considered two interventions to address the gap we identified in our patient and provider surveys, and enable patients to sleep better in the hospital: 1) an awareness campaign to patient care providers about the in-room (installed) white noise machines that would drown out common background noise in the hospital (i.e.: alarms, staff conversation, nearby patients) and 2) a sleep kit that would include items that might address some of the environmental disruptions to sleep that we uncovered in our interviews such as ear plugs for noise, eye masks for light, herbal tea and crossword puzzles to highlight day and night cycles in the hospital by helping patients relax at bedtime. We chose to have the volunteers offer white noise machines and not an entire sleep kit for two reasons: 1) the white noise machines were readily available while the other supplies were not and 2) since the hospital may be investing in installing more in-room white noise machines on other units as the hospital renovates we believe that providing data on the utility of white noise machines specifically to be the most useful to UCSF in terms of addressing the environmental disturbances we discovered in our gap analysis.

We will implement a countermeasure in which Parnassus Hospital Volunteers - overseen by a clinical nurse champion - conduct evening rounds on patients on 12 Moffitt to offer them portable white noise machines and let them know that improving sleep in the hospital is a priority of UCSF Health. Volunteers will also administer a short baseline survey to patients about their sleep in the hospital. The next day, study team members will round on patients a second time and collect post-intervention survey data, asking patients how they were sleeping in the hospital prior to and after being offered a white noise machine. Study team members will analyze pre- and post-survey data to evaluate the effect of the white noise machines on sleep quality in the hospital, and determine the impact of the overall intervention.

One complication we faced in developing this intervention is that 12 Moffitt is not a unit on which there are in-room white noise machines, and so we used portable white noise machines for our first PDSA cycle. We considered rolling out the intervention on a floor that does have in-room white noise machines, but this would not be feasible without a volunteer coordinator.

Project Evaluation & Impact

WHAT	WHO	WHERE	WHEN
Volunteers need to be trained to administer the patient sleep pre-survey and teach patients how to use the white noise machine	Nurse Champion PW will train the volunteers, with the support of Volunteer Services	12 Moffitt of UCSF Parnassus Hospital	May 2018
Volunteers need to be supervised on 12 Moffitt while they perform their rounds and collect pre-survey data	Nurse Champion PW will supervise the volunteers, with the support of Volunteer Services	12 Moffitt of UCSF Parnassus Hospital	May-June 2018
Study team members will collect post-survey data to evaluate the effect of the white noise machines on sleep quality	Study team members FH, SK, and MS will collect the data	12 Moffitt of UCSF Parnassus Hospital	May-June 2018
Study team members will analyze pre- and post-survey data to determine the impact of the intervention*	Study team members FH, SK, and MS will analyze the data using Microsoft Excel	12 Moffitt of UCSF Parnassus Hospital	June 2018

** Pre-survey measures include: 1) How well did you sleep at home before this hospital stay? 2) How have you been sleeping in the hospital? 3) What other items might help your sleep? Post-survey measures include: 1) Prior to being offered the white noise machine, how were you sleeping in the hospital? 2) How have you been sleeping since using the white noise machine? 3) For how long did you use the white noise machine? 4) What time(s) of day did you use the white noise machine? 5) Did you use it for any reason other than sleeping?*

Next Steps, Dissemination & Lessons Learned

We plan to track our progress in several ways, largely through the feedback options we have integrated into our pre- and post-intervention surveys. In the pre-intervention survey, there are two areas for feedback that we can study. First, we asked the inpatients what sleep-promoting items they would want (sleep mask, ear plugs, herbal tea, etc). The information from this will provide future direction regarding what sleep-promoting items ought to be offered while patients are hospitalized. Ideally, we would like to offer inpatients a sleep kit that includes all the items indicated from our pre-survey to maximize the likelihood that the kit enhances inpatients' sleep quality. Second, we included a space for volunteers to provide open-ended feedback for how they think we can improve our countermeasure. This data will be helpful for creating an experience that is more meaningful for the volunteers, and thus help ensure the longevity of the program.

In the post-intervention survey, we assess patients' sleep quality using a Likert scale, with the goal of creating a mean shift of 1 point on a 5-point Likert scale among patients describing their sleep quality in the hospital before and after our intervention. The post-intervention survey also allows for patients to provide open-ended feedback and describe specifically how they used the white noise machine (e.g. What time of day did they use the white noise machine? For how long? Did they use it for any other reason than sleeping?). This patient-reported data will offer future insight into how patients are using the white noise machines and how we can improve our intervention to better enhance patients' sleep in the hospital. The overall hope is that the data collected from these pre- and post-surveys will be utilized by future QI teams.

In the future, we would identify a clinical champion earlier on in the development process. Without this champion early on, we experienced significant delays in implementing our intervention

Influenza, Pneumococcal, and Shingles Vaccinations in MS and Neuroflammation Clinic Outpatients on Therapeutic Immunosuppression

UCSF Medical Students: **Heather Ma, Keith Sakata, Sarah Semaan, MS1s**

Medical Assistant Team: **Francis Bustos, Emily Kwok, Corine Scott**
Nursing Team: **Lynda Cagampan, RN, Jessica Figlietti, LVN, Tashi Tsomo, RN**
Nurse Practitioner: **Amy Schwartzburg, NP**
Pharmacy Team: **Lynn Do, PharmD, BCPS, MSCS, Steven Merrill, PharmD**
Clinic Manager: **Richard Falasco**
Neurologists: **Ari Green, MD, MAS (Medical Director), Andrew Romeo, MD, Riley Bove, MD, Jeffrey M. Gelfand, MD, MAS FAAN***

*On behalf of the UCSF MS Center Unit-Based Leadership Team

**Acknowledgements and special thanks to UCSF Rheumatology, including Andrew Gross, MD and Darlene Lee, NP

Background

Multiple Sclerosis and Vaccinations

•Multiple sclerosis (MS) is an autoimmune disease of the CNS that affects over 400,000 people in the US.[1]
•Therapeutic immunosuppression is a widely used treatment for MS and other neuroinflammatory conditions.
•There is an emerging consensus that it is safe and compelling for immunocompromised patients, including those with MS, to receive inactivated and/or recombinant vaccines including influenza, pneumococcal and shingles.[2,3,4]

Impact of Vaccination on Health

	Illness	Hospitalization	Death	Risk Reduction
Influenza[5]	9.2 - 60.8 million	140,000 - 710,000	12,000 - 56,000	40-60%
Pneumococcal[6]	900,000	400,000	19,000	50-85%
Shingles[7]	1,000,000	10,000-40,000	96	97.2

Current Conditions

•Prior to this project, the UCSF MS Clinic did not systematically or routinely record vaccination status or administer influenza, pneumococcal, or shingles vaccinations in clinic. The Clinic aims to be a national leader in promoting appropriate vaccinations for our immunocompromised patients.
•**>90% of patients seen in MS clinic did not have vaccination status recorded in APeX** based on a query from Oct 19, 2015 to Oct 16, 2017.

Percent without Vaccination Status Recording

Vaccination Received		Yes	No	Not Recorded
Influenza	N (%)	146 (5.9%)	65 (2.6%)	2271 (91.5%)
Pneumococcal	N (%)	74 (3.0%)	90 (3.6%)	2318 (93.4%)

Rationale

•Based on an APeX query, approximately 70% of MS clinic patients do not have a UCSF-affiliated primary care provider (PCP) and 19% do not have any PCP recorded in APeX.
•The majority of MS Clinic patients are covered by health plans that would most likely reimburse for vaccinations (63.3% private, 20.8% Medicare, and 8.8% Medicaid).
•Every patient encounter represents an opportunity to record vaccination status and offer in-clinic influenza, pneumococcal and/or shingles vaccination to eligible patients.

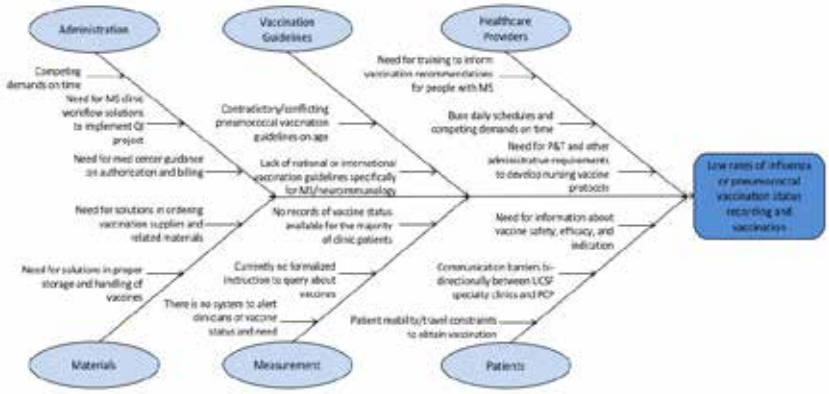
Project Goals

Target Goals for Vaccination Status and Provision

UCSF Medical Center True North Benchmarks	Current	Target
Continue to improve patient care: Increase rates of documentation of vaccination status in the MS Clinic as a structured variable in the vaccination record in APeX by July 2018 as measured by:		
1. The percentage of clinic patients with up to date influenza vaccination status	8.5%	70%
2. The percentage of clinic patients with up to date pneumococcal vaccination status	6.6%	70%
3. The percentage of clinic patients with up to date shingles vaccination status	0%	70%
Optimizing access and achieving zero harm: Launch a pilot in-clinic vaccination program by May 2018 to increase vaccination rates in eligible MS Clinic patients with full roll out and achievement of target goals by March 2019 as measured by:		
4. The percentage of eligible clinic patients who receive an influenza vaccine in clinic during the 2018 flu season	0%	50%
5. The percentage of eligible clinic patients who receive a pneumococcal vaccine in clinic by March 2019	0%	50%
5. The percentage of eligible clinic patients who receive a pneumococcal vaccine in clinic by March 2019	0%	50%

Project Plan and Intervention(s)

Gap Analysis:
To identify the root causes, we conducted interviews with patients, clinicians, MAs, nurses, pharmacists, and administrative leadership within the UCSF MS Clinic. We also conducted a site visit to the UCSF Rheumatology Clinic to learn about their successful in-clinic vaccination efforts.



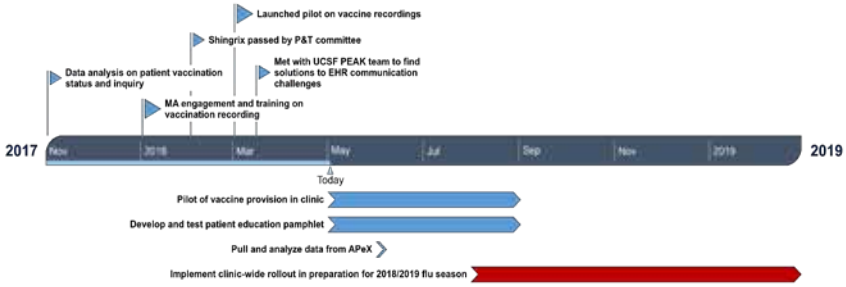
Countermeasure 1 to Improve Recording of Vaccination Status: MAs will ask all patients checking in for visits in MS Clinic about their influenza, pneumococcal, and shingles vaccination status and record vaccination status in APeX under the vaccination tab.

Rationale: The extent of under-vaccination in MS Clinic patients cannot be determined without accurate recording. Based on the gap analysis and discussions with the UBLT and inter-disciplinary clinic team, MAs were identified as the best point of contact to collect this data since the MAs already triage and see each patient prior to the physician visit.
Expected Outcome: Increased vaccination recording rates in APeX. Data will be analyzed at months 1 & 3 and then quarterly for auditing and feedback.

Countermeasure 2 to Vaccinate in Specialty Clinic: Establish a system to prescribe and, when able, administer influenza, pneumococcal, and shingles vaccinations in the MS Clinic. This also includes developing a clinic consensus about vaccination recommendations for this immunosuppressed neurological patient population.
- Physicians will offer, counsel, and place an order for eligible patients who wish to proceed vaccination(s) in-clinic or prescribe vaccination(s) as part of the clinic visit.
- MS Clinic nurses will administer the ordered vaccine(s) in clinic.

Rationale: Many MS clinic patients on therapeutic immunosuppression do not have easy access to vaccinations, and mobility restrictions can be a major barrier due to neurological disease. Furthermore, over 70% of MS clinic patients receive primary care outside of the UCSF system. Providing vaccinations in-clinic will allow efficient patient access for vaccinations and improve patient safety.
Expected Outcome: Increased vaccination rates. Data will be analyzed quarterly for auditing.

Project Evaluation & Impact



Next Steps, Dissemination & Lessons Learned

Next Steps
- Pilot vaccine provision in clinic
- Revise vaccination protocol with physician, nurse, and MA feedback
- Conduct patient and provider education campaign using unified 'Vax Pack' branding
- Implement clinic-wide rollout

Dissemination
- Present in November 2018 at CMC HIS Poster Symposium
- Present results of program, along with quarterly updates, to clinic staff after clinic-wide rollout
- Document/disseminate experience to broader MS community via manuscript and/or presentation at upcoming national conference.

Lessons Learned
- Attention/support is increasingly given to vaccinations within specialty clinics at UCSF—this needs to become more of a priority especially in clinics that work with immunocompromised patients.
- Significant logistical and IT challenges exist to vaccine recording and administration within specialty clinics and integration with primarily care within the system can be improved.

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2018 UCSF Health Improvement Symposium

Reducing Stress and Improving Understanding of Wellness in Post Lung Transplant Caregivers

Geena Zhou (MS1), Zane Hellmann (MS1), Lorriana Leard (MD)

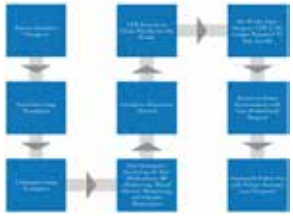
UCSF Lung Transplant

Background

Lung transplantation has become an important therapeutic option for patients with advanced lung disease, primarily to extend survival and improve health-related quality of life (HRQOL) of the lung transplant recipient (LTR). There were 2327 lung transplants done in the United States in 2016, including 68 at UCSF. Undergoing a lung transplant is a complex process. The United Network for Organ Sharing (UNOS) requires that all LTRs have a caregiver identified who will assist with the post-transplant management. The post-lung transplant period is an extremely stressful process for both LTRs and their caregivers. Caring for a LTR requires administering up to 35 medications, around 4 times a day, every day and keeping a strict hygiene regimen, as well as offering emotional and psychosocial support to the LTR, despite the caregiver likely having no prior experience.

Over the past year, the UCSF lung transplant team has increasingly realized the importance of the caregiver in the outcome of the LTR and the effects of caregiver burnout. One attempt to lower caregiver stress levels was providing caregivers with a gift bag containing local resources and some supplies. While the Caregiver Bag Project was appreciated, feedback from caregivers has indicated a need for more emotional and psychosocial support.

In 2017, 80% of caregivers for UCSF LTRs reported being a caregiver is a stressful experience and this contributes to the overall patient experience. In addition, caregiver burnout resulted in the re-hospitalization of 2 of the 68 patients who underwent lung transplant in 2016. Thus, to improve in the UCSF True North Goals related to improving the patient experience and reducing costs, the UCSF Lung Transplant team must identify ways to reduce caregiver stress levels and improve caregivers' understanding of the effect of their own wellness on the outcomes of LTRs.



80% of caregivers for lung transplant recipients transplanted at UCSF in the past 5 years report being a caregiver as a stressful experience and 72% believe that their own wellness will affect the transplant recipient's outcome. Too many caregivers for UCSF LTRs are finding the caregiving experience to be stressful and this has potential to affect the overall patient experience.

Project Goals

Our goal is to implement changes that will reduce the stress of the caregiving experience and improve caregivers' understanding that their wellness is important for LTRs outcomes, thereby improving the overall patient experience.

Our survey of UCSF LTR Caregivers indicated that 68% were stressed by the weight of being primarily responsible for their loved one, 43% found it difficult to find time to relax and unwind while caring for their loved one, and 37% stated they sometimes neglect their own health needs to fully care for their loved one. This fishbone gap analysis diagram was produced to document the numerous ways caregivers become stressed throughout their LTR's transplant process.

Our survey also indicated that caregivers want more transplant/recovery education. Nursing coordinators at UCSF Lung Transplant noted that caregivers do receive a lot of information, but most of that comes in a very short time period. During the immediate post-lung transplant period, caregivers are inundated with a significant amount of information at once, which we believe is contributing to caregiver stress. During the waitlist period, however, patients and caregivers do not receive too much information to prepare them for life post-transplant. This seems like a great window during which to prepare the caregivers. In addition, traditional post-transplant materials produced have been patient-centered. This packet of information is called the "Blue Binder."

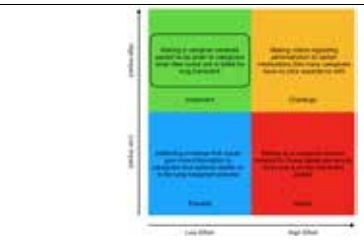
Project Plan and Intervention(s)

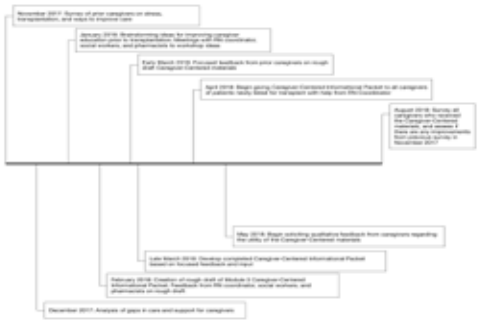
This project would aim to improve the pre/post-transplant education offered to caregivers by providing caregivers with their own version of the "Blue Binder" with annotated comments tailored to caregivers.

- Packet will be given to the caregiver at the time of patient listing for lung transplant.
- This will give caregivers more time to better understand the important role they will play for their patient should their loved one receive a transplant.
- Among these helpful caregiver tips are mindfulness reduction techniques and other stress-relieving techniques to enable caregiver awareness about the importance of their own wellbeing.
- Additional emphasis on the caregiver will reinforce UCSF Lung Transplant's dedication to caregiver wellbeing which will improve patient experience.

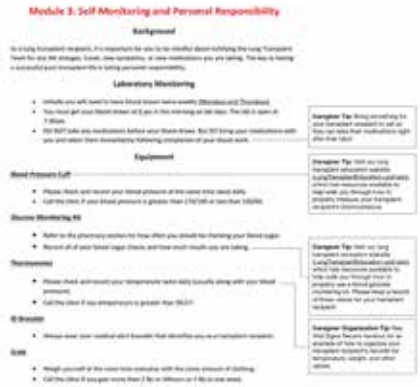
Plans:

- Develop the new caregiver-centered "blue binder" packets
- Send them to the RN coordinator for printing and distribution to patients' caregivers at the time of listing for lung transplant.
- Online versions of the caregiver-centered "blue binder" packets will be emailed to any secondary caregivers or caregivers not present at the time of listing.





Project Evaluation & Impact



This is an example of the type of caregiver centered materials we are planning to give in conjunction with the regular "blue binder" materials that are now given when a patient is put on the waiting list for a lung transplant.

Rather than try and write a completely separate binder, we felt that an annotated version of the current "blue binder" materials would cause the least confusion for the caregivers, while still providing them the most amount of information that they need in order to both properly care for their recipient as well as themselves.

These materials have already begun to be reviewed by:

- Members of the UCSF Lung Transplant team
- Experienced caregivers of lung transplant recipients.

Next Steps, Dissemination & Lessons Learned

Next Steps:
We will continue to distribute caregiver-centered blue binders to caregivers at the time of listing. We will gather caregiver feedback about the new binders, and will resend out the original caregiver survey and chart the percentage of caregivers who report finding the caregiver experience stressful, and the percentage of caregivers who understand that their wellness as the caregiver will lead to better survival outcomes for their respective lung transplant recipients.

Dissemination:
Our work provides an example of modifying patient education materials to improve patient care. Caregiver wellness is an often less emphasized portion of patient care. Other UCSF Health departments could begin looking at their patient education materials and modifying them when appropriate to include the caregivers in the conversation of patient care.

Lessons Learned:
The caregiver-centered packet, along with tips, was crafted in Microsoft Word. It was an unexpected challenge to format the tips in a way that was not too complicated so that edits could easily be made, should the contents of the blue-binder or caregiver tips be changed in the future. Most importantly, none of this project's work could have been completed without the guidance, feedback, and help of UCSF Lung Transplant's interdisciplinary team. We worked with social workers, pre and post-transplant nurse coordinators, pharmacists, nurse practitioners, and physicians.

2018 UCSF Health Improvement Symposium

Reducing Outpatient Pediatric Immunization Wait Times

Ryan Halvorson, Nicole Hung, Ryan Phelps, Margot Pierluissi, Aishwarya Thakur, Nanah Park

Mt. Zion Pediatrics

Background

Clinic wait times cause dissatisfaction among patients and their families at UCSF Mt. Zion Pediatric Primary Care Clinic (MZPPCC). In FY 2017, only 86.7% of patient families reported that they would recommend MZPPCC to others. This is below the clinic's True North goal of 88.2%. These scores rank the clinic in the 21st percentile nationally and in the 38th percentile in California. In the same surveys, wait time was identified as the main source of patient dissatisfaction.

There was a large variability in wait times for immunizations between visits. The average wait times were 8.8 and 5.5 minutes for 15- and 30-minute visits, respectively. However, some patients waited up to 30 minutes for immunizations. Because this was the rate-limiting step in many appointments, it was a prime target for intervention.

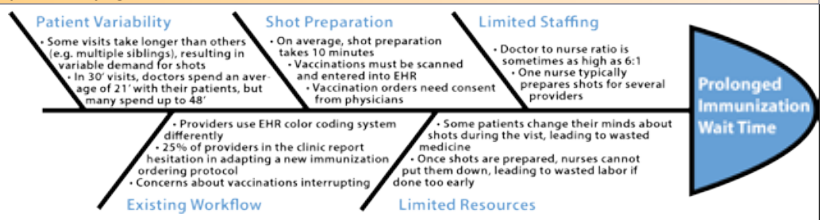
Project Goals

Target	Visit Type	Current Time	1 Month Goal	6 Month Goal
Shot Wait Time	15 Minute	8.3	7	< 5
	30 Minute	5.5	5	< 5
Total Visit Time	15 Minute	46.0	45	< 45
	30 Minute	59.9	58	< 55

As illustrated above, the UCSF system-wide True North goals for total visit times are 45 minutes for 15-minute appointments and 55 minutes for 30-minute appointments. These goals were determined by combining national standards, peer institution comparisons, and theoretical estimates regarding how wait times relate to patient satisfaction. The goal would be to decrease the average shot time to 5 minutes to reduce variability and increase patient satisfaction.

Project Plan and Intervention

Step 1: Identifying Root Causes



Step 2: Creating Countermeasures

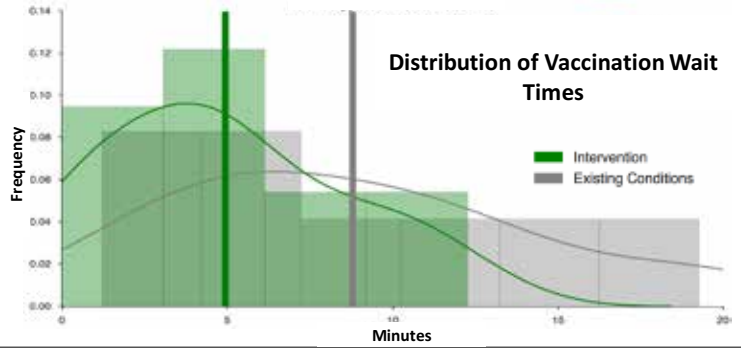
Intervention	Description	Drawbacks	Impact	Feasibility
Reverse Visits	- MD gets consent after patient is roomed - LVN prepares and gives shots before MD returns for visit	- Potential for early vaccinations to disrupt remainder of visit	++	+
Standardized Immunization Protocol	**- MD orders shots before performing physical - LVN is alerted by dot system in EHR to prepare shots**	**- LVN may have to wait OR MD interrupted if shots ordered /prepared too soon**	**+++**	**+++**
Reduce MD:Nurse Ratio	- Nurses and MDs work together 1:1 to optimize collaboration	- LVN shortages results in LVNs being called to other UCSF sites or Acute Care	+++	+

Step 3: Implementing Proposed Intervention

What	Physicians confirm vaccinations with parents and sign orders before starting the physical examination.
Who	Physicians are responsible for entering shot orders. LVNs are responsible for preparing the shots during the physical exam and entering the exam room as quickly as possible when the physician leaves.
Where	The intervention will primarily take place at the computer in the exam room.

Project Evaluation & Impact

Standardizing the immunization ordering protocol across all providers reduced the average faculty practice immunization by 43%. The **mean wait time decreased from 8.80 minutes to 4.95 minutes** (p=0.048, one tailed T-test). The **standard deviation decreased from 5.76 minutes to 3.73 minutes.** n = 24 visits per group. Vertical bars represent mean wait time for each group.



Next Steps, Dissemination & Lessons Learned

Next Steps:

Expand beyond faculty practice to resident practice → Expand intervention to all clinic shifts and providers → Continue to educate and update staff and providers

Dissemination:

Other UCSF clinics can conduct time studies to identify the unique challenges that to implement an appropriate intervention that is designed with the input of all staff members and providers. If vaccine ordering and administration is identified as a root cause of prolonged wait time in other UCSF clinics, then it will be crucial to implement interventions that do not disrupt the flow, or increase time or cost spent for those specific clinics.

Lessons Learned:

Interprofessional communication is critical. All staff members and health care providers must be made aware of the intervention, as the care provided involves the participation of multiple team members. Also, monitoring progress in the upcoming months via patient satisfaction surveys will close the loop on the intervention.

Post-Operative Outpatient Opioid Prescription and Disposal After Minimally Invasive Gynecology Oncology Surgery

Noah Nichols,
Smrithi Sukumar,
Juan Vasquez,
Odinakachukwu Ehie, MD
Lee-may Chen, MD
Lee-lynn Chen, MD

Background

The over-prescription of opioids has led to a national opioid epidemic. Every year, 12.5 million people misuse prescription opioids, and 2 million develop a prescription opioid use disorder. Since 2014, the UCSF Gynecology Oncology department has used an Enhanced Recovery Pathway to increase multimodal analgesia prescriptions.

A study conducted at the University of Michigan found that 33.33 oral morphine equivalents (OME) of opioids were sufficient for outpatient pain-management after minimally invasive surgery. In addition, it is unclear if patients receiving Gynecology Oncology surgery at UCSF know how to safely dispose of unused opioids.

We assessed current opioid prescription habits and patient awareness of safe opioid disposal by creating and administering a survey to patients between January and March of 2018 who had undergone minimally invasive Gynecology Oncology surgery at UCSF. We also reviewed patient charts to quantify the amount of opioids they were prescribed.

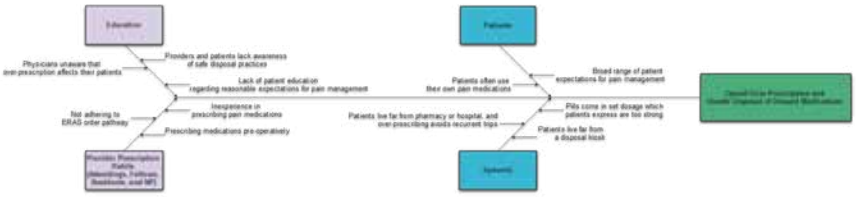
Project Goals

Our goal is to decrease the proportion of patients who are overprescribed opioids for outpatient pain management after minimally invasive Gynecology Oncology surgery by 10% by September 2018.

Our second goal is to increase the number of patients who know how to safely dispose of unused pain medications by 10% by September 2018. These targets align with UCSF's True North goals of resource management and patient safety.

Our outcomes will be measured by a second administration of the patient survey following our intervention.

Project Plan and Intervention(s)



This fishbone analysis was formed based on the results of a survey created and administered to 7 Gynecology Oncology providers, including physicians, nurse practitioners, and nurses.

Based on these results we began the following interventions on 4/3/18:

1. Creation of a dot phrase that included post-operative patient discharge instructions regarding how to safely dispose of unused opioid medication, including information regarding disposal kiosks and mail-back programs
2. Creation and distribution of flyers in post-operative discharge areas to encourage providers to use dot phrase
3. Standardize the suggested prescription of oxycodone in the Enhanced Recovery Pathway to 20 pills
   - oxycodone, 5mg (66.66 OME)
4. Assess quality of pain management in patient survey to ensure that the decrease in opioid prescription would not compromise pain management

Project Evaluation & Impact

	Average OME Prescribed	Self Reported Quantity Prescribed	Knowledge Safe Disposal
Pre-Intervention w/o Hx of chronic pain management (n = 13)	71.79	More: 77% Enough:15% Less: 0%	N/A
Pre-Intervention w/ Hx of chronic pain management (n = 11)	105	More: 27% Enough: 46% Less: 18%	N/A
Total Pre-Intervention (n = 24)	86.23	More: 57% Enough: 30% Less: 13%	46%
Post Intervention w/o Hx of chronic pain management (n = 5)	54.17	More: 80% Enough: 20%	60%

- Average OME prescribed decreased by 25% after the intervention
- Knowledge of safe disposal increased by 30% after the intervention
- Post-intervention patients surveyed reported pain was well controlled, quantified pain control as 4.8/5
- Self reported quantity prescribed amongst those without chronic pain medication use has increased by 3%, despite the decrease in overall quantity of medication prescribed
- Patients with past history of chronic pain management were prescribed more opioids and were more likely to report that they not prescribed enough pain medication

Next Steps, Dissemination & Lessons Learned

Next Steps:

- Continue to assess the impact or our intervention by collecting more patient surveys
- Develop a graphic or video to accompany the discharge notes in order achieve better patient education
- Distribute envelopes for the mail-back of safe medication disposal to all patients upon discharge
- Translate education information on safe disposal to other languages

Dissemination:

Other surgical services at UCSF, including colorectal surgery, use Enhanced Recovery Pathways to optimize patient care. Such services could benefit from using a similar dot phrase to increase patient education on safe disposal, as well as implementing a similar suggested dose of opioids for post-operative pain management.

Lessons Learned:

Our initial goal was to increase post-operative multimodal analgesia. After a lot of data analysis we realized that 85% of patients were already receiving multimodal analgesia and that there was not much we could do to improve this. We learned that before we begin working towards an intervention we need to first establish the current conditions and ensure that the data robustly support the existence of a "gap" that we can improve.

2018 UCSF Health Improvement Symposium

App Store in APeX: Creating a Robust Application Testing Environment

Chris Stewart,[1,*] Lauren Phinney,[1,*] Raman Khanna, MD[2]

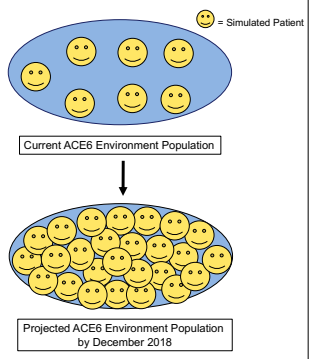
1 UCSF School of Medicine
2 UCSF Department of Hospital Medicine
*Contributed equally

Background

- Novel health IT software can interact with our EHR
- These applications require rigorous testing before deployment
- The current testing environment is insufficient due to limited patient data
- Generating such data presents challenges:
  - No institutional consensus
  - Significant time requirement
  - Data security issues

Project Goals

- Optimize APeX testing environment (ACE6) by developing virtual patients with complex data
- Populate ACE6 with 40 virtual patients by December 2018
- Sufficiently populate ACE6 for all application development by May 2020



Project Plan and Intervention(s)

Countermeasures Not Employed

Scramble Patient Health Information (PHI) (Sutter) - Automated PHI recombination
Con(s): Non-realistic patients (i.e. 5 y/o with heart failure), chance of PHI breach

De-Identify PHI (Kaiser) – Manual removal of all identifying information from patient data
Con(s): Very laborious, chance of PHI breach

Pre-made environment (App Orchard) - Generic test environment and patients
Con(s): Environment does not match UCSF → potential problems in PRD

Pre-made test patients (Synthea) - Pre-made patients imported into ACE6
Con(s): Importing to ACE6 would require infrastructure that is currently not available

Countermeasures Employed

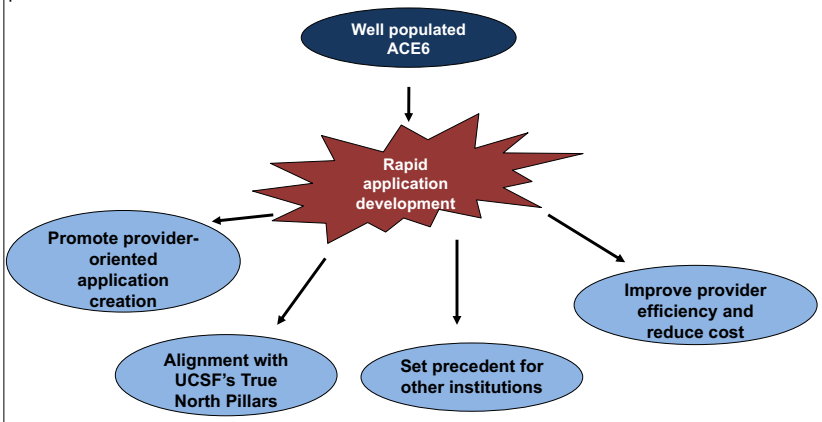
In-House test Patients (UCSF) – UCSF employee or students create simulated patient population
Pro(s): Realistic patient data customized to UCSF, mimics PRD, no risk of PHI breach
Con(s): Labor intensive and costly to institution

Justification for Decision

- Each countermeasure provide a bulk of test patient data
- In house creation provides best cost-benefit
  - Most streamlined application development; utilizes current infrastructure
  - Minimizes the cost of potential data breaches to the patients and the institution

Project Evaluation & Impact

By creating a robust testing environment for application development at our institution, we can create a model to provide other institutions guidance for the necessary number and quality of virtual patients.



Next Steps, Dissemination & Lessons Learned

In the design of the current testing environment, several lessons have been learned:

1. Testing environments must mimic the current production environment in both functionality and complexity.
2. A systematic approach to generating complex data can help to alleviate current difficulties with application development.
3. Complex data must be documented in ways that allow developers to confirm that their applications are accessing and altering data in the EHR as intended.

WHAT	WHO	WHERE	WHEN
Create a standard operating procedure (SOP) to streamline patient creation and increase personnel to develop the environment	Bridges students with faculty assistance	UCSF medical center (remotely)	July 2018
Create a sufficient number of patients to test initial stages of application development (n=150)	Bridges students and undergraduates with faculty assistance	UCSF medical center (remotely)	May 2019
Finalize test environment with sufficient data to provide for any new application idea (n = 500)	Bridges students and undergraduates with faculty assistance	UCSF medical center (remotely)	May 2020

2018 UCSF Health Improvement Symposium

Delirium Screening in the Pediatric Intensive Care Unit

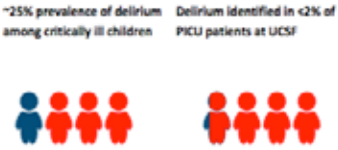
Iris Liu, Kyle Roter, Mary Turocy
Deborah Franzon, MD

University of California, San Francisco
Department of Pediatrics
Division of Critical Care

Background

Delirium is a behavioral manifestation of acute cerebral dysfunction associated with serious medical illness. It is frequently associated with changes in activity level, sleep impairment, and emotional disturbances. Delirium has multiple subtypes, making it especially difficult to identify in the hospital setting.

Nationally, the prevalence of delirium in pediatric intensive care units (PICUs) is estimated to be 25%. At UCSF Benioff Children's Hospital, a retrospective chart review showed that a delirium diagnosis was included in fewer than 2% of problem lists. The true prevalence is unknown, because there is currently no systematic screening protocol in place. Pediatric delirium is associated with increases in length of PICU stay, length of hospital stay, duration of mechanical ventilation, costs, and mortality. Specifically, pediatric delirium is associated with an increase in PICU stay by 2.3 days and a $14,029 increase in median total PICU costs per patient. UCSF has successfully implemented delirium prevention projects in adult ICU and hospital wards.



Project Goals

We aim to elucidate the true prevalence of delirium in the UCSF PICU through implementation of a standard screening tool in the electronic medical record. Screening for pediatric delirium will enhance care by quantifying the scope of the problem and providing valuable data to help staff design interventions to prevent and treat this serious condition.

To this end, we aim for daily screening with the CAPD tool via the electronic medical record for 60% of PICU patients by December 2018. This will enable clinicians to identify patients at high risk for delirium and develop a care strategy, allow the unit to implement standard delirium prevention procedures and measure their effect, decrease costs, and improve outcomes.

This goal is aligned with the True North Pillars of Quality and Safety and Patient Experience, because identifying and treating delirium will continually improve patient care and the hospital experience for patients and families. We also aim to bridge the current knowledge gap by increasing education and training for physicians, nurses, and other pediatric care providers.

Project Plan and Interventions

In order to better understand the prevalence of pediatric delirium in the PICU, we conducted a preliminary screening using the Cornell Assessment of Pediatric Delirium (CAPD). The CAPD is a validated rapid screening tool for pediatric delirium with high sensitivity and specificity that takes approximately 2 minutes to administer. The nurse completes the tool independently based on his or her interactions with the patient during the course of the shift, and interaction with the patient or family is not required.

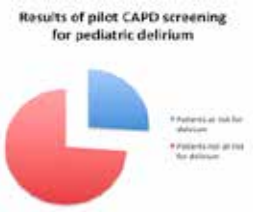
5 WHYS:
Problem: At UCSF, delirium in the PICU is not well identified.
Why? Physicians and nurses are not aware that pediatric delirium is underreported at UCSF compared to the incidences reported in national multi-center studies.
Why? Pediatric delirium is rarely discussed on rounds.
Why? There is a lack of education about pediatric delirium.
Why? Screening for delirium is not part of the normal workflow.
Why? There is a lack of a common screening tool available for nurses to use.

Preliminary screening of a convenience sample of 50 patients in the TCU and PICU over 4 months resulted in 13 positive screens, or scores greater than 9, indicating risk of delirium. This suggests a delirium prevalence of approximately 26%, consistent with the prevalence of delirium in critically ill children in the literature of 25%.

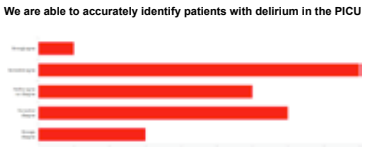
To address the lack of education and discussion about delirium among the PICU nursing staff, we presented the results of our pilot screening and conducted an educational session about pediatric delirium at a PICU nursing staff meeting. Before the meeting, we administered a short 10-item survey to assess knowledge of delirium and attitudes toward delirium screening in the PICU, and collected 26 responses. The presentation was approximately 15 minutes long and included interactive discussion about benefits of screening, methods of delirium prevention and treatment. Collection of post-intervention survey data is ongoing.

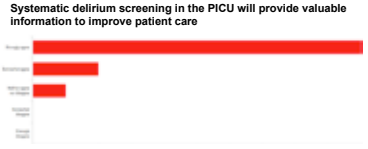
Project Evaluation & Impact

Preliminary screening of a convenience sample of 50 patients in the TCU and PICU over 4 months resulted in 13 positive screens, or scores greater than 9, indicating risk of delirium. This suggests a delirium prevalence of approximately 26%, consistent with the prevalence of delirium in critically ill children in the literature of 25% and significantly higher than the 2% rate of delirium documented in PICU problem lists. This discrepancy reflects the urgent need for the implementation of a tool to regularly screen and identify patients at risk for delirium and to establish a plan for delirium prevention and treatment.



Based on the pre-survey administered to 26 PICU nurses at the delirium education session, nurses are only moderately confident in accurately identifying patients with pediatric delirium (34% somewhat agree, 27% somewhat disagree, 23% neither agree nor disagree). This was supported by our knowledge assessment questions, with only 27% correctly identifying the prevalence of pediatric delirium in critically ill children, and 50% or more of respondents failing to recognize age <2 years, mechanical ventilation and anti-epileptic medications as risk factors for pediatric delirium. Encouragingly, there was strong support among nursing staff for adding systematic delirium screening to the PICU workflow. Among surveyed nurses, 92% agreed or strongly agreed that delirium screening would provide valuable information to improve patient care, and 88% agreed or strongly agreed that improving recognition, management and prevention of delirium would increase their work satisfaction.





Next Steps, Dissemination & Lessons Learned

Next Steps: Our goal is to have systematic delirium screening using the CAPD implemented in the electronic medical record. This is in progress, and we aim for daily screening with the CAPD tool via the electronic medical record for 60% of PICU patients by December 2018.

Dissemination: We believe this improvement work could be directly implemented in additional units of the hospital, such as the Transitional Care Unit, as well as other sites, such as UCSF Benioff Children's Hospital Oakland.

Lessons Learned: We learned about the importance of interprofessional collaboration and continuing education. Our discussions with the nursing staff highlighted key issues with the EMR implementation, provided constructive feedback about some of our proposed plans, and emphasized the staff's interest in continuing education to improve patient care.

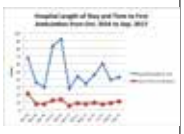
Pre-Operative Enhanced Recovery Pathways in Minimally Invasive Gynecology-Oncology Surgery

Carolyne Face, Arpine Galstyan, Tianyi Zhang, Odinakachukwu Ehie, M.D., Lee-May Chen, M.D., Lee-Lynn Chen, M.D.

UCSF Gynecology-Oncology Service

Background

- From October 2016 to September 2017, in the Gynecology-Oncology service at UCSF Mission Bay, the average hospital length of stay and the average time to mobility for patients undergoing minimally invasive surgery was 50.16-hours and 10.26-hours, respectively.



- Enhanced recovery pathways (ERPs) are strategies to optimize the management of surgical patients by lowering the days patients spend in hospitals and accelerating patient recovery.
- In the Gynecology-Oncology service at UCSF Mission Bay, research showed that compliance with the pre-operative components of an enhanced recovery pathway (e.g., pre-procedural carbohydrate loading and administration of acetaminophen, gabapentin, and diclofenac) decreased hospital length of stay by 11.8% (Chapman et al., 2016).

- Additionally, only 47.15% of this patient population had carbohydrate loading prior to surgery.

Project Goals

Our goal of improving hospital length of stay and decreasing time to post-operative ambulation aligns with the hospital's true north pillars of lowering hospital costs, improving quality and safety, and enhancing patient experience.

From October 2016 to September 2017, 37.34% of patients undergoing minimally invasive surgery in the Gynecology-Oncology service at UCSF Mission Bay received multimodal analgesics (acetaminophen, gabapentin, and diclofenac).

The aim of our study is to reduce hospital length of stay and post-operative time to ambulation by 5% in order to lower hospital costs, improve quality and safety, and enhance patient experience.

We plan to evaluate and improve compliance with the preoperative components of the ERAS pathway in the Gynecology-Oncology service at UCSF Mission Bay from December 2017 to September 2018. Using the Electronic Medical Record (EMR), we will monitor compliance with multimodal analgesics and carbohydrate loading

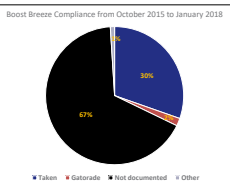
Project Plan and Intervention(s)

In order to determine effective interventions, we performed a gap analysis using the "5 Why's" method. Based on our findings, we implemented two interventions. Our first intervention is a modality in the Electronic Health Record (Apex) that allows medical staff to accurately document whether or not patients are boost breeze compliant. Our second intervention requires reporting the documentation findings back to medical staff in order to improve documentation compliance.

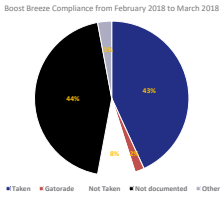
By creating a robust and simplistic way of tracking boost breeze compliance, we hope to increase boost breeze documentation by medical staff. In addition, we hope to better understand the reasons why non-compliant patients may choose to not take boost breeze.

Project Evaluation & Impact

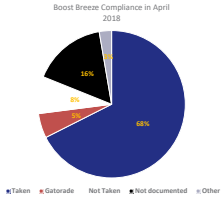
According to the Electronic Health Record, from October 2015 to January 2018, 30% of patients were reported having taken boost breeze, 2% of patients were reporting having substituted boost breeze with Gatorade, and 1% of patients were reporting having substituted boost breeze with a beverage other than Gatorade. However, for 67% of patients, there were no records indicating whether or not boost breeze was taken or if it was substituted for another beverage.



Once Apex was updated with a modality to improve boost breeze documentation in February 2018, 43% of patients were reported having taken boost breeze, 2% of patients were reporting having substituted boost breeze with Gatorade, and 3% of patients were reporting having substituted boost breeze with a beverage other than Gatorade. However, for 44% of patients, there were no records indicating whether or not boost breeze was taken or if it was substituted for another beverage.



In April 2018, 68% of patients were reported having taken boost breeze, 5% of patients were reporting having substituted boost breeze with Gatorade, 8% of patients were reported having not taken boost breeze or a substitute, and 3% of patients were reporting having substituted boost breeze with a beverage other than Gatorade. However, for 16% patients, there were no records indicating whether or not boost breeze was taken or if it was substituted for another beverage.
On May 1, staff were provided with feedback regarding these findings.



Next Steps, Dissemination & Lessons Learned

We will continue analyzing compliance on a monthly basis in order to determine whether compliance improves post-feedback. Based on those findings, we will then determine whether or not additional measures should be taken—e.g., implementing training sessions for physicians to refine medication order sets or facilitating a meeting with the nurses staff to establish finite documentation protocols.

Once we finish our data collection and analysis, we hope to then share our findings with the larger UCSF community in hopes of increasing compliance with the ERAS pathway in other surgical services.

Through this experience, we learned that communication must be standardized in order to maintain efficiency and ensure compliance.

2018 UCSF Health Improvement Symposium

Posters for Session 2
5:30-6:45p

Survivorship Wellness:

First Year Findings from the HDFCCC Group Program Initiative for Cancer Survivors

Jamie Alexis Cohen PsyD
Mikela Barulich
Anna O. Levin PhD
Dianne Shumay PhD
UCSF Psycho-Oncology

Background

Survivorship Wellness:

- Comprehensive, cohesive programming focused on fostering wellness following active cancer treatment
- Allows supportive care programs to reach patients effectively and efficiently with:
  - Guidance implementing lifestyle changes to minimize recurrence
  - Assistance navigating the physical and psychosocial effects of treatment
- A collaboration among existing but independent supportive care programs within the HDFCCC, spearheaded by UCSF Psycho-Oncology

Project Goals

Benefits for our Patients

- Provide support that will improve survivors' mood, symptom severity, and quality of life
- Increase patient interest and enrollment in existing Cancer Center survivorship initiatives
- Foster a sense of a HDFCCC survivor community

Benefits for our Clinical Programs

- Provide a streamlined referral process for patients who are transitioning into survivorship
- Reduce individual appointment burden on cancer clinics by offering content and support in a group format

Programmatic goals include to:

1). Increase accessibility to survivorship-oriented support at critical transitions in care
2). Optimize identification of patients approaching end of active treatment through supportive care needs questionnaires and medical record identification of treatment transitions
3). Complete of 4 iterations of the program for at least 40 survivors over a one-year pilot
4). Demonstrate patient improvement in mood at 3 measurement points (Baseline, week 9, and week 15), as measured using established self-report questionnaires (PROMIS Depression measure)

Notable Findings

- Patient satisfaction increased across each consecutive cycle
- Preliminary data suggests that patients who completed the program showed a significant decrease in self-reported depressive symptoms on the PROMIS questionnaire from baseline to week 15 ($t(9)=2.5$, $p=.033$)
  - Baseline week (M=8.1, SD=3.2)
  - Week 15 (M=6.5, SD=2.5)

Acknowledgements

We are exceedingly grateful for the contributions of the following team members in the development and execution of **Survivorship Wellness**: Laurel Bray-Hanin, Jun Caole, Jane Clark, Susan Conrad, Jessica Davis, Naomi Hoffer, Greta Macaire, Michelle Melisko, and Lisa Ploss. Funding generously provided by the Mount Zion Health Fund

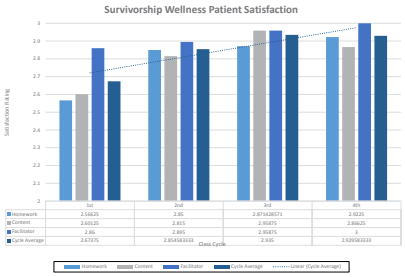
Group Program Model

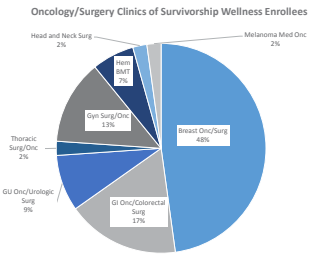
- Survivorship Wellness is an eight-week, **rolling enrollment group program** offering **evidence-based** instruction and **personalized goal-setting** on cancer survivorship topics
- Structured program with a curriculum designed to address concerns common to cancer survivors and to take an active goal-setting and behavior-change approach
- Each 90-minute session includes:
  - Focused educational content delivered by a topic-area specialist
  - Individual patient check-in and active behavioral change goal-setting with a medical staff clinical psychologist
  - In-session relaxation or mindfulness practice
- Enrollment is on a year-round rolling basis, and clinicians can refer directly in APEX referrals
- Program advertised in oncology clinic team meetings, clinic-based flyers, and through Cancer Resource Center events and publications
- Sessions are reimbursable under insurance

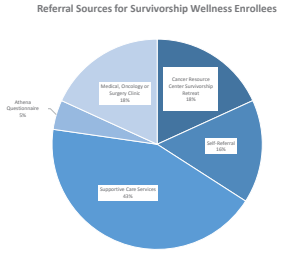
Project Evaluation & Impact

Evaluation of Programmatic Goals:

1). We served patients from clinics throughout the HDFCCC
2). Patients were identified through direct clinic and provider referrals, patient self-referral, and identification of patients at end of treatment through supportive care needs questionnaires and medical record review
3). We completed over 4 iterations of the program for 46 survivors, thus far, over a one-year pilot
4). Preliminary data suggests that patients who completed the program showed a significant decrease in self-reported depressive symptoms







Next Steps, Dissemination & Lessons Learned

Lessons Learned:

- Patients value the opportunity to address their cancer survivorship needs with an integrated, interdisciplinary team of providers
- Supportive care screenings, such as the Athena questionnaire, allow for enhanced recognition of and referrals for patients who benefit from survivorship-oriented supportive services, and, who might not otherwise self-refer or be referred for such services
- As only 18% of referrals are derived directly from medical and oncology clinics, further investigation is warranted to hone identification of patients approaching end of active treatment and to automate referrals to survivorship-oriented supportive services

Next Steps:

- Survivorship Wellness will continue offering services to cancer survivors, post-active treatment, into the coming year
- New programmatic elements include an expanded curriculum, manual, and patient materials for program alumni for monthly class series on survivorship topics, scheduled to launch June 2018. Class topics are anticipated to include, among others:
  - Integrative oncology approaches in cancer survivorship
  - Managing symptoms of menopause and other late effects of cancer treatment
  - Fostering resiliency after cancer treatment
- As supportive care screenings and automated identification of end-of-active-treatment visits allow for higher enrollment for those clinics in which these are implemented, adoption across the HDFCCC will likely aid in dissemination of this service to patients in need

Dissemination:

The interdisciplinary, group-based model has demonstrated both feasibility and acceptability in the inaugural year. Similar models may be able to be adopted/adapted in other UCSF Health settings focused on management and care of chronic medical conditions

A Less Invasive Modification to the Bedside Paracentesis for Hospitalized Patients at High Risk for Bleeding Complications

Alon Unger, MD
James Harrison, MPH, PhD
Andrew Lai, MD, MPH

Hospitalist Procedure Service
Division of Hospital Medicine

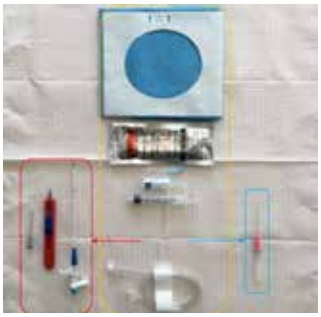
Background

- Paracentesis is a commonly performed inpatient bedside procedure
- Patients are often clinically ill, have disorders of hemostasis, or are on anticoagulants
- Concerns about bleeding risks frequently lead to care delays, blood product transfusions, medication changes, and costly lab studies

Project Goals

- Evaluate the safety and clinical outcomes for a less invasive modification to the standard therapeutic paracentesis technique

Equipment and Costs



Procedural Differences

	STANDARD	MODIFIED
Technique		
Scalpel incision	Yes	No
Catheter	8 Fr. catheter 18 Ga. x 7.5" needle	20 Ga. x 1.88" angiocatheter
	All other technical aspects were identical	
Procedural parameters		
INR cutoff	≤2 (≤3 if cirrhotic)	None
Platelet cutoff	≥50 x10⁹/L	None
DIC	No	No
Anticoagulation		
Lovenox/Heparin ppx	OK	OK
Lovenox treatment	Hold one dose	OK
Heparin drip	Hold ≥1 hour	OK
NOAC	Hold ≥ 1-2 doses	OK

Project Plan and Intervention(s)

Study site and population
- 796-bed academic teaching hospital
- Medical and surgical inpatients, including ICU

Teaching hospitalist procedure service
- Mobile consult service using bedside U/S
- Majority (90%) performed by internal medicine interns, directly supervised by a hospitalist with procedural expertise

Study characteristics
- October 1, 2015 through November 27, 2017
- Prospective, non-randomized cohort
- Patient demographics, clinical characteristics, and pertinent clinical outcomes

Project Evaluation & Impact

Clinical Characteristics and Outcomes

	Standard (n=545)	Modified (n=91)	P-value
Patient characteristics			
Age, mean (SD)	56 (12)	56 (15)	0.97
Female	182 (33%)	35 (39%)	0.34
ICU acuity	49 (9%)	21 (23%)	**<0.01**
Hemostasis			
INR, mean (SD)	1.6 (0.5)	2.9 (0.7)	**<0.01**
Platelet count, mean (SD)	159 (116)	120 (134)	**0.03**
Anticoagulant Receipt			
Any anticoagulant	125 (23%)	23 (25%)	0.63
<12 hr from last anticoagulant	49 (45%)	12 (63%)	0.15
Outcomes			
Successful	538 (99%)	87 (96%)	0.06
No. needle passes, mean (SD)	1.2 (0.4)	1.2 (0.5)	0.89
Fluid removed mL, mean (SD)	3989 (2205)	3102 (2141)	**<0.01**
Any complication	31 (6%)	6 (7%)	0.73
Ascitic leak	19 (4%)	1 (1%)	0.34
Major bleeding	2 (0.4%)	1 (1%)	0.37
Organ injury	0	0	N/A

(SD) Standard deviation

The less invasive modified therapeutic paracentesis was as safe and effective as the standard technique, even with:
- Patients with higher acuity (ICU status)
- Higher INR and lower platelet values

The modified technique:
- Added 2-3 minutes per liter removed
- Costs less than the standard technique
- Uses equipment commonly found in the hospital without need for a specialized kit
- Can be easily taught to early trainees

Next Steps, Dissemination & Lessons Learned

Future Directions
- Identifying optimal patient selection
- Determining impact on transfusion practices and adverse transfusion-related events
- Determining impact on cost savings (length of stay, lab tests, medications)
- Exploring any effect upon patient perception and satisfaction
- Analyzing whether similar findings apply to bedside thoracentesis

Acknowledgements
- UCSF internal medicine interns and Hospitalist Procedure Service faculty

UCSF Health

Caring for the Caregiver

Caring for the Caregiver Working Group:
Kiran Gupta, *Medical Director for Patient Safety & Caring for the Caregiver*
Olivia Hodgkiss, *Administrative Fellow*
Adrienne Green, CMO & VP for Patient Safety, Executive Sponsor
Angela Beck-Alioto, *Risk Manager*
Cathy Dietzen *Director of Patient Safety & Regulatory Affairs*
Susan Penney, *Director of Risk Management*
Jim Stotts, *Assistant Director for Patient Safety*

Schwartz Rounds Steering Committee:
Christine Glastonbury, Olivia Hodgkiss, Denah Joseph, Carter Lebares, Sirisha Narayana, Andrew Parker, Steve Pantilat, Susan Penney, Hildy Schell-Chaple, Laura Woods, Rosie Wustrack

Caring for the Caregiver Description

- Half of all clinicians are involved in a serious adverse event each year, leading to the **second victim effect**: a healthcare provider experiencing a normal reaction to stressful patient care experience or adverse event
- In April of 2017, The Caring for the Caregiver Program was launched with an initial training cohort of ~80 peer supporters to address the gaps identified at UCSF:
  - Support is often reactive instead of proactive
  - Event review processes lack mechanisms for incorporating emotional support
  - Lack of coordination of existing support resources
  - There was no formal peer support program

Marketing materials included brochures, pamphlets, posters, chocolates, badge reels, and badge cards

FY18 Goals

The FY18 goals for the Caring for the Caregiver Program centered around:

- Broadening the reach of the program to various campuses and care team groups,
- Continuing to be proactive in offering support and,
- Providing better access to information and resources via a website build.

Goal	Detail	Status
#1 Launch Caring for the Caregiver Website by April 2018	Intranet link Caringforthecaregiver.ucsf.edu	
#2 Train 80 new peer supporters between August 2017 and June 2018	93 trained Additional training dates 5/22 and 6/8	
#3 For 75% of root cause analyses conducted between September 2017 and June 2018, core participants will receive a Caring for the Caregiver informational email and offer of peer support	6/7 RCAs that relevant for support received emails	

Caring for the Caregiver and Schwartz Rounds Accomplishments

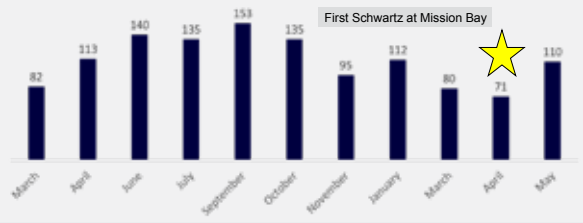
1. **Developed Intranet Webpage: caringforthecaregiver.ucsf.edu**

2. **Hosted Caring for the Caregiver Panel during Patient Safety Week**
3. **Ongoing engagement with residency programs: provided dedicated debriefing sessions for pediatric residents and fellows and trained several Chief Residents in peer support**
4. **Ongoing outreach to Root Cause Analysis participants to offer support**
5. **Ongoing collaboration with Risk Management, Spiritual Care, and FSAP for coordinated support and debriefings**

Evaluation & Impact

Activities Mar 2017 – May 2018

11 Schwartz Rounds Events



7 Training Events

>170 Trained Peer Supporters

Peer Support Training Survey 5- point scale (Strongly Disagree to Strongly Agree)	Pre-Survey	Post-Survey	% Change
1. I am aware of emotional support resources at UCSF and know how to find contact information about the resources.	3.7	4.8	28%
2. I know what the "second victim effect" is and how to define it.	3.8	4.7	24%
3. I know how to identify high-risk scenarios for emotional impact for providers and staff.	3.8	4.7	21%
4. I feel comfortable providing support to a colleague experiencing emotional stress due to an error, unexpected outcome, or other emotionally challenging patient care experience.	3.8	4.4	16%

>150 Peer Support Encounters

Thank you for the opportunity to listen to so many amazing stories about caring for others who need our clinicians and experts to achieve healing and comfort" – Schwartz Rounds Participant

"I have worked at UCSF for 26 years and it was so therapeutic to have a resource and support for us at such a critical time." – Infusion Center Nurse

"The debrief was very helpful and we should do it more often." – ED Nurse after a coordinated debrief from Spiritual Care Services

Improving the Quality of Interprofessional Care in Multiple Sclerosis: Emerging Role of a Pharmacist at a Large Academic Multiple Sclerosis and Neuroinflammation Center

Lynn V. Do, PharmD, Ashley Thompson, PharmD, Ari Green, MD

Department of Pharmaceutical Services, Department of Neurology

Background

Chronic medications are used for management of multiple sclerosis (MS)

- Disease modifying therapies (DMTs) to delay disease progression
- Various medications to manage MS symptoms and comorbid conditions

Unique role for pharmacists to provide a comprehensive review of medications to ensure the safe use of medications

- DMTs have serious safety risks requiring baseline and periodic monitoring
- Complex pharmacodynamic effects
- Potential for drug-drug or drug-disease interactions

The University of California San Francisco (UCSF) Multiple Sclerosis (MS) and Neuroinflammation Center

- 14 MS specialists
- Approximately 7,000 patients

Problem: Considerable variability in practices to proactively monitor for safe use of medications for MS

Project Goals

Objectives

- Establish a new role for a pharmacist to oversee the safe use of medications for MS

Value-Added Services

- Comprehensive medication review
- Medication optimization
- Promote safe use of medications
- Improve patient access
- Improve quality measures
- Improve provider productivity
- Promote patient advocacy

Project Plan and Intervention(s)

Methods

Baseline Practices

- An evaluation of baseline practices at UCSF MS center and opportunities to improve provider productivity were identified:
  - Monitoring DMT safety and medication outcomes
  - Providing medication education
  - Documenting medication history
- A pilot model for pharmacy services was initiated on March 7, 2016 and the impact was determined after 9 months.
  - Once weekly clinical pharmacy services
  - Comprehensive review of medications in collaboration with MS providers
  - Participation in quality improvement projects as part of a unit-based inter-professional leadership team (UBLT)

Unit-Based Leadership Team

- To improve quality of care and medication use work flow, the following pharmacist-led efforts are underway:
  - Revision and development of a standard DMT safety monitoring protocol
  - Creation of a DMT registry to allow proactive safety monitoring
  - Development of a standard format for patient education
  - Improvement of medication history documentation and visibility

Project Evaluation & Impact

Results

Medication Review

- 152 pharmacist interventions prevented potential medication adverse effects

Figure 1. Pharmacist Interventions
Total =152
March 2016 – November 2016

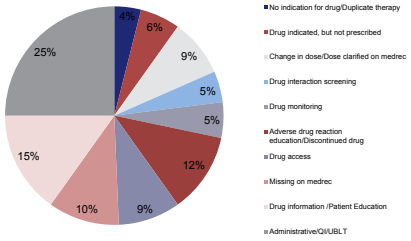
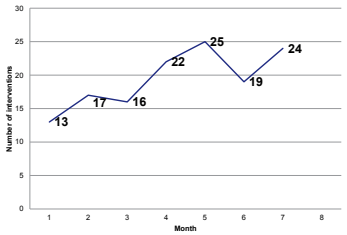


Figure 2. Number of Pharmacist Interventions per Month
1 clinic day per week = 20% time
March 2016 – November 2016



Conclusion

- An initiative to establish a new role for a clinical pharmacist was successful at UCSF MS and Neuroinflammation Center

Pharmacist MS Specialist

- In the changing landscape of MS treatment, a pharmacist with expertise in MS will have an important impact on patient care and can improve MS provider satisfaction
  - Improve awareness of medication safety issues
  - Optimize access to pharmacy resources to improve provider practices
  - Standardize medication protocols

Next Steps, Dissemination & Lessons Learned

Next Steps:

Expanding the role of a Pharmacist MS Specialist

- *Formulary management:* Implement strategies for managing high cost MS infusion therapies and evaluating outcomes
- *Patient counseling:* Provide medication counseling for pregnancy, contraception and vaccines when initiating DMTs
- *Standardize DMT protocols*: Onsite Fingolimod first dose observation visits and Ocrelizumab infusion protocols

Dissemination:

- Present at National/International MS conferences to share ideas for best practices and target metrics to improve patient care experiences at MS centers

Lessons Learned:

- Explore telemedicine capabilities to address ongoing challenges of lack of workspace and once weekly clinic time

2018 UCSF Health Improvement Symposium

Multi-Drug Resistant Pathogen Report

Kim Stanley, Laurel Gibbs, Sylvie Faisant

Hospital Epidemiology & Infection Control

Data Management Unit

Background

The division of Hospital Epidemiology and Infection Control (HEIC) produces an annual pathogen report that summarizes endemic and resistant organisms in our Medical Center.

This report is a retrospective look at trends of these featured organisms including multidrug resistant organisms (MDROs). A limitation of this report is that it is not timely and thus not actionable.

Historically, the report has included:
- Methicillin resistant *Staphylococcus aureus* (MRSA)
- Vancomycin resistant *Enterococcus spp.* (VRE)
- *Clostridium difficile*
- *Mycobacterium tuberculosis*
- Influenza
- Respiratory syncytial virus (RSV)

More recently other important pathogens have been added:
- Carbapenem resistant *Enterobacteriacae* (CRE)
- Extended spectrum beta lactamase resistant gram negative organisms (ESBL)
- Expanded spectrum of respiratory pathogens

Project Goals

Tableau software is an intuitive tool that allows creation of analysis and data displays based on user-defined interest; it was used to achieve the following project goals:

Our goals were to:
-Utilize this software to link to our relational database providing current laboratory data
-Create an interactive data display tool
-Develop capabilities to select time frame and unit
-Examine pathogens by anatomic source and infection type
-Identify trends, in real time, in order to facilitate timely investigations and identification of new priorities
- Use this data to create a safer patient environment!

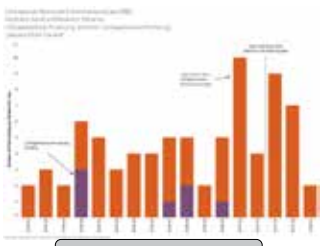
Project Plan and Interventions

Phase I
- Determine appropriate formatting of underlying relational database tables to accommodate user defined report specifications.
  - Pathogen table created that includes all positive cultures and antibiotic susceptibilities, refreshed daily.
  - Utilize additional tables in database to incorporate *C. difficile* and respiratory pathogen tests.
- Define multi-drug resistant *Pseudomonas aeruginosa*, a new addition to the report.
- Create and/or revise queries to extract organism data such that all fields of interest are identified as associated with each isolate.
  - For multidrug resistant organisms (MDROs) limit to first isolate per patient per organism per year.
- Optimize various data displays to best convey data.

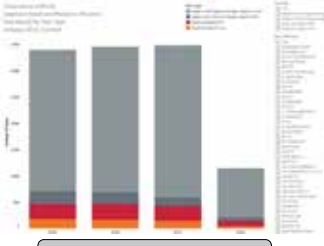
Phase II
- Obtain feedback to guide enhancement of displays and performance.
- Incorporate additional analyses (e.g. control charts, antibiotic utilization).
- Work with partners to establish frequency and method for dissemination.

Project Evaluation & Impact

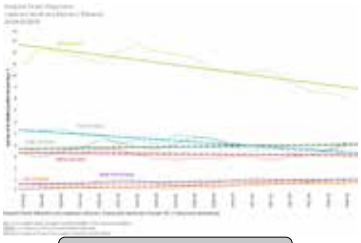
Phase I of the project has just been completed and we are entering into Phase II. We are now focusing on making refinements and gathering feedback. Once that is complete we will utilize this real time report for HEIC monitoring of MDRO pathogens and establish a method of distribution for interested units and service lines.



Epidemiologically significant pathogens can be closely monitored



Users can refine analysis by hospital onset status, test type/result, culture source, and unit



Overall and adult vs. pediatric hospital onset rates monitored monthly

Users can refine analysis to resistance of certain drug classes

Next Steps, Dissemination & Lessons Learned

Next Steps:
Gather feedback and make refinements to pathogen report analysis (e.g. control charts, incorporate antibiotic utilization data)

Dissemination:
Through discussions with stakeholders, develop strategy for broader dissemination and increased frequency.

Lessons Learned:
-Incidence of MDROs and other pathogens of interest have varied over time
-Trends are pathogen specific
-Real-time surveillance for MDROs is essential and serves as a foundation for efforts aimed at preventing the spread of antibiotic resistance

Bundled Payments for Care Improvement: Orthopedic Arthroplasty

Office of Population Health and Accountable Care

Robin Andersen, Matt Callahan, Gina Intinarelli, Chiara Kuryan, Molly Shane, Stephanie Rogers, and Derek Ward

Background

Background

- The Bundled Payments for Care Improvement (BPCI) initiative was developed by the Center for Medicare and Medicaid Innovation to test innovative payment and service delivery models that have the potential to reduce expenditures while preserving or enhancing the quality of care for beneficiaries.
- Traditionally, Medicare makes separate payments to providers for each of the individual services they furnish to beneficiaries for a single illness or course of treatment. This approach can result in fragmented care with minimal coordination across providers and health care settings. Payment rewards the quantity of services offered by providers rather than the quality of care provided.
- In July 2015, UCSF started BPCI model 2, a retrospective bundled payment arrangement where actual expenditures are reconciled against a target price for an episode of care. In this current model, the episode includes the inpatient stay in an acute care hospital, the post-acute care, and all related services up to 90 days after hospital discharge for Major Joint Replacement of the Lower Extremity.

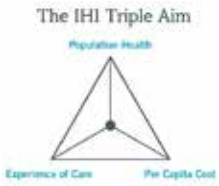
Project Goals

Overall Goal:

BPCI's goal is to provide the highest quality care to high-risk patients following surgery (who are more vulnerable after being discharged from the hospital) by providing the necessary support, education, coordination and resources, in order to improve their health outcomes and satisfaction with the UCSF experience, while reducing the per capita cost of care- the **Financial Strength Pillar**.

Specific Goals:

- Improvement of Patient Experience
- Reduction in Readmission Rate
- Reduction in ED visit rate
- Reduction in Post-Acute Skilled Nursing Facility and Acute Rehab discharge
- Reduction in Skilled Nursing Facility and Acute Rehab Length of Stay



Project Plan and Intervention(s)

In order to improve care quality, patient experience, and reduce per capita cost, we monitored patients throughout their 90 day episode to track recovery and ensure appropriate care.

Interventions:

Overall: Hiring a dedicated Program Manager/Health Care Navigator hybrid to oversee all program activities

Provider Engagement: Biweekly summaries with key metrics to drive continuous improvement, Steering Committee (convening leaders in Orthopedics, Population Health, and Case Management to provide overall leadership), Workgroups (Hip Fracture focus, Ambulatory Care focus), Huddle Calls (weekly multidisciplinary check-ins on new patients, upcoming patients, and patients using post-acute services).

Patient Engagement: Eight Longitudinal phone calls over 90 days, navigator who meets patients at bedside and is a consistent point of contact for patients if issues arise, OBP Care Support (multidisciplinary care management for high risk fracture patients)

Post-Acute Care Engagement: Frequent contact with SNFs and Acute Rehabs to ensure accountability and troubleshooting of long stays

Project Evaluation & Impact

Per Capita Cost

- Bundled Savings: We have achieved consistent savings by spending less on 90 day patient episodes than the projected targets from CMS. See the Fiscal Performance Summary: a total of over $2.1 million in savings to date.
- Between Q32015 to Q22017, the percentage of OBP patients using SNF has reduced from 31% to 24%. Inpatient Rehab has reduced from 19% of cases to 8% of cases in Q22017.
- Internal Cost savings from a reduction in average Anchor Length of Stay from 3.49 days to 2.32 days between Q32015 and Q22017

Population Health

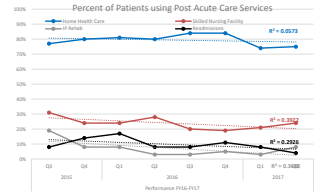
- Compared to the Baseline of 2009 to 2012, reduced readmissions from 12% to 8% in FY2017.

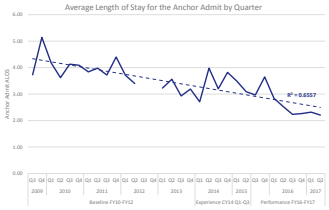
Experience of Care

- Patient Satisfaction improved between FY2016 and FY2017 on multiple HCAHPS items such as Helpful with Pain Management increasing from 72.3% in FY16 to 87% in FY17.

Fiscal Performance Summary - Univeristy Of California San Francisco Medical Center

Episode Owner/Episode Family	Total number of 90 day patient episodes	Average actual cost per episode	Actual cost for all episodes	Medicare Average Expected Cost per episode	Medicare Total Cost Target for All Episodes	UCSF's savings
University Of California San Francisco Medical Center	713	$29,670	$21,154,837	$32,680	$23,301,163	$2,146,327
2015	103	$34,412	$3,544,485	$36,072	$3,715,366	$170,881
2016	245	$30,632	$7,504,829	$32,630	$7,994,329	$489,501
2017	279	$28,793	$8,033,214	$31,603	$8,817,302	$784,088
2018	86	$24,097	$2,072,309	$32,258	$2,774,166	$701,857
Grand Total	713	$29,670	$21,154,837	$32,680	$23,301,163	$2,146,327





Next Steps, Dissemination & Lessons Learned

Next Steps:

BPCI Model 2 is ending September 30th 2018. We submitted an application to CMS to participate in the next iteration of this program, BPCI-Advanced. We may participate in 3 other potential areas: Cardiac, Major Bowel, and Spine (Ortho/Neuro). If so, we will apply our lessons learned from previous BPCI models.

Lessons Learned:

- Having a dedicated staff member to both manage a program and coordinate patient care is valuable and ensures consistent progress.
- Patient engagement and building relationships with Post-Acute Care facilities is crucial for ensuring success in alternative payment models.
- Robust analytics are important to engage providers and to track progress on a daily basis
- Engaging faculty is a good way to ensure that staff in a particular unit will have buy-in to a new workflow.

Care of the Homeless at UCSF
"Better Care, Faster Placement, Less Cost"

James Hardy, MD

Jermaine Blakley, MPA

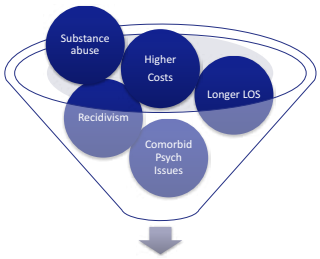
UCSF Caring Wisely Team

UCSF Social Work

Executive Sponsors: Josh Adler, Elizabeth Polek

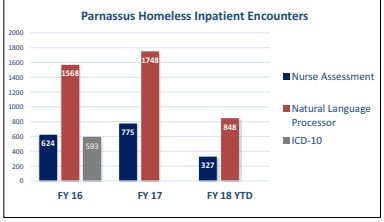
Background

1. Homelessness has been associated with:



Caring for homeless patients at UCSF can be associated with increased expenses that often does not improve care.

2. UCSF Homeless Burden is Unknown



Project Goals

ED and inpatient admissions and readmissions in referral population by 24 pts/year

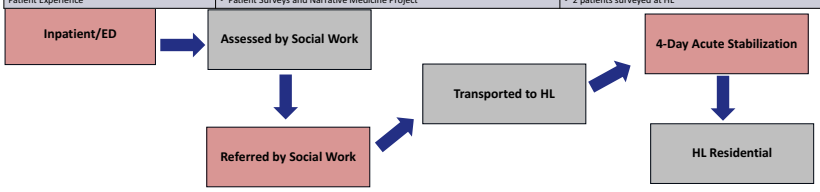
Refer 10 patients per month to HL

Secure long-term housing for at least 20 patients

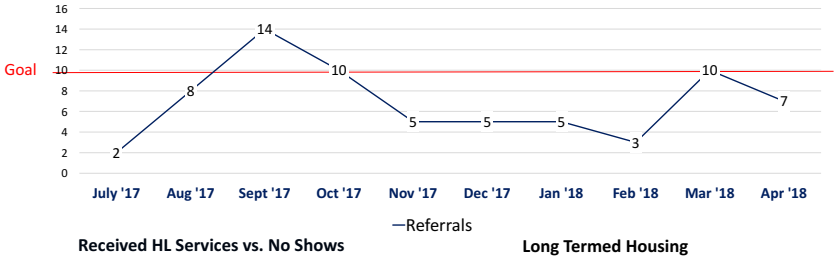
Inpatient LOS by 0.5 days/pt/admission in referral group compared to non-referred homeless group

Project Plan and Intervention(s)

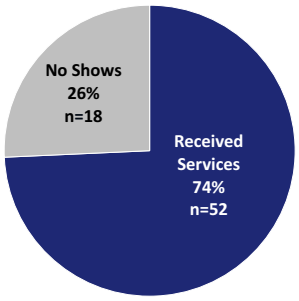
Metric	Tactics	Progress/Results
# of eligible patients referred to HL per month	• Promote and communicate HL program with providers and social workers • Social Work and HL Staff Meet & Greet • Official EM Residents QI Project • Additional IM Physician, Nursing, and Resident Champions • CHV and Health Improvement Symposium	• Social workers aware of program and are making referrals • Spoken at several provider venues • On boarded an IM Physician champion and two Residents
# of patients who received long termed housing	• HL staff connects patients with other community resources	• 38% of patients have received access to longer term housing services • 50% of March referrals received long termed housing at HL
Received Services vs. No Show referrals	• Track all UCSF referrals to HL • Cross check Harbor Light's participant list with UCSF referral list • Monitor days invoiced to UCSF from Harbor Light	• 74% of patients successfully arrived at HL from UCSF • March 2018 –8 UCSF patients at HL at one time; a new record
# of SAHL patient referral denials and reasons	• Social workers are tracking patient denials from Harbor Light in excel	• Created a new ID workflow to counteract previous ID challenges. New workflow working well.
Patient Experience	• Patient Surveys and Narrative Medicine Project	• 2 patients surveyed at HL



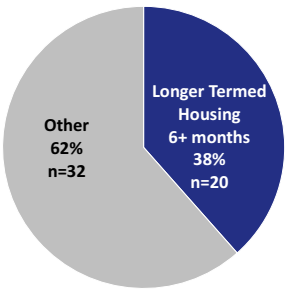
Project Evaluation & Impact



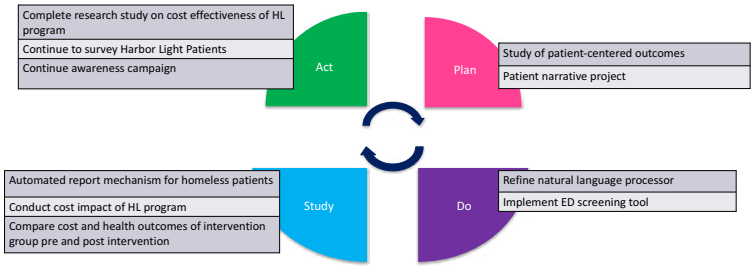
Received HL Services vs. No Shows



Long Termed Housing



Next Steps, Dissemination & Lessons Learned



2018 UCSF Health Improvement Symposium

New Model of Inreach and Outreach for Geriatrics Primary Care

Carrie Kawamoto, Gloria Rodriguez-Campos, Noelle Murray, Brenda Gonzalez, Daniel Pound, Elizabeth Bauer, Xueni Zhong, Pei Chen

UCSF Center for Geriatric Care

Background

UCSF Center for Geriatric Care
- Patient Centered Medical Home (PCMH) for adults 70+
- Strives to promote successful aging
- Prevention of diseases and complications of chronic diseases

Medical assistants (MA) and licensed vocational nurse (LVN) have been champions for quality improvements by ensuring all patients in the practice meet PCMH quality goals.

The challenges have been meeting quality goals while managing multiple competing tasks for patient care. This led to months of lapses in patient outreach for quality goals from 2016 to 2017. These lapses led to downward trend or lower rate of multiple quality measure.
- Tobacco screening and cessation
- Breast cancer screening
- Colorectal cancer screening
- Timely hemoglobin A1C for patients with diabetes
- Timely influenza vaccine

Project Goals

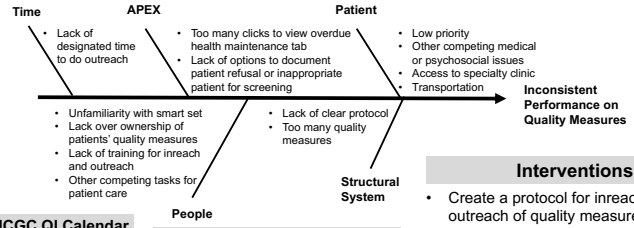
Due to the lack of a sustainable quality and process improvement system in UCSF Center for Geriatric Care, we primarily aim to achieve the following by June 2018:

1. Create a sustainable system in which all members of the practice participate in quality and process improvement efforts to improve the care of our patients.
2. Create a workflow protocol that guide each member of the practice through relevant quality measures for our patients.

Our ultimate goal is to ensure that patients make informed decisions regarding age-appropriate and patient-centered preventative measures (e.g. influenza vacation and pneumonia vaccinations), cancer screenings (e.g. breast and colorectal), and prevention of disease complications (e.g. diabetes).

Project Plan and Intervention(s)

Barriers to Consistent Performance on Quality Measures



2017-2018 UCGC QI Calendar

Month	Topic
Jul 2017	Planning for the Year
Aug 2017	Lapse in Care (no visit for 12+ months)
Sept 2017	Diabetes
Oct 2017	Advance Care Planning
Nov 2017	Hypertension
Dec 2017	Mid-Year Review
Jan 2018	Influenza Vaccination
Feb 2018	Breast Cancer Screening
Mar 2018	Colorectal Cancer Screening
Apr 2018	Advance Care Planning
May 2018	Pneumonia Vaccine
Jun 2018	Year-End Review

Criteria for Outreach vs. Inreach

Interventions

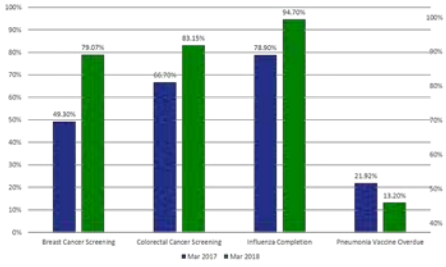
- Create a protocol for inreach and outreach of quality measures.
- Take a "smaller bite" on the quality measure topics, i.e. working on one topic at a time.
- Delegate tasks among MA, LVN, practice coordinators, and primary care providers.
- Divide up patient list among MA and LVN for inreach and outreach.
- In-service training on APEX overdue health maintenance items and smart sets.
- Work with APEX to build in "HM Topics Due" in Schedule for daily huddle.
- Develop means for accountability.

Project Evaluation & Impact

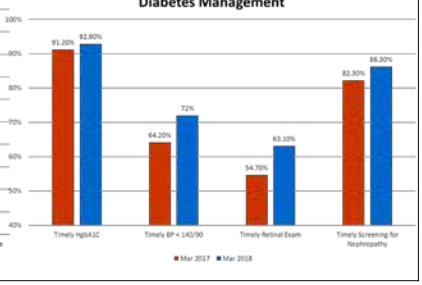
Current State of Implementation

Patients	People	APEX	Inreach	Outreach	Accountability
• Standardized outreach phone calls to patients • Obtained input from Patient and Family Advisory Council regarding inreach and outreach format	• PCPs review lists first • MA and LVN divide up monthly patient lists • APEX training for PCP, MA, and LVN • Workflow review with team members	• Add "HM Topics Due" in provider schedule • Use Ambulatory Primary Care Daily Planning- "Daily Planning- Today's Pts with Health Maint"	• Review overdue HM topics during huddle • MA/LVN pend APEX smart set orders for PCP	• Coordination among MA and LVN to set time aside for outreach	• Monthly QI meeting • Monthly True North Board presentation

Quality Measures Inreach and Outreach Outcomes



Diabetes Management



Next Steps, Dissemination & Lessons Learned

Next Steps:
- Focus more on inreach, which will reduce burden for outreach
- Coordinate among MA and LVN to find administrative time for inreach
- Work with APEX to optimize workflow

Dissemination:
- Potentially for family medicine practice/primary care

Lessons Learned:
- Improving rates of vaccination, cancer screening, and disease complication is possible with multifaceted approach.
- Utilization of APEX smart set improves inreach effort and clinical flow.
- This new model for inreach and outreach promote collaboration among all team members in the practice.

Advance Care Planning in Outpatient Geriatric Primary Care

Samuel Yee, Michele Sharma, MSW, Carolyn Welty, MD, Daniel Pound, MD, Pei Chen, MD

UCSF Center for Geriatric Care

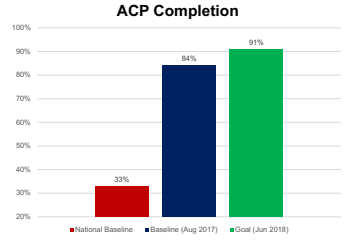
Background

- Advance care planning (ACP) is a process that supports adults at any age or stage of health in understanding and sharing their values, goals, and preferences about future medical care.
- An advance health care directive (AHCD) is an aspect of ACP and a legal document that specifies an individual's power of attorney for health care and his/her values, goals, and preferences for care.
- Benefits of ACP:
  - Ensure care that is consistent with preferences
  - Provide clear instruction for surrogate decision maker and medical providers
  - Ease the burden on the surrogate decision maker
  - Reduce intensive treatment at end of life
  - Increase utilization of hospice
- Only about 1/3 of adults the United States have completed some ACP.

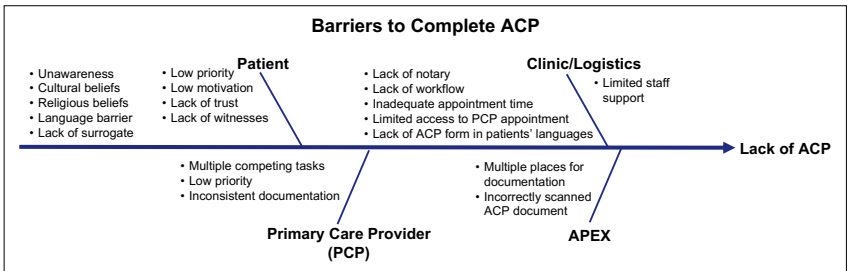
Project Goals

ACP is especially relevant for older adults. We aim to further improve patient care by initiating conversation on ACP and assisting patients in our practice (UCSF Center for Geriatric Care) in completing AHCD.

At baseline, 85 % of Public Hospital Redesign and Incentives in Medi-Cal (PRIME) patients in our practice had ACP documentation, specifically AHCD. The goal of this project is to increase the ACP documentation to 91% of our PRIME population by June 30, 2018.



Project Plan and Intervention(s)



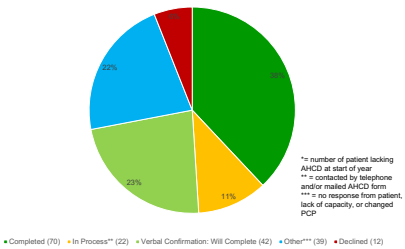
Interventions

- Standardize workflow
- Hold in-service for providers to improve consistent documentation
- Delegate tasks to complete ACP: PCP, social work, medical assistants, practice coordinators
- Set up separate appointment with social work
- Set up appointment for ACP on days when the notary is on site
- Refer patients needing more assistance to Medical Legal Partnership for Seniors (MLPS) through UC-Hastings College of the Law

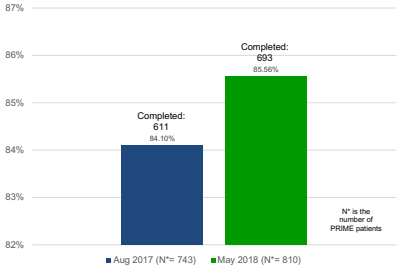
ACP: AHCD Flowchart

Project Evaluation & Impact

Stages of AHCD Completion (N*= 141)



PRIME AHCD Completion



Next Steps, Dissemination & Lessons Learned

Next Steps:

- Continue collaboration between PCP and SW on ACP inreach and outreach, including involvement of interprofessional learners, such as geriatrics fellows and social work interns

Dissemination:

- Adapt ACP workflow protocol to other primary care clinics in UCSF

Lessons Learned:

- ACP is a process that requires multiple approaches, including telephone and face-to-face.
- ACP outreach needs to build processes to assist patients who have cognitive impairment but still have capacity, and to engage patients who consider ACP as a lower priority in their care.

2018 UCSF Health Improvement Symposium

Novel Programming Tool to Assess Blood Utilization of RBC Transfusions

J. Spector, S. Bakhtary, M. Moayeri, A. Nambiar, R. Thorsen, A.M. Tabacu, E. Nedelcu

Department of Laboratory Medicine
Transfusion Medicine Division

Background

- Transfusion Medicine (TM) services are required by regulatory agencies to monitor appropriateness of blood transfusion orders.
- Overtransfusion and non-compliance with accepted guidelines places the patients at unnecessary risk of transfusion. Blood transfusions have potentially fatal risks that have to be carefully pondered when placing an order.
- TM service oversight of transfusion practice may be challenging due to multiple reasons, mostly due to the large amount of data to be processed in a meaningful way. Existing software is expensive and require a long learning curve; in addition, they do not always accurately extract the needed information from the electronic medical records, such as the exact pre-transfusion hemoglobin (Hb) level in case of red blood cell (RBC) transfusion.
- Here we describe a novel programming tool developed at The UCSF Department of Laboratory Medicine and its use in assessment of RBC transfusion at all UCSF affiliated hospitals.
- This project is aligned to UCSF goals of **Patient Safety** and **Strategic Growth** - by decreasing patient risks and healthcare cost associated with unnecessary RBC transfusion.

Project Goals

Quality gap:

- Assessment of blood utilization at UCSF involves the review of report from SunQuest, the current Laboratory Information System (LIS). LIS monthly reports are 700 pages and contain data that are not effectively processable.

Our project goals were:

- To create a programming tool able to extract accurate information from LIS
- To evaluate this programming tool for assessing baseline transfusion practice at UCSF.
- To analyze opportunities for improvement of RBC ordering practice

Project Plan

- A novel programming tool, ***TMPy***, was created using Python during a one-month resident elective rotation in Patient Safety and Quality Improvement within the Department of Laboratory Medicine. The program contains 550 command lines to extract information from pre-existing SunQuest LIS monthly reports on blood utilization. ***TMPy*** data sources and output is depicted in Fig.1. Briefly, it extracts information from two LIS reports, one with transfusion data and pre-transfusion specific triggers, and the other with location and provider data. Along with a Data Dictionary, these two are assembled in one report which is readable in Excel format and amenable to further processing.
- Deidentified data can be further visualized via separate application (*transfusionherokuapp.com*) in interactive histogram with built in option to extract statistical information on specific pre-transfusion Hb range. Provider, specialty and location specific reports can be further derived.
- ***TMPy*** was used to assess blood utilization reports generated by SunQuest for the months of February to April 2018 to determine baseline RBC transfusion practice. RBC transfusion orders were extracted from the Excel document and analyzed. Mean pre-transfusion Hb for all RBC orders was calculated. RBC orders likely associated with surgery (OR, Perioperative Prepare program, and RBC associated with more than three blood product transfusions) were excluded, and the pre-transfusion Hb was re-assessed.

Project Evaluation & Impact

- ***TMPy*** synthesizes blood utilization information from SunQuest reports in a very rapid manner. It takes ~20 min from generating the SunQuest reports to transforming data in Excel format; basic LIS experience is required but no prior programming knowledge is necessary.
- ***TMPy*** links transfusion order to pre-transfusion trigger, providing the first critical layer of analysis in assessment of appropriateness of blood transfusions. Especially in this regard, ***TMPy*** is superior to most currently existing tools for blood utilization assessment.
- Further processing of ***TMPy*** provided data in Excel (or related software) is straightforward and adaptable. Personalized reports, unit or provider specific can be generated.

Results:

- A total of 5634 orders for 6322 RBC units were made from February 1st to April 30th, 2018, at all UCSF sites.
- Pre-transfusion Hb was identified in 5223 orders (~83%).
- Percentage of pre-transfusion Hb is illustrated in Fig. 2.
- Average pre-transfusion Hb value is:
- **7.97 ± 1.90 g/dL** for all orders
- **7.72 ± 1.64 g/dL** for all orders except those from OR, Perioperative units, as well as multiple units order
- Example of interactive monthly display is illustrated in Fig. 3.

Fig. 1. *TMPy* Data Sources and Outputs

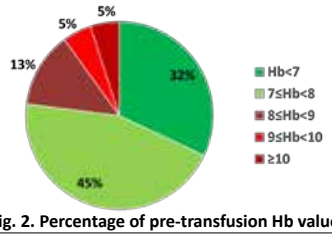


Fig. 2. Percentage of pre-transfusion Hb values

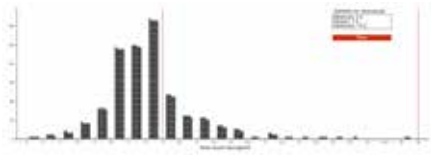


Fig. 3. Example of monthly RBC transfusion interactive display (February 2018)

Next Steps, Dissemination & Lessons Learned

Next Steps:

- ***TMPy*** can be used to further analyze the RBC transfusion appropriateness beyond the initial screening based on pre-transfusion Hb.
- ***TMPy*** can be used to further analyze the appropriateness of other blood product (fresh frozen plasma, platelets and cryoprecipitate) orders.
- Hospital unit-, specialty or provider-specific blood utilization data may be derived providing meaningful benchmarks for clinical services.
- Specific opportunities for practice improvement can be identified by various services..

Dissemination:

- ***TMPy*** use is adaptable to analyst's needs, which makes it potentially much more impactful as more blood utilization UCSF champions are emerging. This can potentially involve services other than Transfusion Medicine, and lead interdisciplinary quality improvement projects aimed at better transfusion practice campuswide.
- ***TMPy*** has the potential to become a self standing blood utilization tool beyond UCSF and UC.

Lessons Learned:

- We learned about the value of teamwork and tapping into the tremendous talent of UCSF people.

2018 UCSF Health Improvement Symposium

Leveraging CDS to Prevent Therapeutic Duplication

Michael Lang, MD, MPH

Louis Barrios, Patrick Fleming PharmD, Christa Joseph RN, Anna Keller RD, Krista Kuchta NP

Background

Therapeutic duplication occurs when a patient is prescribed two or more medications with the same PRN (as needed) reason. Duplicate PRN reasons are ambiguous for the bedside nurse (inpatient settings) and patient/caregiver (outpatient settings), and therefore creates an opportunity for medication administration errors. The Joint Commission, Centers for Medicare and Medicaid, and the State of California Public Health Department all require prescribers to avoid therapeutic duplication.

We have a significant number of admitted patients that have therapeutic duplication (average ~60 patients per week). Most of these cases involve acetaminophen and ibuprofen, both written with a PRN reason of mild pain. Through focused interviews and assessment of our electronic health record (EHR), we identified two main reasons for our high prevalence of therapeutic duplication:

1) Many clinicians believe that it is in the scope of practice for a bedside nurse to decide which analgesic to administer for mild pain.
2) Multiple order sets contain medications with default duplicate PRN reasons.

Project Goals

After recognizing the potential for medication administration errors and receiving increased regulatory agency scrutiny, we planned multiple interventions, beginning with education for clinicians (providers, pharmacists, and nurses) and followed by a series of EHR enhancements that will be deployed in phases.

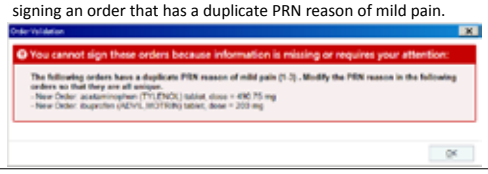
In the first phase of EHR enhancements, we created two types of clinical decision support (CDS) tools to decrease our most common form of therapeutic duplication: PRN mild pain. Knowing that there are other PRN reasons that will not be affected by this intervention, we chose a modest goal of reducing overall therapeutic duplication by 50%.

Project Plan and Intervention(s)

We educated providers, nurses, and pharmacists from the end of March through April 2018. Education was disseminated to all clinicians through global emails. More specific education was targeted to individuals caring for specific patients with therapeutic duplication. Our hope was to see some impact, but we were not optimistic given the strong tradition of placing two or more orders with the same PRN reason.

We created two types of CDS tools. First, on April 23, we added several new discrete PRN reasons for acetaminophen and ibuprofen, e.g., "acetaminophen PRN not relieved by ibuprofen after 1 hour for mild pain," to encourage providers to select different PRN reasons for the two medications. On May 10, we created an EHR alert (see Figure 1) that prevents the provider from signing an order that has a duplicate PRN reason of mild pain.

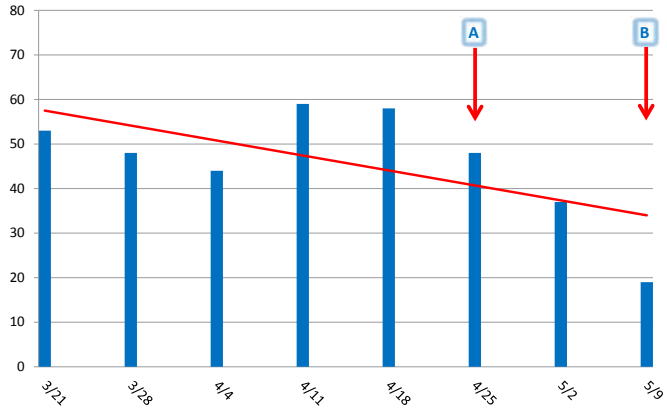
Figure 1: This pop-up alert blocks an ordering provider from signing an order that has a duplicate PRN reason of mild pain.



Project Evaluation & Impact

Our educational interventions in March and April had no effect. The creation of additional PRN reasons to acetaminophen and ibuprofen led to a slight improvement (Figure 2, Label A, marks the implementation date for this intervention). In contrast, our pop-up alert had a substantial effect, decreasing the number of patients with therapeutic duplication by ~65% from our baseline average of ~60 patients per week. Figure 2, Label B, marks the implementation of the pop-up alert.

Figure 2: Number of patients per week with therapeutic duplication



Next Steps, Dissemination & Lessons Learned

Next Steps:
We will continue to monitor the prevalence of therapeutic duplication. We plan to remove default therapeutic duplication in all order sets and then expand the scope of the alert to include other PRN reasons. We also plan to create analgesia and antiemetic order sets with embedded CDS to further prevent therapeutic duplication.

Dissemination:
To the best of our knowledge, using this type of alert is a novel approach to preventing therapeutic duplication. The West Bay has been successful at reducing therapeutic duplication using different workflows, and we plan to collaborate to improve compliance on both sides of the Bay. Our intervention can also be applied to other institutions struggling with therapeutic duplication.

Lessons Learned:
We initially implemented the pop-up alert for all PRN reasons, leading to several technical challenges. In response, we scaled back the scope of the alert and targeted only PRN mild pain.

Supervision of Learners in QI Projects: Engaging and Rewarding Faculty

Jeffrey Tabas, Glenn Rosenbluth, Edgar Pierluissi, Joey Bernal, Anna Chang, Tymothi Peters, Sandrijn van Schaik, Robert Baron

Background

UCSF Maintenance of Certification Approval Program (MOCAP)

- UCSF became a Multi-Specialty Portfolio Program sponsor of the American Board of Medical Specialties (ABMS) in 2013.
- UCSF MOCAP was established to award Maintenance of Certification Part 4 (MOC4) credit to physicians participating in institutional QI activities.

UCSF Resident and Clinical Fellow Quality Improvement Incentive Program

- GME learners develop QI projects with QI leaders, service chiefs, and program directors.
- Financial incentives are disseminated to residents and fellows if project goals are met.

UCSF Bridges Curriculum

- Medical students now participate in QI activities early on in the new Bridges Curriculum.
- Bridges Coaches and QI faculty supervise in various Clinical Microsystem Clerkship (CMC) sites.
- Coaches and QI faculty review students' engagement in, and progress with QI projects.

Challenges

- Many faculty are not engaged in the medical student and resident guided QI projects within their divisions/departments.
- Finding faculty willing to take on additional supervisory responsibilities is difficult.
- There is no structured way to engage and reward faculty for supervising and mentoring students in QI activities.

Goals

Incentive

Create incentive for GME and GME faculty to participate in QI.

Encouragement

Reward QI faculty and also encourage the not previously engaged faculty to be more involved.

Collaboration

Increase collaboration between QI leaders, UME & GME learners, with department faculty.

Impact

Quality & Safety True North Pillar - Continually Improve Patient Care

Learning Health System True North Pillar - Advance, Apply and Disseminate Knowledge

Plan and Interventions

UCSF MOCAP's Alignment with UME and GME QI Initiatives

UCSF Resident and Clinical Fellow Quality Improvement Incentive Program

- Reviewed all approved UCSF resident and fellow projects.
- Notified faculty mentors of the opportunity to earn MOC4 credit.
- Appointed a resident member to the Quality Review Board.
- Aligned application and processes between programs.
- Presented to residents and fellows about benefits and requirements to earn MOC4 credit for their faculty, and where applicable, themselves.

UCSF Bridges Clinical Microsystem Clerkship

- Worked closely with the ABMS to create an umbrella approach to approve all CMC QI projects.
- Worked with CMC leadership to award faculty with MOC4 credit.
- Approved online Bridges faculty development project for MOC4 credit.

UCSF Bridges Online Faculty Development Course

- Worked closely with the ABMS to create an approach to approve this project.
- Developed an online faculty development course to promote faculty awareness of the Bridges Curriculum and familiarity with new content.
- Offered MOC4 credit to faculty who completed the course and provided feedback on how to disseminate and improve the course curriculum.

Impact in 2017

UCSF Resident and Clinical Fellow Quality Improvement Incentive Program

107 Faculty Awarded MOC4 Credit

11 Projects Approved

UCSF Bridges Clinical Microsystem Clerkship

87 Faculty Awarded MOC4 Credit

82 Projects Approved

UCSF Bridges Online Faculty Development Course

55 Faculty Awarded MOC4 Credit

264 Faculty Participated

Next Steps, Dissemination & Lessons Learned

Next Steps

- UCSF MOCAP will continue to align with UME and GME QI programs to increase faculty engagement.
- UCSF MOCAP is expanding the program to the Zuckerberg San Francisco General Housestaff Incentive Program to engage faculty in resident projects.

Dissemination

- UCSF MOCAP delivered oral presentations on components of these programs at the 2016 World Congress on CPD, Fall 2017 ABMS annual conference, and Fall 2017 AAMC *Learn Serve Lead* meeting.

Lessons Learned

- MOC4 approval can be an effective and efficient way to create buy-in and reward faculty for supervision of student, resident, and fellow QI projects.

Visit moc.ucsf.edu for more information.

2018 UCSF Health Improvement Symposium

Key Strategies Utilized by Large Academic ACOs Participating in Medicare Shared Savings Programs (MSSP)

Jocelyn Ko, MD,[1] Armond Esmaili, MD,[1] Timothy Judson, MD,[1] Carine Davila, MD,[1] Karen Anstey, MD,[1] Lily Kornbluth, MD,[1] Juliana Macri, MD,[1] Lev Malevanchik, MD,[1] Kathleen Min, MD,[1] Jessica Ristau, MD,[1] Joshua Shak, MD,[1] Sharmin Shekarchian, MD,[1] Lulu Tsao, MD,[1] Edgar Pierluissi, MD,[1] Kevin Grumbach, MD,[2] Christine Ritchie, MD,[2] Ami Parekh, MD[2]

[1]Department of Medicine, University of California, San Francisco; [2]Office of Population Health and Accountable Care, University of California, San Francisco, CA

Background

- The Medicare Shared Savings Program (MSSP) is a Medicare-sponsored alternative payment program
- Over the first 3 years, 428 MSSPs served 9.7 million beneficiaries and achieved a combined $1 billion reduction in Medicare spending compared to their benchmarks
- About one-third of MSSPs achieved shared savings in the first 3 years of the program
- Academic MSSPs have unique challenges including high patient complexity and a more transient workforce
- No studies have focused specifically on academic MSSPs

2016 Characteristics of MSSPs

Number of ACOs	432
Average age of ACOs (in calendar years and as of 12/31/16)	2.8 years
Program track	
Track 1 (Shared savings only)	410
Track 2 (Two-sided risk)	6
Track 3 (Two-sided risk)	16
Geographic region	
Midwest	86
Northeast	81
South	194
West	71
Type of ACO	
Hospital-led	94
Physician-led	193
Integrated	145
Average composite quality score	93.4%

Average 2016 Savings for MSSPs by State

Source: McClellen et al, Health Affairs Blog, 2017.

Project Goal

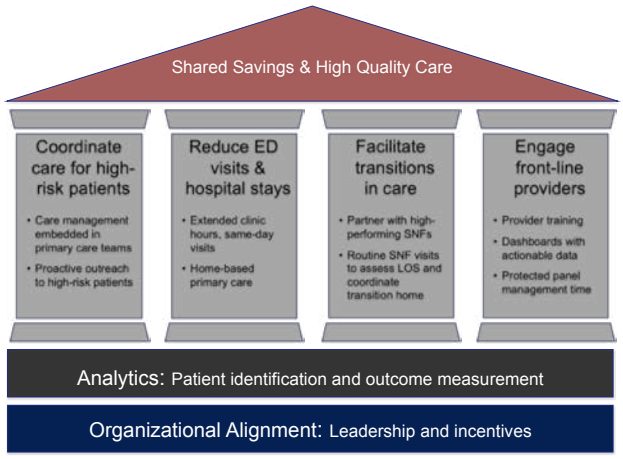
We aimed to understand the key initiatives utilized by large academic Accountable Care Organizations (ACOs) participating in MSSP, specifically the 1) successes, 2) challenges and 3) future aims of leaders of these programs.

Project Plan

- Identified 9 academic institutions with ACOs participating in MSSP
  - Convenience sample of programs of interest to UCSF that operate in similar but non-competing healthcare markets
- Conducted a total of 13 interviews
- Used a standardized interview script, then identified major themes from these interviews

Project Results

The Building Blocks of Successful MSSPs



- Organizational alignment and robust analytics are foundations of successful MSSP programs
  - Many programs gave direct financial incentives to participating physicians
  - Programs almost uniformly had robust analytics teams and software to identify high-utilizing patients and to track care quality and financial performance
- Key strategies to coordinate high-value care and maximize shared savings include:
  - Care management programs to rally resources around high-risk patients
  - Expanded clinic hours and same-day scheduling to reduce use of high-cost services
  - Post-acute care partnerships to direct patients to high-performing SNFs and encourage transitions home as soon as safely possible
  - Training providers in high value care and keeping them engaged with actionable data

Next Steps & Dissemination

Next Steps:

•MSSPs should use data to identify specific programs with high impact on shared savings

•Future research should address contextual factors that affect program effectiveness on quality measures and financial performance

Dissemination:

•This work was shared with the UCSF Office of Population Health to inform design of interventions and use of resources for UCSF's MSSP

2018 UCSF Health Improvement Symposium

Clinical Decision Support for Type and Screen Utilization

Jennifer S. Woo, Rosaline Ma, Sara Bakhtary, Elena Nedelcu, Joseph Akin, Russell Thorsen, Morvarid Moayeri, Ashok Nambiar

Transfusion Medicine Service, Department of Laboratory Medicine

Background

- Type and screen (T&S) tests are ordered for patients in anticipation of red blood cell transfusion. T&S typically expires at midnight after 3 days (day of collection = day 0)
- In our blood bank, repeat T&S tests ordered >24 hours prior to expiration of a current T&S are considered inappropriately ordered, as a current T&S is still in-date. These samples are discarded by blood bank staff
- Inappropriately ordered T&S result in unnecessary blood draws for patients, and wastes phlebotomy and blood bank staff time and resources
- Over a **30-day** period from August to September 2017, we collected data on the number of discarded T&S at the Moffitt-Long Blood Bank (MLBB)

Table 1. Discarded T&S samples at MLBB

	Total (30 days)	Average per Day	Average per Specimen
No. of discarded T&S	134	4.5	
Approximate patient blood volume drawn unnecessarily	744 mL	24.8 mL	5.6 mL
Blood Bank staff time wasted	187.6 minutes	6.3 minutes	84 seconds

Table 2. Estimated costs incurred from inappropriately ordered T&S at MLBB

	Per Specimen	Per Day	Per Year
Phlebotomist Costs	$86	$387	$141,255
Blood Bank Staff Costs	$1.22	$5.49	$2003.85
Total	$87.22	$392.49	$143,258.85

Project Goals

- **Current state: ~1642 T&S samples** discarded annually at MLBB due to inappropriately ordered tests, incurring **$143,259** of unnecessary costs
- **Desired goal:** To **decrease** the number of inappropriately ordered T&S tests at MLBB
- **Barrier to achieving goal**: **End-user's lack of knowledge** that repeat T&S is not needed if a current T&S is in-date
- **Opportunity for Improvement**: Implement **clinical decision support** for T&S utilization to guide end-users to order T&S only when appropriate

Project Plan and Intervention(s)

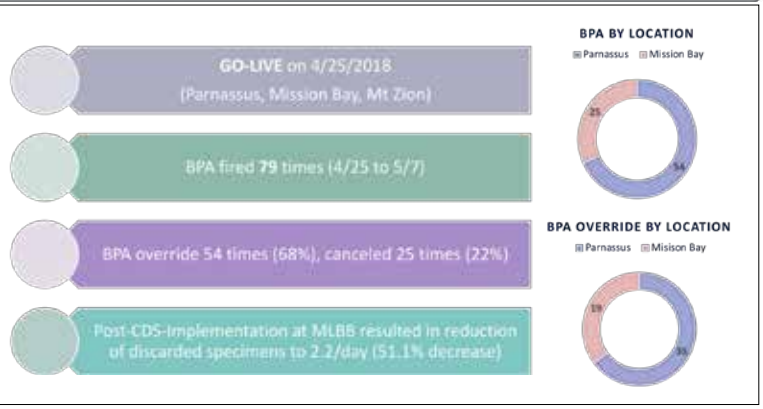
- Clinical decision support (CDS) is the use of information and communication technologies to improve clinical decision making and patient care
- Current state: Type and screen can be ordered at any time. Data pertaining to type and screen expiration is displayed for the user to review and shows time elapsed from the current T&S, and expiration date. User must review and decide whether to order T&S given the information provided. (Figure 1)
- CDS Build (IP Adult Standard Transfusion Orders APeX Orderset): Patients with a current T&S will display a banner under "Blood Bank Tests" stating that there is a current T&S sample and repeat testing is not required unless transfusion is anticipated past the expiration date (built-in warning). (Figure 2)
- If the built-in warning is ignored, and T&S order is accepted, a Best Practice Advisory (BPA) will pop-up. User must select a reason for overriding the BPA (ordering T&S when current T&S is still in-date). (Figure 3)

Figure 1. T&S order details

Figure 2. Built-in warning in orderset

Figure 3. BPA pop-up

Project Evaluation & Impact



Next Steps, Dissemination & Lessons Learned

Next Steps: We plan to further analyze ordering behavior through weekly review of BPA pop-ups, to determine whether BPA overrides are truly indicated. Depending on our findings, end-user education on appropriate T&S ordering practices may be a potential next step.

Dissemination: Clinical Decision Support can be implemented to improve test utilization in other laboratory departments to reduce the number of unnecessary laboratory tests performed

Lessons Learned: The design and implementation of CDS can be a challenging process, requiring close collaboration with informatics teams

Acknowledgements: We thank **Aparna Sashikanth**, **Dr. Raman Khanna**, **Dr. Aris Oakes**, and the APeX team for their support in the CDS build and BPA report. We thank the **Moffitt-Long blood bank staff** for their support with pre- and post-implementation data collection.

SmartSet Usage in Primary Care

Elisabeth Askin

Maria Byron, Coleen Kivlahan, Leah Karliner

Primary Care Services

Background

This past year, UCSF Primary Care Services partnered with Population Health and Ambulatory Operations to tackle quality improvement efforts. We found that some clinical activities we wished to measure were not being documented in discrete and standardized ways. Faced with this challenge, and the desire to provide clinical decision support tools in Apex for use by our staff and providers, we developed several new SmartSets.

SmartSets are a clinical decision support tool that can suggest groups of orders, diagnoses, clinical documentation, patient instructions, and billing codes based on clinical scenarios.
The ability to standardize orders and documentation within a department makes SmartSets an attractive potential tool for quality improvement efforts.

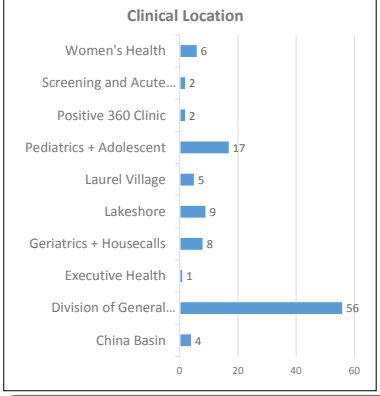
Despite these advantages, penetrance of SmartSets within Primary Care has remained low. We need more information on clinicians' actual experience and preferences in order to successfully design and disseminate SmartSets in the future.

Project Goals

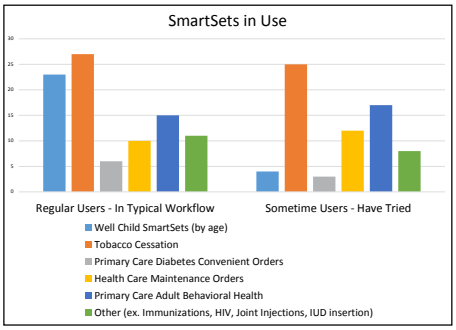
- Understand the barriers to SmartSet use in Primary Care
- Engage faculty, nurse practitioners, and residents through a survey
- Educate all respondents about SmartSets within Apex

Survey Respondents

- Sent to 299 faculty, nurse practitioners, and residents in UCSF Primary Care
- 110 providers (36.7%) completed the survey



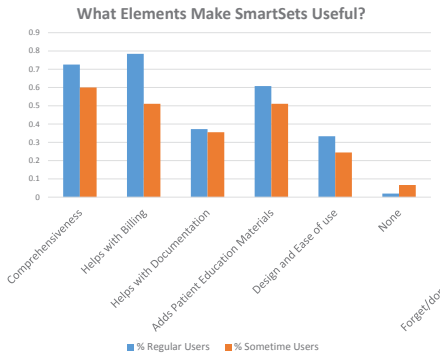
Survey Data

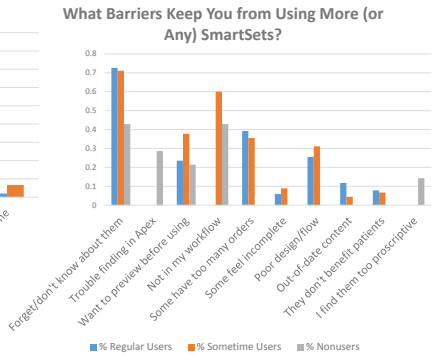


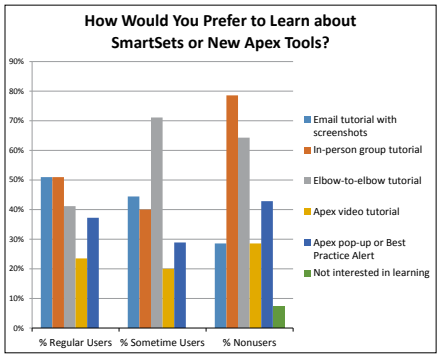
Out of 110 providers, 96 had ever used a SmartSet.
- 51 had incorporated one or more into their workflow
- 45 had tried a SmartSet at least once
- 14 had never used, weren't sure, or had only used the "Erroneous Encounter" SmartSet

For those who had used SmartSets, we asked about several developed for Primary Care use.
- Variance is similar between sometime and regular users
- The two most frequently used SmartSets, Well Child and Tobacco Cessation, are designed for very different clinical situations

Next, we sought to characterize how providers' experience might differ between regular users, sometime users, and non-users of SmartSets. Regular users found all elements of SmartSets to be more helpful than did sometime users. In terms of barriers, sometime users were more affected by the change in workflow. All users felt lack of knowledge of available SmartSets was a barrier.







- Most providers listed more than one preferred option for learning about new SmartSets
- Only one respondent was uninterested
- Regular users were as likely to prefer email (i.e. self-directed) tutorials to more directed teaching
- Sometime users were most likely to prefer individualized elbow-to-elbow tutorials from other providers
- Sometime and non-users preferred directed teaching
- A substantial minority of providers were interested in the use of Best Practice Alerts and pop-up alerts.

Next Steps, Dissemination & Lessons Learned

Next Steps:
- Develop a section of curated Primary Care-specific SmartSets in Apex
- Update SmartSets based on survey feedback
- Integrate SmartSets into comprehensive education and training options in different arenas

Dissemination:
- Disseminate data by practice for targeted trainings
- Likely applicable to Epic roll-out at ZSFG

Lessons Learned:
- Even a well-designed tool needs to be combined with dissemination and training
- Integration into current workflow is important
- Providers will vary in terms of nimbleness in changing workflow
- Tools designed for less common scenarios will likely be more difficult to uptake in regular workflow

2018 UCSF Health Improvement Symposium

Geriatric Hip Fracture Program: *The Thundercat Protocol*

Hip Fracture Lean Team

Stephanie Rogers, MD, Lee-lyn Chen, MD,

Jahan Fahimi, MD, Johanna Powers, RN, MSN, CNOR, Derek Ward, MD

Background

Hip fractures are a growing problem for geriatric patients and confer significant morbidity and mortality in this population. Up to 24% of patients die within a year of the injury and 50% never regain their prior functional level.

There is excellent data in the peer-reviewed literature that a comprehensive, multi-disciplinary management program, with timely, evidence-based care can improve outcomes however no such program existed at UCSF.

At the start of our project there was very little coordination of care and we had the following metrics for the 12 months prior to the project initiation:

- *Mean Time to OR from Admission:* ***52 hours***
- *Median Time to OR:* ***48 hours***
- *Average Length of Stay:* ***8.96 Days (LOS index 1.44)***
- *Direct Cost Index 2.27*

Given that the national standard **goal time-to-OR is 24 hours** and our measured indexes were all > 1 improving these metrics align with the **true north values** of ***quality, safety, patient experience, and financial strength.***

Project Goals

Overall Goals:
Deliver the highest-quality, evidence based care to geriatric patients with hip fractures in alignment with the age-friendly health initiative.

Specific Goals:

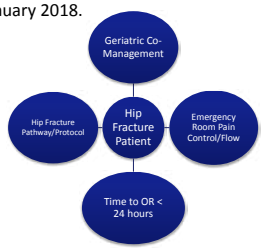
1. Create a **team-based coordinated care** approach to geriatric hip fracture patients
2. Develop and adopt an **evidence-base protocol** to treat patients throughout the care episode
3. Decrease **time-to-OR to < 24 hours**
4. Decrease LOS to meet a **LOS Index <1**
5. Improve **mortality and outcomes** for hip fracture patients

Project Plan and Intervention(s)

In order to achieve the stated project goals we created a core team of involved stakeholders including representatives from Geriatrics, Orthopaedic Surgery, Anesthesia, The Emergency Department, and Perioperative Nursing. The group used **Lean methodology** to create a process map to identify areas for improvement and involve other stakeholders throughout the care spectrum. We also conducted a literature review as well as brought in experts in the field to help create a protocol. The protocol was then disseminated, revised multiple times, and adopted by all stakeholders involved. Once the protocol was adopted it was rolled out in stages beginning in September of 2017 and culminating in January 2018.

The solutions involved four main areas of focus

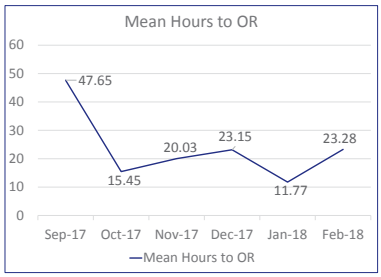
- **Geriatric Co-Management**
  - Daily team rounds, geriatric specific care
  - Rapid operative optimization
- **Evidence-based Treatment Protocol**
  - From Admission to Followup
- **Emergency Room Flow and Pain Control**
  - Rapid assessment and communication
  - Fascia Iliaca Blocks and a non-opiate pain protocol
- **Rapid Operative Intervention**
  - Specific OR protocols, equipment, and staffing

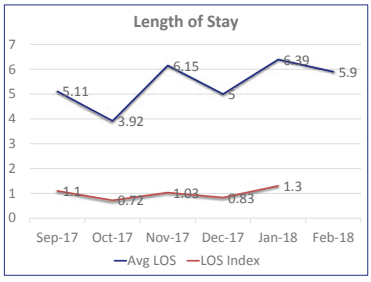


Project Evaluation & Impact

Since initiation of the program the Hip Fracture Protocol has been approved and adopted by the Departments of Medicine, Cardiology, Anesthesia, Emergency, Orthopaedic Surgery, Geriatrics, and Perioperative Nursing. Daily rounds occur with geriatric co-management, physical therapy, case management, and orthopaedic surgery which guides patients through the care process. The protocol is publically and readily available on a university website (*hipfracture.ucsf.edu*) and a campaign was initiated for dissemination. There was widespread adoption of the protocol resulting in significant improvement in care. Specific metrics have improved significantly with **Time-to-OR, LOS, and LOS index all achieving stated goals** as below over a 6 month time period during which we have treated 93 patients.

	Baseline Data	**9/2017 – 2/2018**	% change
Mean Hours to OR	52	**23.55**	54.7%
LOS	8.96	**5.41**	39.6%
LOS Index	1.44	**0.99**	31.3%





Next Steps, Dissemination & Lessons Learned

Planned Next Steps:

1. Obtain financial, mortality, and outcome data and compare to baseline
2. Continue monthly tracking to ensure continued adoption of the program and adherence to metric goals
3. Track the cohort of hip fracture patients longitudinally both to measure outcomes and produce research

Planned Dissemination Includes:

1. Publish our interventions, outcomes and lessons learned in peer-reviewed journals
2. We have received significant interest from other hospitals for adoption of the protocol and have engaged with departments at Zuckerberg San Francisco General Hospital to help implement a similar protocol

Lessons Learned:

1. Multi-disciplinary teams combined with lean methodology results in significant improvement in care
2. Engagement of multiple stakeholders requires alignment of goals with the UCSF True North Pillars

2018 UCSF Health Improvement Symposium

Improving Timely Care of Asthma Exacerbations in the Pediatric Emergency Department

Israel Green-Hopkins MD, Hannah O'Donovan RN, Leigh Ann Ambrose RN, Barbara Feldhauser RN, Steven Bin MD, Nisa Atigapramoj MD

UCSF Benioff Children's Hospital Emergency Department, San Francisco

Background

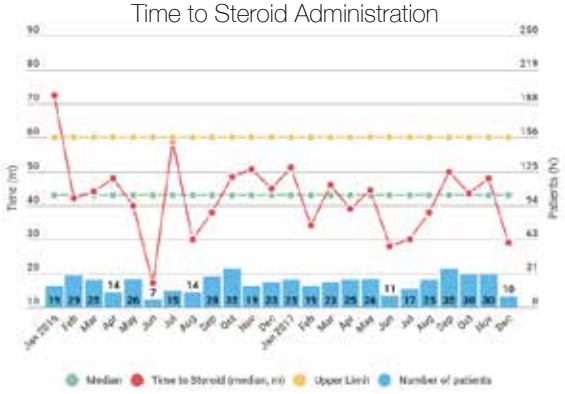
- Asthma exacerbations constitute a significant proportion of visits to the pediatric emergency department (PED)
- Steroids and short acting beta-agonists (SABAs) are important in the management of moderate to severe exacerbations and ensuring these are delivered in a timely fashion is important for adherence to national guidelines as well as delivering high quality care.
- Standardized scoring, electronic ordersets and pathways are frequently employed in academic PEDs to track and improve the care of asthma exacerbations and prior to our efforts, our PED did not have these tools employed

Project Goals

- Understand the baseline asthma care metrics in the PED
- Measure and achieve steroid administration within 60 minutes and SABA within 30 minutes for all moderate to severe asthma exacerbations
- Utilize Large-Volume Nebulizers on >80% of patients with moderate to severe exacerbations
- Utilize MPASS scoring on > 80% of patients with moderate to severe exacerbations

Project Evaluation and Impact

Time to Steroid Administration



LVN Use and MPASS Scoring

Admit and 72-Hour Return Rates

CXR Rates for Discharged Patients

Next Steps and Dissemination

- Paired with the implementation of a new large-volume nebulizer mechanism, we increased scoring methods and no deleterious effects on quality measures were observed
- Our rate of CXRs for discharged patients is well below the national average and trended lower over time
- 72 Hour return visits have increased over time, though the increase preceded efforts

Next steps:

- Our guideline efforts will soon be linked with the BCH-O PED. Having built our dataset, provider and department feedback will be given on scoring and quality metrics
- In our next phase we plan to analyze the frequency of severity score assessment in the ED and the relationship between score and therapeutic choice

Time to Albuterol (SABA)

2018 UCSF Health Improvement Symposium

Improving the Patient Experience: Automated Follow-up Calls from the Pediatric Emergency Department

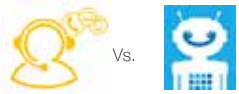
Israel Green-Hopkins MD, Suzanne Schwartz RN, Steven Glomstad RN, Sonny Tat MD,
Barbara Feldhauser RN, Steven Bin MD
UCSF Benioff Children's Hospital Emergency Department, San Francisco

Background

- The majority of patients seen in the BCH Pediatric Emergency Department (PED) are discharged home
- Post-visit issues (PVIs), such as the ability to obtain prescriptions, medication adherence, primary care follow-up and disease progression are common areas that affect our patients and our aim should be to fully understand these issues and address them as able
- Previous methods to follow-up on our discharged patients involved nurse-directed calls
- We recently initiated **automated** follow-up calls ("robocalls") and sought to explore improvement opportunities using these vs. prior nurse-directed calls

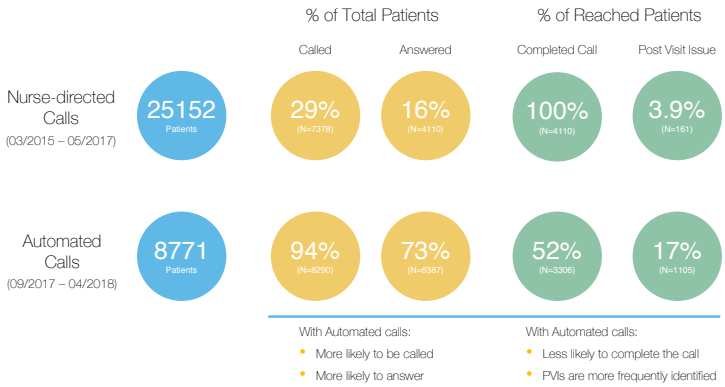
Project Goals

- Evaluate the feasibility of automated follow-up calls
- Determine the frequency and nature of PVIs
- Target patient experience areas with PVI identification
- Compare reach rates and PVIs in Nurse-Directed vs. Automated calls

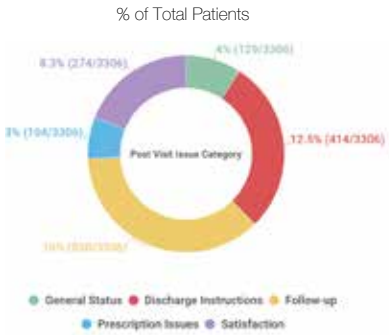


Project Evaluation and Impact

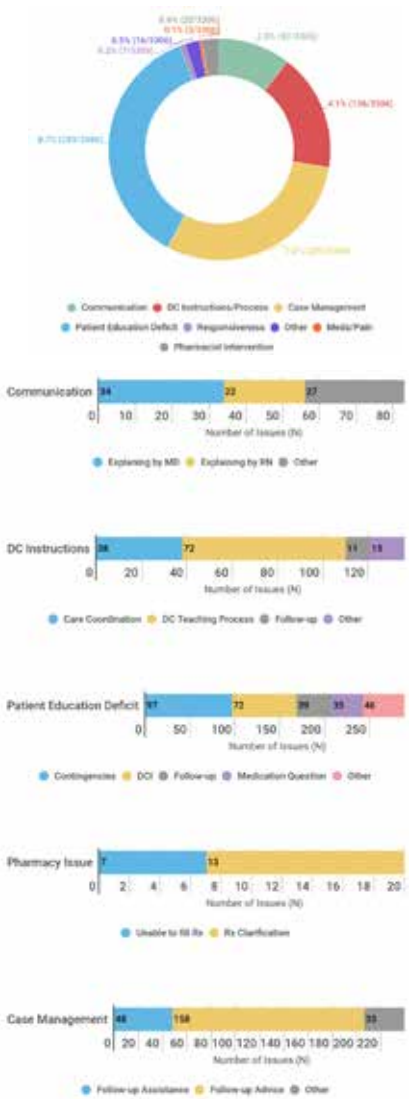
Reach Rates and Post-Visit Issues: Nurse-directed vs. Automated



Automated Follow-up and Post-Visit Issue Identification



Automated Calls: Post-Visit Issue Detail



Next Steps and Dissemination

- With automated phone calls, a higher percentage of discharged patients are called and answer the call, though more patients ultimately hang-up and do not complete the call
- While more PVIs are identified using automated phone calls, the majority lie in education and follow-up assistance

Next steps:

- We are evaluating the effect of automated calls on 72-hour return visits
- We will work to identify severity tiers of PVIs as well as demographic factors that may impact likelihood of answering and PVIs
- Nurse-directed innovations surrounding discharge teaching aim to improve patient education deficits uncovered through this automated system

2018 UCSF Health Improvement Symposium

A Team-based Approach To Cardiac Outpatient Recovery (COR)

Crystal Zhou, PharmD
Lance Benedict, CNP
Marilyn Stebbins, PharmD
Rajni Rao, MD
Rose Pavlakos, PharmD

Background

- Readmission rates within UCSF cardiology service are higher than the University Healthsystem Consortium goal (14.71% vs 13.71%)
- Barriers in receiving appropriate post-hospital cardiac care drive quality metrics surrounding readmissions
- CMS has adopted medication reconciliation as a 2018 HEDIS measure
- Limited evidence on pharmacist participation in COR clinics
- Initial COR clinic consisted of 1 cardiology nurse practitioner (CNP) FTE who spent significant amount of time resolving medication-related problems (MRPs)

Project Goals

- Improve Institute for Healthcare Improvement's "**quadruple aim**": better outcomes, improved patient experience, lower costs, and ***improved clinician experience***
- Achieve zero harm related to MRPs as part of the **Quality and Safety True North Pillar**
- Reduce re-admissions due to MRPs
- Achieve a "perfect" medication list prior to follow up with CNP
- Add a clinical virtual pharmacist (VP) to identify and resolve MRPs prior to visit with CNP, allowing CNP more time to focus on medical issues
- **Overall goal: reduce readmission rates through team-based approach to transitional care management**

Project Objectives

1. Integrate a VP in COR clinic
2. Identify and resolve MRPs through transition from hospital to home
3. Categorize MRPs into harm severity

Project Plan and Intervention(s)

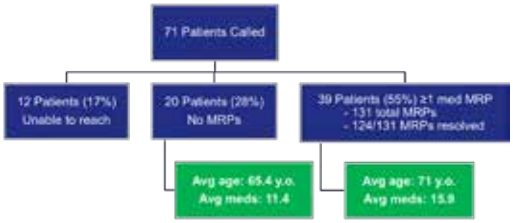
COR Team Workflow

1. VP identified COR patients using CNP clinic schedule
2. VP called patients prior to appointment with CNP to perform comprehensive medication review, medication titration, lab monitoring, and/or coordination of care
3. VP communicated with COR team to provide medication optimization and resolve MRPs prior to visit with CNP
4. VP collected MRPs and categorized potential harm using NCC MERP Wheel (Figure 1)

Figure 1. National Coordinating Council for Medication Error Reporting and Prevention (NCC MERP) Wheel

Project Evaluation & Impact

Figure 2. Medication-related problems



Data from systematic review on medication reconciliation at discharge from hospital:

- **Average age range: 56-83.7 years old**
- **Average number of medications: 9.1-13.4**

Figure 3. Types of medication-related problems

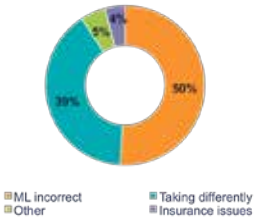
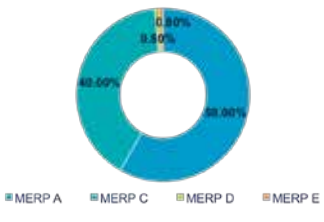


Figure 4. MRPs in transitions of care



Next Steps, Dissemination & Lessons Learned

Next Steps:

- Funding for additional pharmacy services
- Identifying heart failure patients not yet on guideline driven therapy
- Improve workflow to allow contacting patient within 48-hours of discharge
- Aligning our work with CMS medication reconciliation post discharge (MRP, HEDIS 2018 measure)

Dissemination:
Presented at School of Pharmacy Spring Research Symposium; publish an article in peer-reviewed journal

Lessons Learned:
Integrating a VP in the COR team has led to the identification and resolution of more medication-related problems and may improve readmission rates related to these problems. Providing early follow-up and rapid cycle medication optimization can improve the outcomes for cardiovascular patients. This preliminary data based on addition of a VP to COR clinic suggests the need for a more team-based approach to transitions of care and may be a potential model for a pharmacist in the cardiac rehabilitation program.

2018 UCSF Health Improvement Symposium

Implementation of Interdisciplinary Robotic Training for OBGYN Residents

Jeannette Lager, MD

Lissette Chao, PA-C
Jessica Opoku-Anane, MD

UCSF Mission Bay
OBGYN/Gynecologic Surgery

Background

Robotic surgery was first FDA-approved for gynecology in 2005 (Intuitive Surgical, Sunnyvale, CA). Despite the increased availability and use of this technology, a standardized robotic surgery curriculum in gynecology has not yet been developed. The American College of Obstetricians and Gynecologists and the Society of Gynecologic Surgeons do not have a specific program, but recommend that that credentialing and privileging for robotic surgery be based on specific criteria. This includes a didactic educational program, hands-on training, appropriately selected cases and ongoing quality assurance. In the past, robotic training in a large-group, workshop format was offered on a biannual or quarterly basis to multiple residents simultaneously, with a primary focus on the bedside assistant role and limited simulation time within the session. Additional challenges of this approach included limited faculty time and availability for more dedicated teaching efforts.

A robotic PA was hired in Fall 2017 to improve the quality and efficiency of the robotics program. With the addition of this role, a robotic surgery training program for gynecology residents was created, incorporating regular resident training sessions involving weekly protected simulator sessions facilitated by the robotic PA, and introductory/refresher teaching sessions run by the robotic PA to residents starting on the gynecological surgery service.

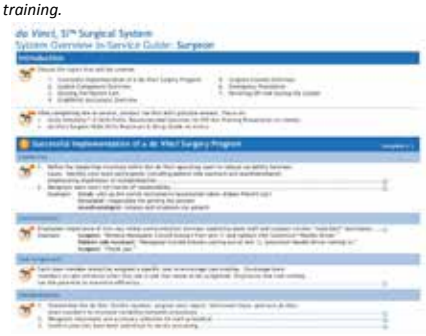
Project Goals

The goal of the program was based on the True North Pillar, Learning Health System with the goal of improving resident education in robotics.

Specifically, our goal was to increase resident exposure and training for robotics to 90%, and to allow for console time for 75% of residents in the OBGYN program.

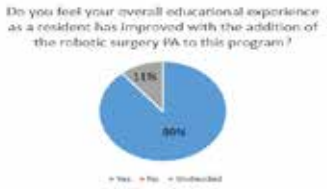
Project Plan and Intervention(s)

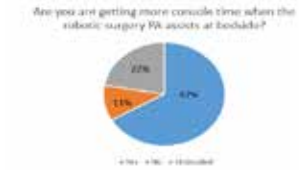
Our hypothesis was to create a standardized robotic surgery OBGYN training module to administer to OBGYN residents beginning the gynecologic surgery rotation. This program was scheduled at the beginning of each rotation to provide residents with a review of the robotic system and administered by the robotic PA. This session provides residents with expectations, instruction for online modules, simulator time, demonstration of relevant techniques and hands-on training.

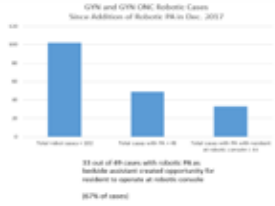


Project Evaluation & Impact

An anonymous survey was sent out via SurveyMonkey to evaluate the resident experience of the standardized robotic training sessions and the addition of the robotic PA to our program. Nine of the eleven eligible residents responded. The responses were collated by a staff member who was not involved in the training program. Additionally, the number of cases where a robotic PA was present and resident time on the console were tracked from the hire date for the robotic PA until May 7, 2018.







Next Steps, Dissemination & Lessons Learned

Next Steps:
We plan to continue to collect data and feedback regarding the training sessions. We will also monitor the total number of GYN robotic surgery cases, cases with a robotic PA present and resident console time. It will also be of benefit to track robot docking time and, if possible, compare to historical controls to evaluate efficiency in the OR in the setting of a regularly-applied, well-established curriculum.

Dissemination:
We will share the data at subsequent UCSF Robotic Steering Committee meetings, and discuss shared practices among specialties. Additionally, UCSF is hosting the University of California Robotics Collaborative (UCRC) in summer 2018 and will further discuss standardizing robotic surgery curricula and educational resources.

Lessons Learned:
This project has demonstrated that the presence of a robotic PA provides an educational benefit in didactic teaching, dry lab, and in the intraoperative setting. Given that there are 3 robots currently in use at Mission Bay, this project highlights the value of an increased robotic PA presence for improvement of educational endeavors as well as overall efficiency.

Impact of a Discharge Alert Tool on Pharmacist Discharge Medication Review

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Katayoon Kathy Ghomeshi, PharmD, MBA
Allison Pollock, PharmD
Vicki I-Sing Jue, PharmD
Marilyn R. Stebbins, PharmD
Victoria Serrano Adams, PharmD

Department of Pharmaceutical Services, UCSF Health
Department of Clinical Pharmacy, School of Pharmacy

Background

- Medication discrepancies occur more commonly when patients are discharged from the hospital and these errors can occur in as many as 41-56% of discharged patients
- Hospital re-admissions or adverse drug events due to medication discrepancies impact the UCSF Health True North pillar of 'Quality and Safety'
- Pharmacist discharge medication reconciliation is associated with decreased readmission rates, and with decreased medication discrepancies and adverse events associated with drug therapy issues
- The After-Visit Summary (AVS) provided to patients at discharge contains vital medication information, which is important in patients at a high risk for hospital re-admission.
- Pharmacist AVS medication review and medication reconciliation can identify medication-related errors and improve patient and medication safety outcomes.

Project Goals

- Evaluate the impact of a pharmacy discharge alert tool on the number of pharmacist discharge medication reviews completed
- Determine whether a pharmacist intervention was performed during after-visit summary (AVS) medication review
- Assess the number of AVS medication reviews completed for patients discharged with a high-alert medication (insulin, anticoagulant, or opioid)
- Increase the percentage of discharged patients with pharmacist AVS medication review completed by at least 20%

Intervention

- The discharge alert tool was created as a communication tool embedded into EPIC in the form of an in-basket message
- The in-basket message appears in the 'Rx Discharge' message pool when discharge medication orders are reconciled
  - Includes a preview window of the medication list, and direct access to the patient chart and documentation of completed AVS review

Project Plan

Data stratified into two cohorts:
- Pre-implementation of the discharge alert tool
- Post-implementation of the discharge alert tool

Inclusion criteria:
- Adult patients (≥ 18 years old)
- Patients discharged from the inpatient medicine service on specific dates between January and February 2018

Exclusion criteria:
- Patients who left against medical advice, expired during hospitalization, transferred to another hospital
- Patients discharged to hospice or jail/prison

Outcomes:
Primary
- Proportion of patients with AVS medication review completed by a pharmacist

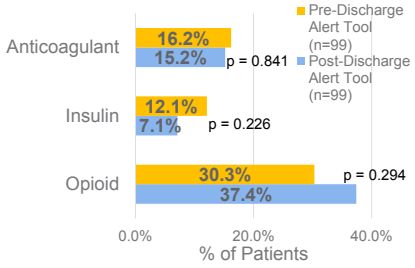
Secondary
- Proportion of patients with a pharmacy intervention performed at AVS medication review
- Number of patients discharged with a high-alert medication and AVS medication review completed

Project Evaluation & Impact

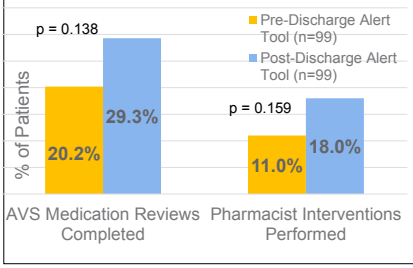
Demographics

Characteristic	Pre-Discharge Alert Tool (n=99)	Post-Discharge Alert Tool (n=99)	P-value
Age (years, mean, std)	63.1 ± 18.5	63.8 ± 17.8	0.292
Age > 65 (n,%)	48 (48.5%)	50 (51%)	0.779
Women (n,%)	51 (51.5%)	55 (55.6%)	0.569
Discharge disposition (n,%)			
Home	58 (58.6%)	52 (52.5%)	0.389
Home Health	20 (22.2%)	28 (28.3%)	0.183
Skilled Nursing Facility	19 (19.2%)	15 (15.1%)	0.453
Other	2 (2%)	4 (4%)	0.406
WS medications (mean, std)	11.6 ± 6.5	12.1 ± 7.4	0.648
New/Changed Medications	80 (80.8%)	75 (75.8%)	0.389
High-alert medication on AVS	53 (53.5%)	48 (48.5%)	0.57

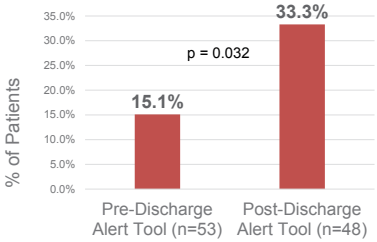
Patients discharged with a high-alert medication



AVS Medication reviews completed and pharmacist interventions performed



AVS medication reviews completed for patients discharged with a high-alert medication



Next Steps, Dissemination & Lessons Learned

Conclusions:
- No statistically significant increase in the number of AVS medications reviews completed and pharmacy interventions performed
- Statistically significant increase in the number of AVS medication reviews completed for patients discharged with a high-alert medication
- Potential utility of the discharge alert tool to improve pharmacist visibility of the AVS medication list

Next Steps:
- Expansion of the discharge alert tool to additional clinical pharmacy services
- Use of the tool as a standardized resource for pharmacist extenders
- Optimization of the discharge alert tool to identify high-risk patients

Dissemination:
- The results of this study has been shared with pharmacy leadership and will be shared more broadly with the pharmacy department

Lessons Learned:
- Lack of a standardized workflow can impact the efficiency of a clinical tool

2018 UCSF Health Improvement Symposium

Tracking Neuromodulation Outcomes in a Cloud-Based System: A UCSF and North American Neuromodulation Society Registry Initiative

Roger Lee, MD, Christopher R. Abrecht, MD, Prasad Shirvalkar, MD, PhD, Pierre D'Haese, PhD, Steven Falowski, MD, Lawrence Poree, MD, PhD, MPH

UCSF Pain Management Center

Background

Spinal cord stimulation (SCS) is a well established therapy for pain relief that has seen tremendous growth in the past decade, supported by several randomized clinical trials. However, the long-term impact of SCS on the population of pain patients on a national scale has not been studied.

Furthermore, recent restrictions placed by some insurance carriers limit access of this therapy to many patients. To improve access and further demonstrate the long-term improvement in the health of patients with implanted SCS, it is imperative to track the outcomes of these patients on a national registry. The same is true for intrathecal drug delivery systems.

The conditions treated by SCS include failed back surgery syndrome and other post-surgical pain syndromes, chronic neuropathic pain, complex regional pain syndrome, ischemic pain from peripheral vascular disease, malignant pain, and more.

Project Goals

The North American Neuromodulation Society (NANS) has commissioned the development of a cloud-based registry to track long term outcomes of patients with SCS devices across institutions and practices.

The registry will also track the outcomes of intrathecal drug delivery systems.

The registry is intended to allow for both secure and confidential tracking of individual providers' outcomes for self assessment, and to provide a way of organizing a database for those electing to participate in multi-institutional research projects.

Project Plan and Intervention(s)

The proposed cloud-based system consists of a network of nodes, each of which are capable of data storage, processing, and normalization around de-identified subjects. The design of the cloud database revolves around four core ideas: data (integrity, fidelity, and complexity), usability (simple entry, integration into workflow), security, affordability.

Outcomes include age, gender, BMI, zip code, PMH, PSH, pain diagnosis, pain descriptors, MME, trial information (date, duration, vendor, percent relief), NRS, patient global assessment of change, PHQ-9, and BPI. Complications will also be followed: infection, hematoma, migration or fracture of device, removal due to MRI, nerve damage during placement, seroma, CSF leak, unplanned admissions within 30 days of procedure, and unanticipated deaths with 180 days of procedure.

Figure 1 Pilot sites participating in the NANS Cloud Registry

Project Evaluation & Impact

Improved outcomes tracking is essential in our understanding of the therapies we prescribe. The cloud-based technology we describe enables us to do so in an efficient, confidential, and collaborative platform. The results from this database can be applied not only to individualized quality improvement, but also help spur interdisciplinary and multi-institutional research to enhance patient care.

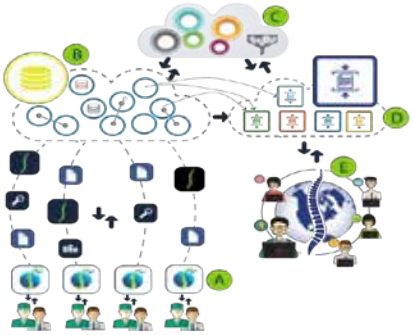


Figure 2 A) Account of each center, with PACS, B) Each account into infrastructure with common data standards that is HIPAA compliant, C) Larger system infrastructure allowing applications to be developed, tested, and deployed ("AppStore", D) Archives for each project, E) Archives for NANS and greater scientific community

Next Steps, Dissemination & Lessons Learned

Next Steps:
Completion of IRB approval at all participating pilot sites, and finalization of the data infrastructure by NANS-affiliated engineers.

Dissemination:
The same framework for tracking neuromodulation outcomes could be applied to other opioid-sparing pain management modalities performed at UCSF Health and beyond.

Lessons Learned:
Creation of a versatile cloud infrastructure for HIPAA-protected data requires highly specialized engineers.

Is there an App for that? Building on our EHR

Digital Diagnostics & Therapeutics Committee

Kelsey Sobomehin, Raman Khanna, Priyanka Agarwal, Edwin Martin, Andrew Auerbach, Aaron Neinstein

Background

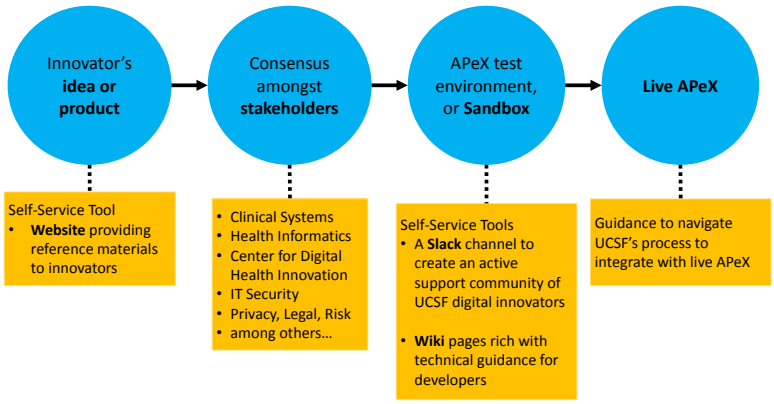
- Digital health tools outside of the EHR have tremendous potential but require integration with the Electronic Health Record (EHR).
- In many cases, these tools represent new ways to diagnose or treat diseases, in others they aim to improve patient or physician experience
- Application Program Interfaces (APIs) have made it far easier to achieve integration, expanding possibilities for innovators at UCSF and external companies.
- Developing a proactive strategy to embrace new technologies will be critical to many of the UCSF Health True North Pillars
  - Patient Experience
  - Our People
  - Learning Health System

Project Goals

1. Establish an interdisciplinary **Digital Diagnostics and Therapeutics** (dD&T) **Committee** and efficient, repeatable **process** that gives innovators (faculty, students, staff, third parties) access to an APeX testing environment (see Sandbox poster) and APIs to test and iterate digital solutions
2. Define **standards** and **best practices** for the safe and effective development, deployment, and use of innovative digital diagnostic and therapeutic tools at UCSF Health
3. Use this process and committee to **successfully integrate** digital tools with Apex's testing environment, and eventually into practice

dD&T Program Components – Speed Idea to Implementation

In response, we formed the Digital Diagnostics & Therapeutics Committee (dD&T), a sub-committee of the Care Technology Governance (CTG) Committee. dD&T provides the policies and governance for innovative digital solutions to be safely and effectively tested and deployed in the clinical setting at UCSF.



dD&T Progress and Impact

Digital solutions evaluated 23 projects spanning a wide spectrum of clinical areas. Most represent a collaboration between UCSF and a third party. See table to the right for highlights.

Collaboration with FDA PreCertification Program

Grant to found national registry of dD&T committees

Scholarly work Auerbach AD, Neinstein A, Khanna R. Balancing Innovation and Safety When Integrating Digital Tools Into Health Care. Ann Intern Med. 2018;168:733–734.

Type of Digital Tool	In the Pipeline	Live in APeX
Automation *Transforming piecemeal or paper processes into a smooth digital process*	Improving recording of neonatal weight by allowing parents to update weights outside Epic	Faxed paper referrals automatically converted to electronic APeX referrals
Clinical Decision Support *Clinical knowledge or person-specific information, presented at the point of decision*	Real-time identification of pre and post-surgery patients that need care before the problem worsens	Automated vancomycin dosing decision support for pharmacists
Dashboards *A tool that visually tracks, analyzes and displays key metrics to monitor a patient's health*	Display of MS prognosis and suggested treatments based on external algorithm.	Patient surveys to collect and report quality indicators

Next Steps

1. Continue to speed and streamline dD&T process to be more clear and repeatable from idea to implementation
2. Develop and implement a sustainability plan, including a pricing structure for more advanced support and increased functions of our testing environments
3. Innovate and develop our testing environment further so that it more accurately mirrors care
4. Establish collaborations with peer organizations to create best practices in API governance and use
5. Extend UCSF's leadership role in the growing movement towards personal health records

Improving Patient and Family Rounding Experiences Through Development of a Family-Centered Rounds Rubric

Sarika Sheth, MD; Ellen DeJong, MD; Hannah Tan, MD; Chris Vlasses, MD

Pediatric Hospital Medicine

Background

An important time for communication between families and medical teams is morning rounds. UCSF Benioff Children's Hospital Oakland employs a family-centered rounding (FCR) technique. The process is designed to enable a multidisciplinary MD and RN team to provide and receive updates and formulate a plan of care with the patient and family at the bedside. A recent systematic review shows that families are eager to participate in FCR, and their involvement leads to increased understanding, increased communication with the medical team, and increased parental confidence in the medical team (Rea et al, 2018). The impact FCR has on overall patient satisfaction is unclear in the literature, however studies suggest improved satisfaction with communication and improved perception of consistency in communication when FCR is implemented (Voos et al, 2011, Knoderer et al, 2009). Recent patient satisfaction survey data at BCHO identifies ongoing perceived areas for improvement in both communication between MD and RN providers and in providing consistent messages to families. Anecdotal reports of rounding experiences suggest variance in provider style, which may contribute to lapses in communication with families and amongst the team. Explaining FCR, asking open ended questions, limiting medical jargon and inviting RN participation are associated with improved encounters (Rea).

Project Goals

- Identify areas to target for improvement in the rounding techniques of the hospital medicine service
- Develop and implement a focused rubric to evaluate and improve rounding encounters
- Educate residents and medical staff in rounding styles that have been shown to improve patient and family understanding and satisfaction
- Evaluate performance and provide feedback on teams' communication with family members within rounds
- Promote RN attendance and engagement in rounds
- Improve communication between families and the medical team, and the between medical team members

Project Plan and Intervention(s)

Hypothesis: Implementation of a short rubric during family-centered rounds (FCR) will standardize and improve communication between medical providers and families as well as parent perception of interdisciplinary communication.

Rounding practice was assessed with the Bedside PFCC Rounds Observation Checklist, a 32-item evidence-based rubric designed to evaluate multiple domains of rounding that have been shown to have an impact on patient understanding and satisfaction (2010, Medical College of Georgia). Rounds observations with our Family Advisory Counsel were also conducted. The areas of greatest weakness were identified from these assessments and used to develop a 6 item rubric. This checklist can be completed by the rounding team immediately after a patient encounter for both self-evaluation and data collection. A draft of the rubric was created and tested. Feedback was sought from the medical and nursing teams related to clarity, functionality, and ease of use. A final rubric was completed (Fig 1)
Baseline data was then collected by our team who shadowed rounds and evaluated baseline team behavior. The rubric and rounding techniques were then introduced to all three General Pediatric Medicine teams and distributed for use in rounds. We have recently begun collecting intervention data. (Fig 2) Patient satisfaction survey data related to perceptions of interdisciplinary communication and consistence in communication will also be monitored during the intervention period.


FCR Rubric

Figure 1. Rubric developed for use by provider teams in self-assessment of rounds.

Project Evaluation & Impact

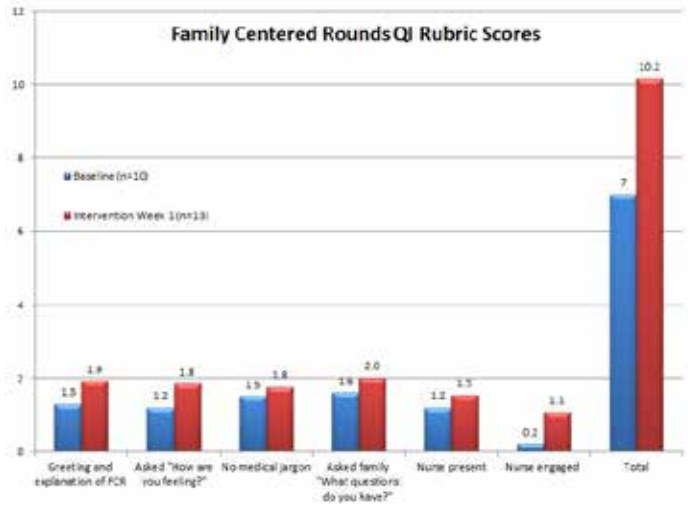


Figure 2. Comparison of pre- and post- rubric implementation scores. Average scores for individual questions are presented (out of possible score of 2) followed by average total rubric score (out of possible 12)

Next Steps, Dissemination & Lessons Learned

Next steps will include further resident and medical staff education and data collection during the intervention period of three months. We hope to continue to improve process metrics related to rubric scores during this time. Outcome metrics will be monitored in the form of responses to two NRC Heath patient satisfaction survey questions, one related perceptions of the quality of MD to RN communication and a second related to the perception of the consistency of communication across providers. These will be reviewed monthly and compared to our baseline performance.

This rubric is easily accessible and requires little time to complete. Thus far we are pleased with the way it promotes consistent use of best practices and serves as an entry point for discussions with team members about FCR skills. It could be distributed widely within the UCSF system to aid as a self-assessment tool in rounds should it prove to positively impact patient and family understanding of care and perception of communication amongst team members.

Our project has been strengthened by the ongoing input from our colleagues in nursing, hospital pediatrics, our residency and the support from our family advisory counsel.

UCSF Health

Order Mode Dashboard

Identifying and evaluating order mode utilization

Order Mode Team

Project Sponsors:
S Kedrowski, J Mechanic
Project Leads: T Ochoa, J Pacholuk
Team: R Cafferky, G Davis, D Diaz, S Ng, V Rayanker, T Satterwhite, A Shetty, E Sin, W Wat

Background

According to estimates, there are over 200 million orders in APeX. The volume of orders makes it difficult and cumbersome to fully evaluate the data and process compliance. Use of non-provider protocols and order modes has increased. Monitoring appropriate order mode use is associated with the True North Pillars of Quality & Safety, Patient Experience, and Our People.

To monitor safety and regulatory compliance associated with use of non-provider protocols and order modes, an assessment determined the following were needed:

- A standardized process for unit and clinic nurse managers to monitor and provide staff feedback for appropriate use of order mode and non-provider protocols
- A tool (dashboard) for nurse managers to assist with monitoring order mode use compliance
- A tool to measure provider co-sign compliance rates
- A tool for managers and/or designees for monitoring quality review process
- Data for report-out to appropriate committee(s)

Project Goals

The Order Mode Dashboard was designed to improve patient safety in the order entry process, provide staff feedback and training, and facilitate regulatory compliance. The goal was to provide a tool easily accessible by nursing directors, nursing managers and providers to allow for relatively quick review of their units and identification of appropriate usage of order modes and protocols.

Project Plan and Intervention(s)

Order Mode Dashboard and Order Mode Data Mart were implemented using the Software Development Lifecycle (SDLC) process. SDLC has similar steps when compared to the PDSA cycle.

Plan: Completed intake and gathered business requirements around all sources. Focus groups with key customers were conducted to ensure needs were met. **Analysis**: A data mart and dashboard would be created.
Design/Develop: A data mart, the OMD Data Mart, and Order Mode Dashboard were created. Daily refresh of data from APeX to the OMD Data Mart was automated and made available to supply data to the OMD Dashboard.
Test: Extensive functional and data validation testing was completed. Data validation comprised of comparing data at stages of processing, first APeX to OMD Data Mart and then OMD Data Mart to OMD Dashboard.
Deploy: Both the OMD Data Mart and Order Mode Dashboard went live on March 21, 2018 for a pilot soft launch with an official go-live roll-out to be communicated to UCSF community in approx. 6 months post pilot launch.
Maintain: Review of the daily data flow, dashboard refresh and usability in process. Any requests for enhancements or/and break fixes would be addressed by repeating the SDLC process as typically done in performance improvement or quality improvement PDSA cycles, starting with the Plan step.

Project Evaluation & Impact

Order Mode Dash has two tabs: Home and Trend. The Home tab provides detailed views of Order Mode by Department, User Name, User Role (RN, MA, etc.), Order Type (Medication, POCT, Labs, etc.) and Order Name (specific medication or procedure being ordered). The dashboard provides the ability to drill down by any of those categories. Order details are also displayed and allows the user to export the data to excel or open the patient's chart (when opened within APeX) to do further investigation.

The Trend tab of Order Mode Dash displays multiple views for the data trended over time, such as Order Volume, Order Mode used, Cosign Compliance by Provider:

Next Steps, Dissemination & Lessons Learned

Next Steps: Coordination of an official go-live roll-out to include communication to UCSF Health community and focused training for core audience of unit and clinic nurse managers
Dissemination: Order Mode Dashboard is open access to all users throughout the UCSF Health community (anyone within the UCSF Network can access)
Lessons Learned: During the implementation and in the first months of the pilot phase, we found that the breadth of information available revealed a multitude of issues to address that can be overwhelming to the user. This emphasized the need for focused instructions and training plans. With the increased data transparency, it was also found that consistencies in process and operational work flows were varied. One example includes the discovery of the use of an inactive order mode by an automated system within APeX.

2018 UCSF Health Improvement Symposium

Accelerating Safe and Effective Innovation: Creating an Ecosystem to Test New Digital Solutions with the EHR

Sarah Schewe
Jennifer Gitchell

Center for Digital Health Innovation (CDHI) and the Digital Diagnostics and Therapeutics (DD&T) Committee

Background

The Digital Diagnostics & Therapeutics (DD&T) Committee governs access to **UCSF's EHR Sandbox environment (ACE6).**

Feedback from current users indicate that ACE6's limitations are **inhibiting the speed and quality of testing**.

When innovations can't be iteratively developed and tested, it creates a bottleneck which **impedes clinical and operational innovations.**

Overcoming this bottleneck could generate **additional IP and revenue** opportunities for UCSF and enhance our **innovation capacity**.

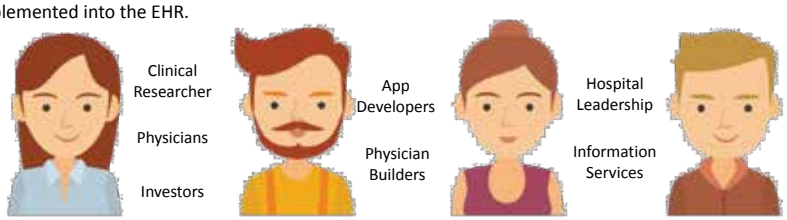
Project Goals

Project Goals

1. Define the problem. What isn't working with the EHR Sandbox environment today?
2. Define impact and downstream effects on innovation.
3. Develop requirements to address problems identified.
4. Use requirements to accelerate innovation by building the EHR Sandbox.

Project Plan and Intervention(s)

50+ interviews conducted across stakeholders to understand how innovative ideas do or do not get implemented into the EHR.



Interviews revealed that innovations often stop short of implementation and generated specific requirements for a more robust EHR Sandbox, which would:

- Look and feel like a "live EHR" environment, including matching EHR build and workflow
- Rich patient histories, including longitudinal data
- Reflect the "imperfect-ness" of an EHR's "live" production environment
- Allow for iterative design with users
- Allow for complete testing before putting a new app into a live clinical environment

Project Evaluation & Impact

Presented below is a comparison of current state and three potential solutions. Based on this analysis, DD&T determined that a more robust, internally hosted environment that is a copy of APeX Production (but with all PHI removed) would most fully meet user needs at UCSF.

		Current State	External solutions		New Solution
	Requirement	ACE 6	Epic Sandbox	HSPC Sandbox	SUP 2
Look & Feel	Same build as UCSF PRD (APeX)				X
	"Imperfect-ness" of a real clinical environment				X
	Front-end user interface allows for iterative testing	X		X	X
Data	Ability to import different data sets			X	
	Rich clinical histories				X
	Longitudinal patient data				X
	Ability to include PHI data				X
Technical	Easily spin up multiple sandboxes			X	
	Run test scripts, receive an error report		X		
	Ability to easily work with outside collaborators				
	Secure, hosted internally at UCSF	X			X
	Ability to connect to 230+ interfaces	X			X
	Supported externally		X	X	

Next Steps, Dissemination & Lessons Learned

<u>An EHR Sandbox has the potential to catalyze innovation and implementation</u>

Next steps

1. Complete technical requirements to create a proof-of-concept for an EHR Sandbox
2. Assign a development team to build out an initial proof-of-concept for the Sandbox and to have UCSF developers provide feedback on its use.
3. Find a solution for de-identifying selected cohorts of real patient data for use by innovators in the Sandbox.

Automating the Referrals Process to Increase Utilization and Drive Revenue

UCSF Health

Referrals Automation

Access Team
- Meredith Ballotta
- Jennifer Hood
- Jennifer Reyes-Balestier

CDHI Team
- Ramki Yerramsetty
- Sandeep Giri

Background

Referrals are an important **"front door"** for consumers to become patients of UCSF Health and existing patients to expand their use of UCSF Health.

Referral Processing at UCSF is a manual & inefficient process that results in reduced access & lower satisfaction for patients & referring providers & lost revenue for the health system.

Today, at UCSF:

47% of new referrals are never scheduled: **$367M** in lost revenue opportunity.

30% of new patient appointments are no-shows or cancellations: up to **$576M** in lost revenue opportunity.

35% of patients are contacted 5 or more days after their referral arrives at UCSF.

Project Goals

Project Goals

1. Map & measure the referrals process at UCSF across multiple referral centers.
2. Create a product that meets stakeholder specific needs, improves process efficiency and stakeholder experience.
3. Integrate commercial technologies and APeX-facing APIs to create a scalable and secure product.
4. Create a product that enables continued process and operating improvement

Target State

- 30% reduction in overall processing time per practice.
- Improved referring provider and patient satisfaction, attachment to UCSF Health

Current State and Iterations

- Ver 1: reduce processing time by 8%
- Ver 1.1 – 1.2: fast iteration for scale, feature and workflow validation
- Ver 2+ : Iteration to achieve target state

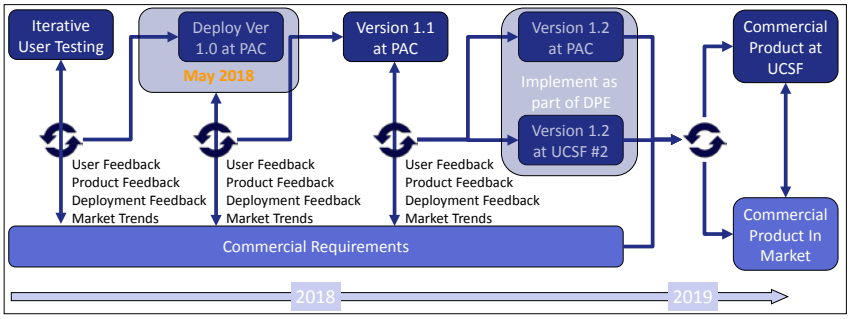
Project Plan and Intervention(s)

Data Gathering (Problems to Solve)	*end-to-end process mapping*			
	Time & Motion Study	Interview Pt. & Prov.	Analyze 3000+ faxes	
	"voice of the user"	"voice of the customer"	"voice of the data"	
Hypotheses (Jobs to Do)	Optimize Referral Center workflow	Optimize Referral Center operation	Optimize Referral Center Interaction	Extract & Transcribe Referral Data
Solution Requirements	1. Automatically capture referral details in an electronic form (e.g. apply OCR to referral faxes) 2. Enable Referral Coordinator to validate automatically captured data and its mapping to APeX (EHR) 3. Generate referral and update patient demographics in EHR, eliminating manual data entry 4. Using an online Dashboard, share the status of the referral with referring providers 5. Send text messages to patients to acknowledge receipt of referral 6. Security, Scale, and Performance metrics and measures needed for UCSF deployments			
Roadmap	**Version 1.0** • See below • Deployed in May 2018	**Version 1.1-1.2** • Other referral sources	**Version 2.0** • Referring provider dashboard • Communication with patients	**Future** • Send referral via Dashboard • Other integrations

Project Evaluation & Impact

Referral Process	Current State	Version 1.0	Version 1.1	Version 1.2
Total Process Time	**12 mins**	11 mins	10.5 mins	8 mins
Projected Time Savings **Possible Additional Referrals**		1 min 80 Referrals	1.5 mins 140 Referrals	4 mins 450 Referrals
Intake Workflow	**2 mins**	**2 mins**	**2 mins**	**0.5 min**
Review, sanitize Fax, Check for required info, create pt. in APeX, upload to queue	**1.25 mins**	-	-	• App automates process.
Send referring provider acknowledgement fax	**0.75 mins**	-	-	• Dashboard shows referral status
Referral Coordinator Workflow	**10 mins**	**9 mins**	**8.5 mins**	**7.5 mins**
Pick a file, review for required info	**4 mins**	• Launch from APeX • App extracts data • Coordinator reviews data • App creates referral in APeX		
Contact referrers for missing info				
Update demographics, PCP, contact info, Create Referral in APeX				
Update guarantor, insurance info. Verify insurance.	**1.5 mins**	-	• App extracts and displays guarantor and insurance info	
Call pt, verify registration & schedule	**3 mins**	-	-	
Send appt. scheduled to referring provider	**0.25 min**	-	-	• App shows status to referring prov
Log referral in Kyruus	**0.25 min**	-	-	
Other misc. actions	**1 min**	-	-	

Next Steps, Dissemination & Lessons Learned



2018 UCSF Health Improvement Symposium

Eliminating Opioid Over-Prescription After Ambulatory Surgery

Anjali Dixit, MD, MPH
Christina Inglis-Arkell, MD

UCSF Department of Anesthesia and Perioperative Care

Background

- Many post-surgical patients require pain medication after their operations and are discharged home with an opioid prescription.
- However, individual prescribers have varying prescribing patterns, and therefore these post-discharge opioid prescriptions are often not tailored to patients' analgesic requirements.
- Prescribers may err toward over-prescription of opioids to ensure their patients do not experience post-surgical pain.
- When patients are discharged with more opioid than they need, the extra pills are available for abuse and/or diversion. This opioid initiation after surgery is a major driver of the opioid epidemic.

Project Goals

- We aimed to identify post-surgical opioid prescribing practices that could be modified to enhance patient safety at UCSF.
- We utilized the pre-existing Cipherhealth automated phone call which goes out to all ambulatory surgery patients (MB/ML/MZ) one day after discharge to assess whether they are using prescribed opioid.
- Our assumption was that patients who are prescribed opioids but deny use of them as early as the day after discharge are likely over-prescribed.

Project Plan and Survey

- An automated phone call (administered by Cipherhealth) goes out to all patients undergoing ambulatory surgery at UCSF Moffitt-Long, Mission Bay, and Mount Zion Hospitals one day after discharge. This includes patients discharged directly from the PACU as well as 23-hour stay units. The purpose of the call is to assess for postoperative concerns or complications which warrant further follow up.
- Over an 8-month period (Apr – Dec 2017) we added two additional questions:
  - **Question 1:** Were you prescribed opioids for post-operative pain control? Examples of opioids include Norco, Vicodin, Percocet, oxycodone, or Dilaudid.
    - Only patients who answered "yes" received Question 2
  - **Question 2:** If yes – are you currently taking them?
- For most patients these calls took place on POD 1. However, for 23-hour stay patients and for those whom POD 1 fell on a weekend or holiday, the phone call took place on POD 2-5.

Project Evaluation & Impact

* POD1 was calculated by finding the difference between the discharge date and the date the patient received the phone call. In a small fraction of patients this calculation for POD1 is inaccurate, because they stayed at the hospital for 23 hours after their surgery. In these cases, they would have been called on POD2 but included in the POD1 group, which would likely result in underestimation of the final box in this row.

- Over this 8-month period, 8931 patients had ambulatory surgery at UCSF and received post-discharge automated phone calls.
- 72.2% of patients contacted responded to our questions, and of this group 77.7% were surveyed on POD1.
- Among those who reported having been prescribed an opioid, 41.1% of those contacted on POD1 denied using it at the time of automated phone call.

Next Steps, Dissemination & Lessons Learned

Next Steps:

- We found that a significant portion of patients undergoing ambulatory surgery at UCSF are not using opioids as early as POD 1. We assume that these patients represent cases of opioid over-prescription. We plan to utilize the EMR to gain more information on these patients such as surgery service and type to further stratify them.
- Over the next year, we will be designing and implementing a program at Mount Zion to 1) provide patient education and goal-setting regarding pain control in the pre-operative period, and 2) develop discharge guidelines for pain regimens (both opioid and non-opioid multimodal analgesics) after specific types of ambulatory surgeries.
- We will then be conducting a post-operative assessment of patients' opioid use and satisfaction with their post-operative pain regimens, along with evaluating whether rate of opioid prescriptions and duration of therapy decrease.

Dissemination:

- We will be collaborating with UCSF surgical services to coordinate design and implementation of this upcoming project. Once surgical services know about this program, they may be able to extrapolate the patient education components into their pre-operative discussions. This would could also be extended to patients undergoing surgeries followed by inpatient stays.

Lessons Learned:

- This presents an important opportunity to safely reduce opioid use amongst UCSF ambulatory surgical patients, thereby preventing opioid use-related complications and associated healthcare costs.

2018 UCSF Health Improvement Symposium

Healing Hands: A Massage Therapy Pilot Program in Adult Bone Marrow Transplant (BMT) Patients

Carla Kuon
S Rae Wannier
James Harrison
Carolyn Tague

Osher Center for Integrative Medicine
& Division of Hospital Medicine

Background

- Patients admitted with hematologic malignancies often suffer from lengthy hospital stays resulting in isolation, poor sleep, pain, anxiety, situational depression, and distress.
- Massage therapy has been proven useful for reduction of anxiety, pain and depression in oncology patients and equivalent to pharmacologic drug therapy.

Project Goals

- To develop a Massage Therapy Program for Bone Marrow Transplant (BMT)
- To pilot implement, evaluate feasibility and impact of the Massage Therapy Program on patient outcomes.

Project Description

- Massage Therapy was offered weekly, every Tuesday for a total 10 months by a trained massage therapist trained in massage for BMT inpatients
- We created a massage consult order request in Apex/EMR system (Figure 1) patients whom consented to a massage intervention.
- All patients on the BMT service were offered a massage consultation every Tuesday. Some patients were seen on a weekly basis until discharge.
- We included patients with low platelets (deep tissue massage was avoided).
- The massage service was funded with **$10,000** of philanthropic gifts.

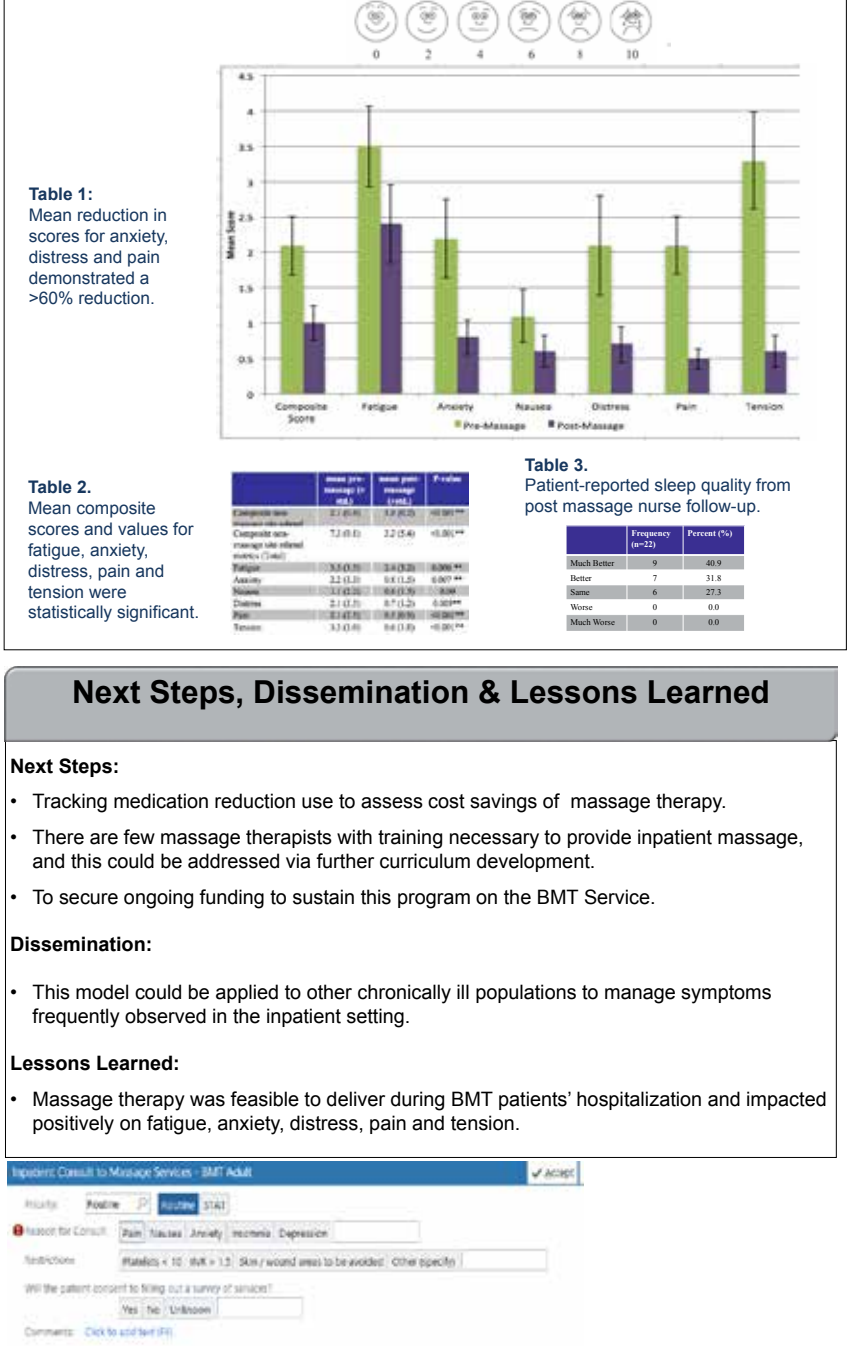


Figure 1: Massage Order Set Apex

Project Evaluation & Impact

- We evaluated the effects of massage and therapy by collecting surveys assessing a 7-point symptom constellation of pain, anxiety, nausea, distress, tension, fatigue, sleep quality, and patient satisfaction over 10 months.
- 106 of 188 patients who received massage therapy returned surveys.

Figure 2. FACES Visual 10-point scale

Table 1: Mean reduction in scores for anxiety, distress and pain demonstrated a >60% reduction.

Table 2. Mean composite scores and values for fatigue, anxiety, distress, pain and tension were statistically significant.

	mean pre-massage (+ std.)	mean post-massage (+std.)	P-value
Composite score	7.2 (0.6)	3.2 (0.2)	<0.001**
Composite non-massage site related metrics (Total)	7.2 (0.1)	3.2 (5.4)	<0.001**
Fatigue	3.5 (1.3)	1.4 (0.2)	0.006 **
Anxiety	2.2 (1.1)	0.8 (1.5)	0.007 **
Nausea	1.1 (2.1)	0.4 (1.9)	0.04
Distress	2.1 (1.7)	0.7 (1.2)	0.007**
Pain	2.1 (1.8)	0.5 (0.9)	<0.001**
Tension	3.3 (1.6)	0.6 (1.8)	<0.001**

Table 3. Patient-reported sleep quality from post massage nurse follow-up.

	Frequency (n=22)	Percent (%)
Much Better	9	40.9
Better	7	31.8
Same	6	27.3
Worse	0	0.0
Much Worse	0	0.0

Next Steps, Dissemination & Lessons Learned

Next Steps:

- Tracking medication reduction use to assess cost savings of massage therapy.
- There are few massage therapists with training necessary to provide inpatient massage, and this could be addressed via further curriculum development.
- To secure ongoing funding to sustain this program on the BMT Service.

Dissemination:

- This model could be applied to other chronically ill populations to manage symptoms frequently observed in the inpatient setting.

Lessons Learned:

- Massage therapy was feasible to deliver during BMT patients' hospitalization and impacted positively on fatigue, anxiety, distress, pain and tension.

2018 UCSF Health Improvement Symposium

Clinical Pharmacist Improves HCV Medication Access, Optimizes Outcomes, and Decreases Costs

Philip Kong, Pharm.D., BCPS
David Quan, Pharm.D., BCPS
Department of Pharmacy

Background

The Viral Hepatitis Clinic at UCSF Medical Center utilizes a multidisciplinary team model that includes medical providers, clinical pharmacists, pharmacy technicians, and medical assistants to provide comprehensive patient care. A full-time pharmacist and pharmacy technician have been integrated into the clinic to provide care to patients with chronic hepatitis C infection and facilitate access to antiviral medications.

The treatment of chronic hepatitis C virus (HCV) infection is rapidly changing. While the new all oral antiviral agents are highly effective (cure rates >90%), they are also very expensive (can exceed >$100,000 per treatment course). With the high cost of HCV treatments, third-party payors frequently utilize prior authorizations (PAs) and formulary restrictions. This can lead to decreased patient access to medications and delays in starting treatment.

A standardized workflow was developed. Patients referred to the Viral Hepatitis Clinic are evaluated for treatment. The pharmacist reviews the patient's clinical information to determine the optimal HCV treatment regimen. The HCV prescription is triaged to certain specialty pharmacies based on insurance payor requirements. Prior authorization (and higher-level appeals) are obtained by the pharmacist. Co-pay assistance is also obtained to minimize out of pocket costs to the patient. Once approved, the patient is seen in the clinic for a treatment initiation visit. The patient's medication list is reconciled to identify potential drug-drug interactions. The patient receives extensive counseling on their HCV treatment regimen. Follow-up labs/clinic visits are coordinated with the medical provider. Information (e.g. drug regimen, start/stop date, pharmacy is documented in APeX to facilitate management across the continuum of care.

Project Goals

Project goals include –

1) Demonstrate the value of the pharmacist in the ambulatory care setting
2) Increase the approval rate of antiviral medications that require prior authorization
3) Decrease the time that it takes to obtain authorization for HCV antiviral medications.
4) Decrease fees paid to outside specialty pharmacies to process HCV antiviral prescriptions.
5) Secure new insurance contracts

True North Pillars

Quality & Safety
Financial Strength
Strategic Growth

Project Plan and Intervention(s)

Patients seen in the Viral Hepatitis Clinic at UCSF Medical Center for treatment of HCV infection are cared for by a pharmacist and pharmacy technician. The HCV treatment regimen is reviewed for appropriateness, screened for potential-drug-drug interactions. The pharmacist coordinates the prior authorization process (and obtains higher-level approval if necessary). Co-pay assistance is also obtained (if necessary) to facilitate access to medication and out of pocket cost to the patient. The prescription for HCV medication is triaged to an outside specialty pharmacy or the UCSF Transplant Pharmacy based on insurance payor requirements. During the treatment initiation visit, the pharmacist reconciles the patient's medication list for any potential drug-drug interactions. Changes to the medication regimen are coordinated with the medical provider. The patients receive extensive counseling on their HCV treatment regimen to promote medication adherence.

Project Evaluation & Impact

Figure 1.

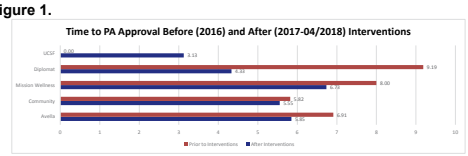


Figure 2.

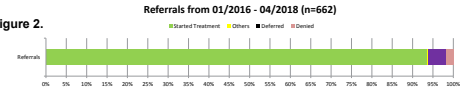


Figure 3.

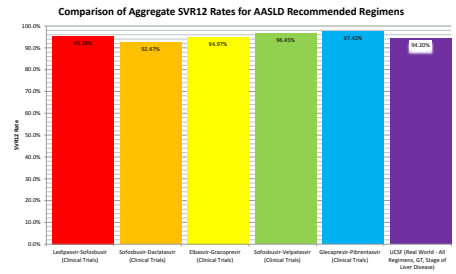


Figure 4.

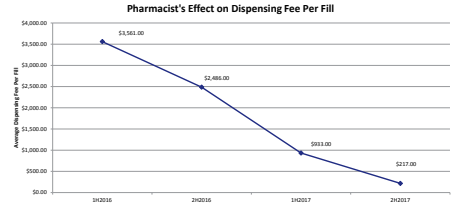


Figure 5.

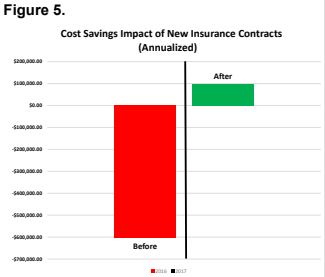


Figure 1.
UCSF is able to obtain prior authorization in less time than other outside specialty pharmacies

Figure 2.
96% Of patients referred are able to be started on HCV treatment

Figure 3.
Overall treatment response (*all* patients) as measured by the sustained virologic response at week 12 after end of treatment (SVR12) is consistent with what was found in clinical trials.

Figure 4.
Prescriptions routed to be filled at the UCSF Transplant Pharmacy resulted in significant cost savings (on fees paid to outside specialty pharmacies)

Figure 5.
Expanded access to third party payor pharmacy networks results in additional cost savings not previously realized

Next Steps, Dissemination & Lessons Learned

Next Steps:
Integration of a pharmacist/pharmacy technician into an ambulatory care clinic setting can result improved quality of care delivered by improving the rate of drug approval increasing patient access to medication, and maximizing treatment outcomes. In addition careful routing of prescriptions can decrease the time that it takes to acquire medication authorization, to start treatment and also minimize cost by decreasing fees paid to outside pharmacies to process prescriptions. This model has the potential to be implemented into other ambulatory care areas to improve care facilitate medication access, and decrease costs.

Dissemination:
The results will be discussed with the Viral Hepatitis Clinic and pharmacy leadership

Lessons Learned:
1) Navigating through the insurance payor system can be very complex.
2) HCV treatment is rapidly changing. New drugs approved by the Food and Drug Administration (FDA) need to be integrated into HCV treatment guidelines and reviewed for addition to drug formularies. The formulary review process takes time.
3) Regular benchmarking will assist with identifying trends for further improve quality and efficiency

A Transitions of Care Curriculum for Third Year Medical Students

UCSF Division of Hospital Medicine

Jessica Fuller, James Harrison, Cindy Lai, Archna Eniasivam

Background

- Transitions of care are commonly associated with adverse medical events, particularly surrounding discharge from the hospital.
- Few medical trainees receive formal education in recognizing and addressing patients most at risk for these adverse events.

Project Goals

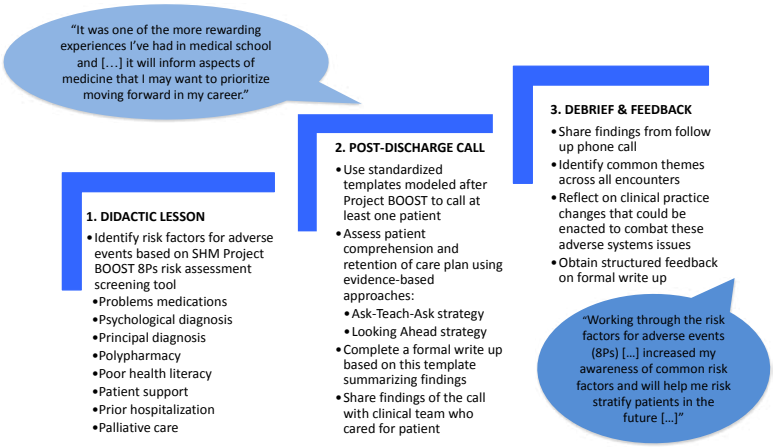
Aligning with UCSF True North Metrics of Quality & Safety and Learning Health System, our goals were to:

1. Develop a *Transitions of Care Curriculum* for third year medical students.
2. Determine if a *Transitions of Care Curriculum* would highlight common healthcare systems issues that patients experienced during care transitions.
3. Examine how a *Transitions of Care Curriculum* might change medical students' clinical approach and decision-making with future patients.

Project Description

- Third year medical students rotating through a three-site Internal Medicine program from June 2016-April 2017 participated in the curriculum.
- Students participated in three areas of curriculum: didactic teaching, post-discharge follow up phone call with a patient, and group debrief at the end of the rotation.
- In total, 107 students participated, organized into 11 cohorts that each completed the three part curriculum.
- Write ups were analyzed using qualitative content analysis. This involved categorizing data into themes to describe patients' experienced adverse systems events and students' self-identified changes to clinical practice as a result of completing the curriculum.

Curriculum Overview



Project Evaluation & Impact

- Of all participating 107 students, 99 (93%) completed the writing assignment in full.
- Of 107 contacted patients, 65 (61%) reported experiencing at least one adverse event related to a healthcare systems issue.
- Of 101 healthcare systems issues identified (Figure 1), the most common were:
  - Lack of timely follow up: 30
  - Inadequate communication with patient or caregiver: 26
- Students identified 241 changes they would enact in their future clinical practice (Figure 2):
  - Improve communication with patients and caregivers: 102
  - Change their approach to patient education and anticipatory guidance: 31
  - Change in scheduling follow up appointments: 24

Figure 1: Healthcare systems issues experienced by patients

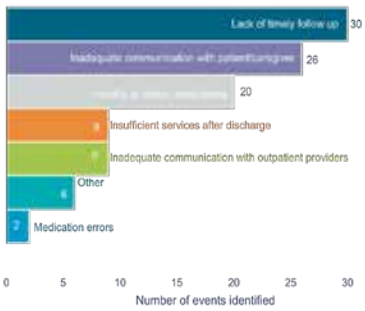
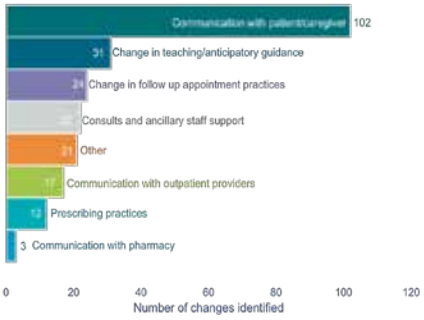


Figure 2: Student-identified changes in clinical practice



Next Steps, Dissemination & Lessons Learned

Next Steps:
We hope to further analyze the curriculum's impact by surveying students after the curriculum is completed to see how many have incorporated their self-identified changes into clinical practice.

Dissemination:
A similar framework could be adopted by outpatient providers during follow up appointments with patients after hospital discharge.

Lessons Learned:
A *Transitions of Care Curriculum* increased students' awareness of patient risk factors for adverse events during care transitions. The curriculum led students to critically think about changing their future clinical practice to address care transitions issues.

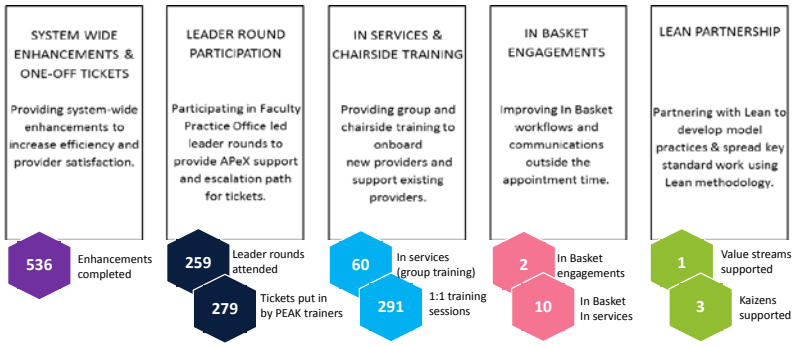
2018 UCSF Health Improvement Symposium

PEAK: Enhancing Practice Experience and APeX Knowledge

UCSF Health

PEAK Team

Program Plan and Interventions



Background

As part of UCSF Health's vision to be the **best provider of healthcare services**, we are committed to delivering the highest level of patient-centered care possible, which includes **optimizing the use of EHR** for clinic visits with team based workflows and supporting **communication via MyChart and In Basket.**

The staff, providers, and leadership team of UCSF Health are persistent in their pursuit to provide high-quality patient care. While clinics do a great job in caring for the patient, **we recognize that our current processes for the EHR do not always work smoothly for patients, staff, and providers**.

Program Goals

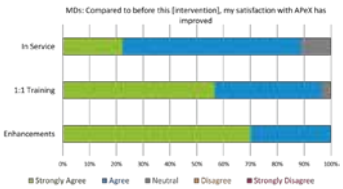
Improve practice experience and increase APeX efficiency with team centered workflows, specifically:

- Improve physician satisfaction where at least 60% of respondents agree or strongly agree that their satisfaction with APeX has improved
- Decrease average turnaround time of MyChart In Basket messages in by at least 10%
- Partner with Lean to improve efficiencies in clinic and spread across other clinics. Improvements include increasing the % of calls resolved and at first touch and decreasing the number of visit types

Program Evaluation & Impact

Overall Program Satisfaction

96% of physicians agree or strongly agree that their satisfaction with APeX has improved



Satisfaction quotes

Great teaching, great teacher ~ Pediatrics MD

Great job being organized and stepping through the options ~ OHNS MD

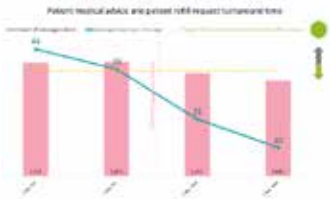
I found [the training] very helpful and would recommend it to others ~ Dermatology MD

Very useful. I wish this was offered earlier. ~ Internal Medicine MD

In Basket Engagements

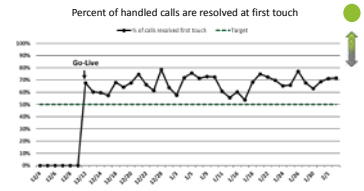
Turnaround time improved by 71%

Turnaround time improved by 63%



Lean Partnership

Percent of calls resolved at first touch improved by over 65%



Number of visit types were reduced by 78%

Lessons Learned & Next Steps

- 80% of clinics had barriers to successful implementation of workflow changes
  - **Next steps**: Partnering with FPO to include In Basket on true north boards in order to help overcome barriers and support change management
- Many clinics are silently struggling and do not put in tickets
  - **Next steps**: Providing clinic-by-clinic optimization projects
- Participating in FPO-led leader rounds is a valuable partnership
  - **Next steps:** Expanding on partnership to support In Basket and spreading best practices from Lean model clinic development
- In order to maximize practice experience & efficiency, it is important to include APeX education for trainees and clinical staff
  - **Next steps:** Providing chairside and group training to trainees and clinical staff

2018 UCSF Health Improvement Symposium

Responding to Insurance Grievances

UCSF Health

Adult Quality Improvement

Lindsey Walicek, Daphne Nguyen, Mariah Bianchi and our multi-disciplinary team members: Angela Beck-Alioto, Chris Diamond, Janice Hull, Amy Hyams, Ivy Kolvan, & Susan Penney

Background

Adult Quality Improvement (AQI) and Ambulatory Quality are responsible for responding to grievances filed by health plans in order to maintain negotiated contract requirements and ensure claims reimbursement is processed.

Solely relying on separate, manual processes, we gather and track information related to the insurance grievance (IG), then submit a response to the health plan. Each time an IG is received, current work is disrupted and/or delayed in order for the Quality Analyst to thoroughly review. The process takes a significant amount of time to reach out to various providers, review charts and track down information from other departments that use their own process for storing data.

This often leads to duplicate reviews, frustration for all parties involved, and the inability to meet the health plan's deadline for a response.

Concise Problem Statement: The AQI IG response lead time of 10 days exceeds the health plans deadline in 70% of cases and takes an average of 4.8 hours (range 1-9 hrs) of unanticipated work time to investigate and respond, often without complete information from providers or other departments involved.

70% of IG requests require a deadline extension; regular work is delayed; and extreme frustration is reported. At the same time, opportunities to learn from grievances are lost due to the inability to identify themes and share across departments.

Project Goals

1) Decrease lead time from 10 days to 5 in order to ensure timely response.
2) Decrease # of extensions from 70% to 35% to minimize waste and unnecessary work.
3) Develop process to identify themes of grievances in order to capture opportunities for improvement.
4) Enhance multi-disciplinary collaboration and communication.

Goal Model: Create a model where all departments are able to easily collaborate, and still work independently.

Project Plan and Intervention(s)

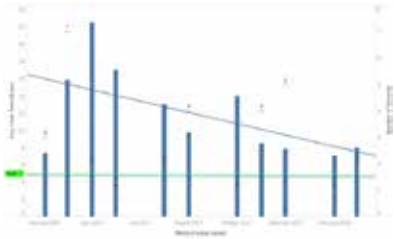
A3
- Identify multi-disciplinary A3 workgroup
- Create process map of current state with pain points

Prioritized Problems
- Grievances are addressed by multiple departments separately, records are maintained by the individual department
- IG are routed to wrong department(s), requiring an extension request
- Manual process with limited data fields inhibits theme identification, reporting, and analysis

Experiments
- Develop standard work instruction sheet (SWIS) for receiving, reviewing, & responding to IG across inpatient and ambulatory settings
- Implement electronic documentation in RL Solutions Feedback Module
- Develop cross discipline notifications to encourage a comprehensive review
- Categorize IG themes & improvement opportunities

Project Evaluation & Impact

Average Lead Time (Inpt, ED, Ancillary IG)



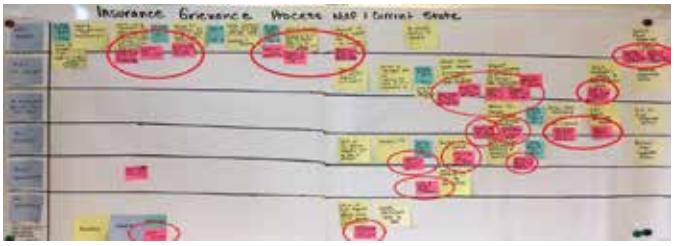
- Average Lead Time steadily decreased.
- Number of extension requests decreased to <35%.

AQI IG Themes (Jan 2017-Mar 2018; n=66)

- Ability to track themes to indicate potential areas for improvement.

Process Map: **BEFORE** Implementation

Several pain points indicated on pink post-it notes (circled); lack of multi-disciplinary collaboration.



Process Map: **AFTER** Implementation

Improved efficiency by eliminating pain points and unnecessary steps and people; streamlined multi-disciplinary collaboration; and embedded decision support into the process

Next Steps, Dissemination & Lessons Learned

Next Steps:
1) Develop regular reporting of pertinent data to key stakeholders (i.e., volume, lead time, themes & opportunities)
2) Monitor impact of Alert System on multi-disciplinary partners
3) Partner with Patient Experience to understand potential impact on patient experience scores
4) Communicate expectations to health plans

Dissemination:
Process rolled out for Inpatient and Ambulatory areas only, but could easily be replicated by those who manage IG separately (i.e., LPPHC, Dental Center, etc…)

Lessons Learned:
SWIS was easier to isolate to key representatives in AQI based on skill set. Replicated model used by Ambulatory Quality to own IG processing, review request and letter generation.
When evaluating the number of grievances, difficult to know what should "count" as a grievance and how to enter into RL solutions when the grievance includes multiple dates and locations. Decision: a grievance file is created for each different locations and are linked in RL Solutions. Response to health plan would receive one letter back.

Frontline Nurse-Driven Interventions to Assess and Address Unit-Specific Training Needs in the Cardiac Intensive Care Unit

UCSF Health
UCSF Benioff Children's Hospital San Francisco

Jullien S, RN
Williams J, RN
Pacheco-Kennedy A, RN

Cardiac ICU

BACKGROUND

Hospital Relocation /Unit Expansion = Increased Pressure on CICU Nurses:

- After move to MB, increase in beds from 8 to 12; currently at 18 with expansion to Annex in Adult ICU
- High acuity with new surgeons; at full capacity
- Increase in staff by ~60% (from 42 career RNs with 4 travelers to 65 career RNs with 6 travelers)
- Increased percentage includes travelers & new grads
- Continuous orientations for various skill levels
- An average of minus 3-5 nurses per shift

Expectations and Challenges Facing Frontline Nurses:

- Implement orders, policies and workflows received from institution, unit management, physicians and specialists.
- Updates on order and workflow iterations not disseminated in an efficient and timely manner.
- Word-of-mouth and inconsistent updates lead to practice deviation, inconsistency, staff frustration, and risk to patients.

Actionable Resources to Aid Training:

- CICU Professional Development Council (PDC) supports assessing and addressing needs of frontline nurses
- CICU and PICU staff helped develop prototype cloud-based just-in-time training support app (UCSF-backed Elemeno Health, Oakland, CA)

Project Goals

Current State: Feedback from orientees, travelers, staff and preceptors revealed gaps in continuing education needs, and discrepancies regarding specific practices, processes, workflows, and iteration.

Objective: Facilitate proficient orientation of new nurses to an acute high intensity population in CICU

Target State:

- Comprehensive orientation tailored to each new hire group
- Training individualized by feedback and metrics
- Ongoing support and use of resources including just-in-time microlearning support for anytime staff access or reference
- Effective communication between management and staff
- Empowered, supported and autonomous frontline nurses
- Reduce practice deviation, inconsistency, staff frustration, and risk to patients

Project Plan and Interventions

Unit Based Training/ Mentoring Program Implemented to Enhance Orientation

Pre-Orientation:

- CICU Professional Development Council to lead new hire Unit-based program
- Customize training to the needs of each hire group
- Welcoming profiles to introduce new hires to nursing staff
- Thorough review/competency checklists of new experienced hires and travelers

During Orientation:

- Standardized tours and observational experiences in OR and Cath Lab
- Feedback and tracking tools for preceptors
- Skills-development days for new grads to enhance their orientation (hands-on teaching from experienced nurses with best practices, followed by hands-on practice by new hires)

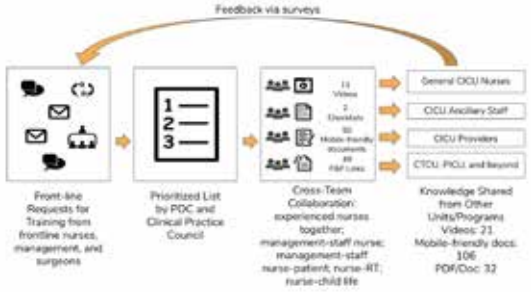
Ongoing Support and Resources:

- Guided monthly support group as long as needed
- Bridged communication between management and staff
- Train & sustain: Used actionable just-in-time microlearning support app for on-demand staff access/reference for anytime learning reinforcement (on shift, on break, in transit, at home)
- Just-in-time learning individualized with videos covering unit specific procedures and updates prioritized by staff requested learning needs

Project Evaluation & Impact

new grad orientation cycles completed: 4
new hires trained (since move): 39
travelers trained: 22
surveys completed at end of orientation:

- 22 total
- 15 out of 15 new grad surveys
- 8 experienced new hire surveys



Next Steps, Dissemination & Lessons Learned

Next Steps	→ Develop unit based training/mentoring for experienced new hires → Developing quarterly support group for all new hires → Formally expand just-in-time support to full unit team: nurses, ancillaries, physicians
Dissemination	→ Consider expansion of this approach to other units ◆ Support Professional Development Council for frontline staff in other units ◆ Empower staff to identify unit specific needs and create solutions ◆ Scale content through cloud to be available on-demand, around the clock ◆ Share unit-expertise between units ◆ Scale specific microlearning expertise across affiliates (already started with BCHO ICU)
Lessons Learned	→ Addressing learning and practice gaps is most effective when identified collaboratively between frontline staff, providers, specialists and management → Staff appreciates sharing expertise with peers → Readily accessible training empowers staff and helps reduce practice deviation

2018 UCSF Health Improvement Symposium

Slimming Down Med Errors through Pharmacist Integration into Bariatric Surgery Clinic

Nicole Y. Nguyen, PharmD
Nancy Hung, PharmD
Bariatric Surgery
General Surgery

Background

UCSF Bariatric Surgery Center:
- Center of Excellence (MBSAQIP)
- One of the few centers that offer bariatric procedures to obese patients with end-stage kidney or liver disease
- Multidisciplinary care team includes:
  - ✓ Surgeons
  - ✓ Bariatric Program Coordinator
  - ✓ Bariatric Fellow
  - ✓ Physician Assistants
  - ✓ Nurse Practitioners
  - ✓ Dieticians
  - ✓ Psychiatrist
  - ✓ Gastroenterologist
  - ✓ Clinical Coordinators
  - ✓ Nurses
  - ✓ And now, **Pharmacist Specialist**

- Bariatric patients have specialized med needs but are often unaware or misinformed of the changes to meds after surgery
- Abrupt postop changes has led to delays in discharge from hospital, reduced patient satisfaction, and preventable medication errors
- Med lists are updated by assistants who are not specialized in meds, burdened by many other tasks, and unauthorized to make changes in apex
- Inaccurate med lists are briefly reviewed by providers but not discussed in advance of surgery

Project Goals

Target Condition:
Incorporation of a pharmacist specialist to provide:
- ✓ Comprehensive medication reconciliation
- ✓ Therapeutic plan development using a multidisciplinary approach, with real-time recommendations/interventions for changes to therapies
- ✓ Drug monitoring of pertinent therapies
- ✓ Evaluating appropriateness of drug formulations for safety and efficacy
- ✓ Comprehensive patient education regarding med regimen changes prior to surgery
- ✓ Serving as a resource for patients and healthcare professionals before and after surgery

Project Plan and Intervention

Purpose:
- To improve quality and enhance safety of patient care by adding a pharmacist specialist to the bariatric service clinic team

- Consultation with a pharmacist specialist *prior* to surgery is required to ensure patient safety
  - ✓ Discontinuing high risk meds:
    - Benzodiazepines
    - Sleep aids
    - NSAIDs
  - ✓ Managing high risk and other problematic meds:
    - Anticoagulation
    - Aspirin
    - Oral contraception
    - Insulin management
    - Nicotine cessation
    - Steroids

Pilot Proposal:
- Pharmacy consult for each packet ready appointment
- One full clinic day every Wednesday [0.2 FTE] initially funded by the clinic, with anticipation of eventual ability to bill for services

Intervention types:
- Agent change
- Dose change
- Formulation change
- Medications discontinued
- Medications held until follow-up

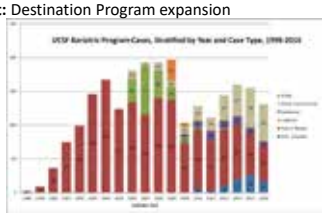
Project Evaluation & Impact

Preliminary Assessment:
- ✓ Majority of cases are weekend discharges
  - Limited weekend clinical pharmacist support (gap in care)
  - Limited access to the surgeons for care plan
- ✓ From a 4 month sample of cases 2017:
  - Average of 7.2 (0 - 20) medications prior to admission
  - Average of 3.8 (0 - 10) interventions made by pharmacist
  - Average of 8.6 (5 - 19) medications on discharge

Half (53%) of meds required pharmacist intervention

Outcome Measures: Quality and Safety
- ✓ Discharge times (weekend emphasis)
- ✓ Patient experience
  - Patient satisfaction scores
  - Patient understanding and compliance
- ✓ Safe use of medications
  - Prevention of errors
- ✓ Provider relief
  - Time saved by clinic and hospital providers/staff
  - Satisfaction scores from providers/colleagues

Impact: Destination Program expansion



Case

Future Directions

Next Steps:
- Secure ongoing resources to ensure a permanent pharmacist specialist presence in bariatric clinic
- Collaboration with other bariatric programs
  - VTE risk calculator, extended VTE prophylaxis
- Best practices guide/resource for high risk clinical scenarios:
  - Anticoagulation management, ESRD on HD, organ transplant, complex psych regimens, insulin management
- Education and Research
  - PGY1 resident training

Avoiding Unnecessary ANA Testing Using a Best-Practice Advisory

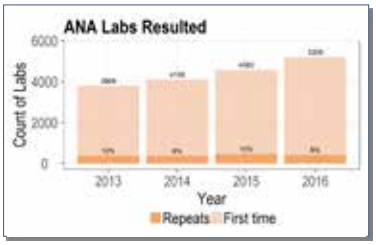
Joanne Yim, PhD[1]; Rhiannon Croci, BSN, RN-BC[1]; Bruce Pierre[2]; Sara Murray, MD, MAS[1,3]
[1]UCSF Health Informatics
[2]Division of Hospital Medicine, Department of Medicine
[3]Clinical Systems

Background

- Unnecessary lab tests are:
  - Costly to patients
  - Costly to hospitals
  - May lead to further unnecessary work-up
- Some labs do not warrant repeat testing once they have resulted as positive, *e.g.*
  - Genetic tests which do not change
  - Antibodies used to diagnose autoimmune disease

Potential For Impact

- Systematic analysis of ordering patterns for a wide array of these labs at UCSF and found that the anti-nuclear antibody (ANA) was being ordered inappropriately approximately 10% of the time



Project Goals

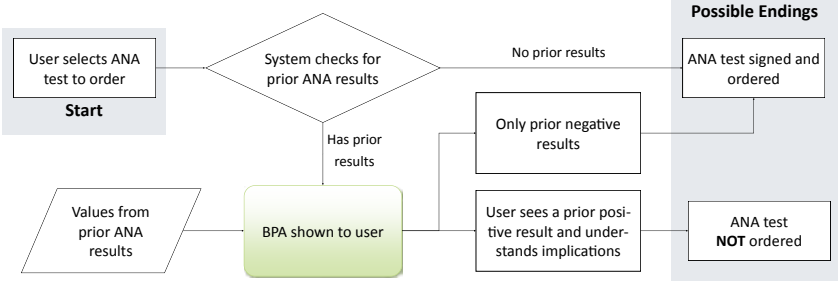
- Reduce ANA test ordering when there is an existing ANA positive result
- Educate providers about ANA ordering guidelines

Project Plan and Intervention(s)

Hypothesis:
The inappropriate ordering of ANA was due to
1. Clinician misunderstanding of its utility
2. Clinician inability to identify prior positive results

Design:
- Automated, actionable interruptive decision support addressing both mechanisms at the time of ordering

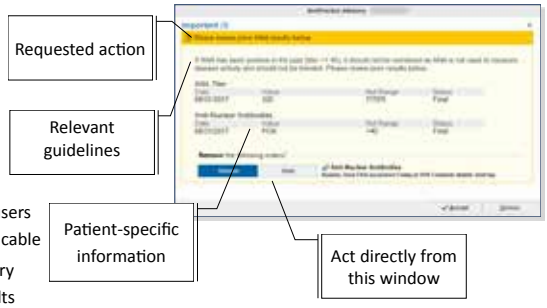
Laboratory Test Ordering Workflow



Challenges

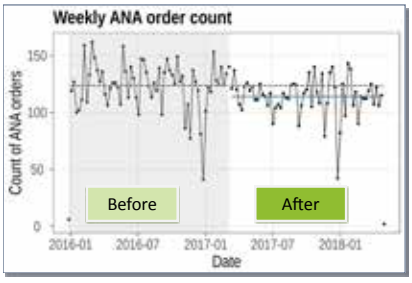
- Both negative and positive lab results trigger the BPA
  - Due to the format and variety of the lab results, filtering to just positive results would require much more extensive build
- BPA-viewing population includes users for whom the message is not applicable
- Users need to interpret the advisory relative to the displayed ANA results

Best-Practice Advisory: Design



Project Evaluation & Impact

ANA Ordering Decreased by 5%



- Not including orders placed for research or by Rheumatology
- BPA not shown to Rheumatology
- Repeat ANA orders are still being placed

Weeks measured	59
Expected Lab Orders, n	6372
Actual Labs Orders, n	6100
Estimated Averted, n	272
Estimated Savings (x $300/ab)	$81,600
Estimated Savings/yr ($)	**~$72,000**

Still Room For Improvement

Next Steps, Dissemination, & Lessons Learned

Next steps:
- Qualitative survey of users to learn:
  - Why repeat ANA orders are still placed
  - Why ANA orders were canceled when there were **not** prior positive results

Dissemination:
- Approach can be generalized to other orderables that should not be duplicated
  - Will require nuances to cover exceptions, such as:
    - Bone marrow transplant with genetic tests
    - When clinicians question the accuracy of a prior positive result

Lessons Learned:
- A simple informatics solution can be effective

2018 UCSF Health Improvement Symposium

Increasing Staff Engagement through Shared Governance

MB Pediatric OR

Anjal Pong, Clinical Nurse Educator &

Cassandra Robertson, Manager

Background

The leadership team of the Mission Bay Pediatric Operating Room strategized to address the UCSF True North Pillar of "Our People" to improve the work experience for staff. Results from the 2016 NDNQI results showed that the department scored lower in nursing satisfaction than a majority of other sites within UCSF. Leadership team members include the manager, assistant manager and clinical nurse educator.

Lowest scoring areas of RN satisfaction included:
- Autonomy
- Decision-Making
- Professional Development Opportunity

One of the reported strengths was having a "best friend" as work.
As a Magnet designated institution, the concept of shared governance is a core structural component of the Magnet model that addresses structural empowerment. This power structure allows nurses to have significant influence over practice changes with added autonomy, influence and ultimately job satisfaction. Many studies credit this flattened hierarchy and increased decision making with an increase in RN satisfaction .

Project Goals

To improve RN Satisfaction scores in the following NDNQI survey by 25% through shared governance councils.

Project Plan and Intervention(s)

The leadership team looked at the areas of improvement and felt that shared governance councils would be an intervention that would specifically address the nurse's views towards autonomy and decision making. Many of the nurses have also expressed an interest in pursing a clinical nurse III advancement, and these taskforces would provide them with multiple projects to use for clinical ladder applications. Also using the strong sense of comradery and friendship among staff as an advantage, the hypothesis was that staff would be motivated to work along side some of their "best friends" and have a sense of accomplishment when completing projects together.
The leadership team met to identify the specific taskforces based on current needs of the department. The taskforce facilitators were identified based on identified areas of skill, interest and leadership qualities. Some of the taskforces were already established and had identified members working on projects. The action plan was shared at a staff meeting, and all staff were expected to choose a taskforce that was of interest to them. The staffing schedule has a built-in hour allotted for education each week, and this time was to be utilized for meetings and task-force work.

Goals of the initial meeting:
- Current Process
- Challenges, Issues & Problems
- Ideas
- Planning & Next Steps

Project Evaluation & Impact

Staff Member to choose Council. Staff included all RN's and Surgical Technicians. **Councils already established.*

- ***Unit Practice Council**
- Suture Reduction
- Turn-Over Reduction
- **Hand-Off Communication**
- *Pressure Injury Prevention
- Pre-Procedure Huddle

IMPACT

- ↑ Staff Engagement
- ↑ Empowerment
- Shared Decision Making
- Interdepartmental Collaboration
- Improved Workflow
- Cost Savings
- Interdisciplinary Communication
- ↑Teamwork
- Improved Patient Flow

SUPPORT RESOURCES

Councils supported through leadership team mentoring, resources, hours allowed for council work. Involved departments were asked to join: Sterile Processing Department, Pre-OP, PACU, Equipment Specialists. Councils reported progress to Periop Leadership Team.

Next Steps, Dissemination & Lessons Learned

Next Steps:
Councils are continuing to meet and work on current projects. Data collection from the 2017 NDNQI survey will be used to measure the effect of the interventions.
Dissemination:
Through communication of work to the Periop Leadership team, many projects have been shared with leaders at other campuses. The Periop Informatics Director has also been included to assist in project implementation. The Clinical Nurse Educator is working with nurses to share project work at upcoming conferences and for Clinical Nurse III applications.
Lessons Learned:
Providing additional mentoring and leadership support to council facilitators is necessary. Many staff nurses have limited experience in leadership roles and need more support and feedback to monitor progress. Approaches to maintain momentum with infrequent meeting and inconsistent team members . Creative strategies to engage off-shift and part-time staff is needed

Ergonomics Staff Harm Reduction Heart and Lung Transplant Department

UCSF Health

Workers' Compensation, Ergonomics & Occupational Health Services

Background

True North Pillar: Quality and Safety

Ergonomic risk factors in healthcare are typically associated with patient lifting and material handling tasks. However, according to Federal OSHA, employees who use computers intensively for 4-hours or more can also develop musculoskeletal disorders. This project focused on identifying the root causes of repetitive strain injuries (RSI's) and discomfort experienced by staff in the Heart and Lung Transplant department. This project began in 2016 due to a number of harm events reported by staff (17 out of 17 employees), four of which resulted in workers' compensation claims. Injuries sustained were strains to the neck, wrists, hands and back.

Another factor that needed to be addressed was to ensure compliance with Cal/OSHA's Ergonomics Standard Title 8 Section 5110. The standard requires worksite evaluations, interventions and training when injuries occur to more than one employee, performing the same job task within a 12-month period.

Team Members

Lori Coleman
Phyllis Simmons
Robert Kosnik, MD
Arlen Bayquen
Vanessa Curtis
Kenneta Choice
Nathaniel Chung

Project Goals

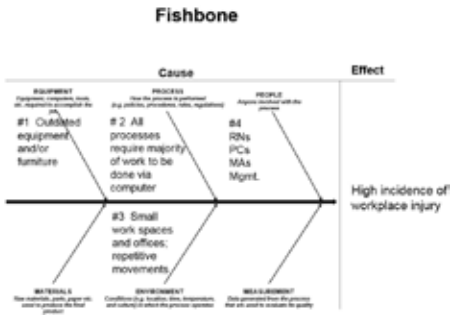
True North Goals for FY 17 and 18

- Organizational Goal: 5% reduction in harm events from FY 16.
- Heart & Lung Department Goal: Reduce workstation related harm from 17 to 0.
- Track ergonomic recommendation compliance.
- Increase modified work accommodations for injured staff.
- Evaluate all workstations and provide posture coaching.

Project Plan and Intervention(s)

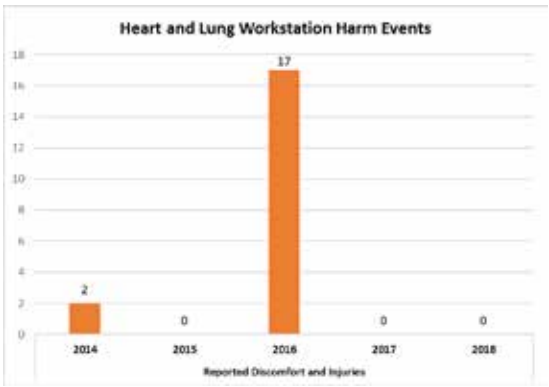
The project was a comprehensive overview bringing together subject matter experts, management and staff. The tactics include personal interviews to review discomfort symptoms, the handling of patient charts, process flow, work habits and postures, document storage, furniture layout, and workstation design. The following eight components were used to achieve the goals:

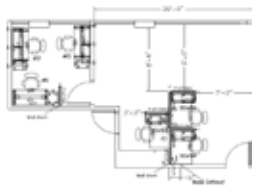
1. Root cause analysis using Fishbone methodology.
2. Completed ergonomic evaluations for all staff in the department.
3. Identified outdated equipment/furniture that was replaced or repositioned.
4. The entire office space was reconfigured to create openness for better movement.
5. Provided ergonomics training.
6. Provided ergonomic equipment. 70% of staff now use sit/stand desks.
7. Monitored adherence to ergonomic recommendations.
8. Implemented follow up and new hire evaluations.



Project Evaluation & Impact

On average, the cost of an RSI injury is approximately $25,000. The impact on employee health and organizational costs (if 17 injuries occurred) would be over $525,000, plus any legal implications related to non-compliance of Cal/OSHA's Ergonomics Standard. As a result of the ergonomic interventions implemented over a two year period, discomfort reports decreased from 17 to 0.





Next Steps, Dissemination & Lessons Learned

Next Steps:
Conduct bi-annual employee awareness and workstation adjustment training. Continue to perform evaluations for new and existing employees to focus on discomfort prior to reaching the point of injury. Integrate ergonomics tips into department huddles. Train ergonomics champions to provide day-to-day posture and workstation adjustment reminders. Continue to redesign workstations that were not upgraded (30% remaining). The department may be a candidate for Occupational Health Services foam roller wellness program to reduce complaints of the arms, neck and shoulders (known as CANS).

Dissemination:
Work with other high-risk Transplant departments to disseminate information about effective workstation design principles. Provide training and champion resources to other managers to use in their departments.

Lessons Learned:
Encourage departments to incorporate ergonomics principles into office designs at the time of remodeling or renovation. Review similar groups of workstations in other Transplant units; especially, how patient charts are stored. Review injury rates in other Transplant units and communicate best practices.

Better Together: New RN MD Team Improves Flow for *all* ED Patients

Elizabeth Kwan MS, MD

ED Transformation Team: Patrick Childs RN, Erik Coon RN, Jahan Fahimi MD PhD, Allen Fasnacht RN, MSN, Olivia Hodgkiss, Laura Jacobson, RN BSN, Joy Rios RN
Sponsors: Sheila Antrum RN, MHSA, Tina Mammone RN, PhD, Peter Sokolove MD

Department of Emergency Medicine

Background

Severe ED crowding led to addition of a new RN to staff 2 CDU + 2 ED hallway beds

Crowding *also* put ED at high risk of underutilizing new RN and overloading an already busy CDU Provider

Crowding countermeasures created new responsibilities, but did *not* decrease delays or rate of patients who left without being seen (LWBS)

1. Protocol based Clinical Decision Unit (CDU) opened 2015 to avoid short stay admissions, accommodate long stay ED patients. However, complex ***off*** protocol patients represent 1 in 3 patients, making management challenging.

2. Extra weekday 1-9pm Attending saw patients primarily but lacked RN staffed beds, clear priorities, resulting in poor productivity.

3. Though Provider in Triage screens patients, starts workups, no RN or space: patients return to waiting room without treatment.

Crowding hurts patient and staff satisfaction.

1. Rate of patients who leave without being seen is routinely >10% (US median 2.6%)

2. Press Ganey 3rd percentile for "Likelihood to recommend." Only patients *discharged* from ED are surveyed. Sickest patients are expedited but least likely to be surveyed.

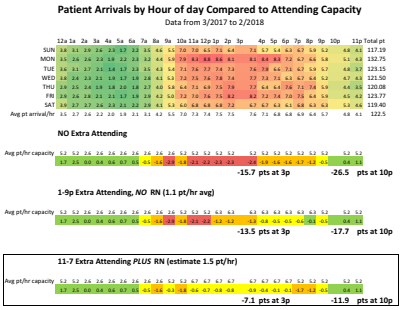
3. Net Promoter Score by faculty: "ED as place for clinical work" from +25 to -26 in 2 years

Project Goals

Use data, direct observations, inter-professional collaboration to drive strategy:

1. Optimize resources: new beds, CDU ED RN, existing Extra Attending shifts
2. Improve support for CDU Provider
3. CDU census↑ 20%, match expansion
4. Improve patient, staff experience

Project Plan and Intervention(s)



Patient arrivals exceed ED attending capacity by 7am.

Night shift, with fewest resources, left to see remaining patients.

New CDU Float Attending Role:

Earlier start to match arrivals

Team with new CDU/ED RN who can staff dedicated beds in ED hall

Base in, supervise CDU to support CDU provider

Target , pull waiting room pts:

1. that can be expedited to CDU
2. are likely to be discharged after workup, treatment

Project Evaluation & Impact

Medians for *All ED Patients* Compared to Weekdays before CDU ED RN + CDU Float Attending Team

LWBS	LOS all Discharged Patients	Time from Arrival to Room
40%	13%	30%
6 fewer pts/d	-53 min opens 88 bed hrs/d	-22 min

Prevents build up in waiting room: 10-7p shift, MD *pulls* patients as they arrive.

Offloads main ED team: decrease cognitive load, remove patients from queue, supervise CDU.

Avoids inefficiencies: Target patients expedited to CDU or discharged from hall. Triage RN monitoring, PIT provider screening, Multiple MDs checking pt/chart, Staff convincing pts to continue waiting, ED RN/MD evaluations and handoffs in main ED, Cleaning / turnover of ED room, Transporting patients in and out of main ED

Compared to Nov 2017 to Jan 2018 *before* RN expansion of 64 hr/d:
LWBS ↓44% (-7pts), ED LOS ↓23% (-101min/168 bed hr/d), Arrival to Room ↓44% (-39min)

CDU utilization improved 17% maintaining target admit rate, LOS.

Next Steps, Dissemination & Lessons Learned

Ongoing Data Collection
1. ED Flow metrics
2. Patient satisfaction: Target patients are *least* likely to get expedited: Not acutely ill but need treatment and workup. As likely ED discharges, also *most* likely to get surveyed by Press Ganey.
3. CDU utilization: census, admit rate, LOS
4. Staff satisfaction: CDU Provider leaving on time, staff feedback, Gallup/Net Promoter

Refine Standard Work, ongoing monitoring: direct observation, feedback

2018 UCSF Health Improvement Symposium

Overuse of Respiratory Viral Panel PCR

A QI and Value Assessment

Division of Hospital Medicine & Department of Emergency Medicine

Peter Barish, MD, Madeline Treasure, BS, Michelle Mourad, MD, Yumiko Abe-Jones, MS, Jahan Fahimi, MD/PhD, Ari Hoffman, MD

Background

- A recent patient complaint letter to the UCSF Emergency Department highlighted the **$3450 charge for a Respiratory Viral Panel PCR**.
- This led UCSF faculty interested in integrating patient input into QI and Value initiatives to investigate Respiratory Viral Panel (RVP) PCRs as a potential source of waste within our system.
- The Institute of Medicine Report *Best Care At Lower Cost* estimated that unnecessary services were the largest contributor to healthcare waste in the US, totaling >**$210 billion annually.**
- The UCSF Infectious Diseases Management Program (IDMP) recommends the Rapid Flu PCR for all patients, with the RVP only for critically ill or immunocompromised patients (Figure 1).
- During much of the year, RVP PCRs are **performed only 3 days per week** (M,W,F) and are never performed on the weekends.

Project Goals

- To understand the use, and potential overuse, of RVP PCRs on inpatient services at UCSF based on appropriate-use guidelines from the IDMP
- Estimate **cost burden of inappropriate RVP use** when ordered for non-ICU, immunocompetent patients
- Identify target areas for improved clinical decision making and EMR **decision support tools**
- Targeting the General Medicine Service: improve provider understanding of appropriate-use criteria and reduce ordering of unnecessary RVP PCRs

Project Design and Analysis

We queried **APeX** encounters from Nov 2016 to Jan 2018 for all with respiratory viral testing, including: **(1) RVP PCRs (2) Rapid Flu/RSV and (3) Point-of-Care Flu (ED only)**

We identified **2595** patient encounters with respiratory viral testing over this time period, and **1523 RVP PCRs.**

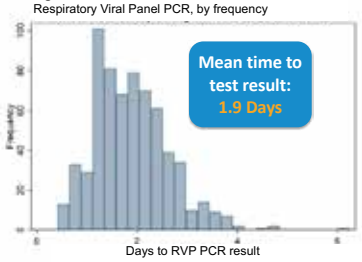
1. Estimates of Overuse: of the 1523 RVP PCRs Identified

In 26% the result returned after the patient was discharged from the hospital

45% of RVP PCRs were ordered simultaneously with a Rapid Flu

60% of RVPs were ordered outside of internal IDMP guidelines (Figure 1)

Figure 2: Distribution of turn-around times for the Respiratory Viral Panel PCR, by frequency



2. Impacts of Overuse: based on 60% discordance with IDMP ordering guidelines

- At a cost of $119.81 per test, RVPs lead to **$109,473 in excess direct costs**
- RVP testing, relative to other respiratory virus testing, was associated with **1.5 days longer length of stay**
- This association remained significant when controlling for medical complexity

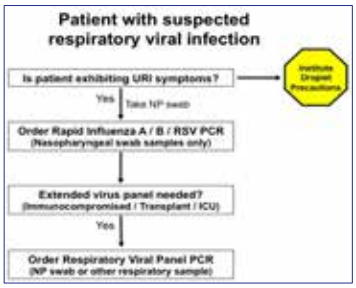
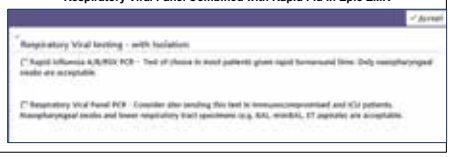


Figure 1: UCSF Infectious Disease Management Program (IDMP) algorithm for RVP PCR use

Project Interventions

1. **Educational Campaign** targeting physicians and nurses
   - Distribute "Appropriate Use" criteria with help of IDMP (Figure 1)
2. Uncouple Rapid Influenza and RVP testing in **Apex (Epic) order set**
   - Current order (see fig) allows easy dual-ordering unintentionally
3. *Testing Frequency - future*
   - Daily RVP testing during flu season to reduce RVP result time, improve its use in clinical decision making
   - May reduce unnecessary LOS increases (further study necessary)

Respiratory Viral Panel Combined with Rapid Flu in Epic EMR



Next Steps and Dissemination

Future Directions:

- Examine balancing measures of reduced RVP ordering including (1) antibiotic usage and (2) use of droplet isolation precautions
- Adjust LOS data for age, socioeconomic status, and admission diagnosis
- Compare LOS results to institutions with fast RVP turn-around time

Dissemination:

- Analyzing downstream effects on high cost utilization (such as hospital days) related to common test overuse has potential implications for the entire health system. Similar approaches may help to assess the value proposition for other improvement efforts.

2018 UCSF Health Improvement Symposium

Improving Clinical Compliance Evidence of Immunity for Measles, Mumps, and Rubella

UCSF Health

UCSF Occupational Health Services

April Andrews, Rahmat Balogun, Arlen Bayquen, Tisha Bertlow, Kenneta Choice, Nathaniel Chung, Vanessa Curtis, Grace Domingo, Claudia Farris, Bo Bo Fung, Shameka Jones, Bei Kong, Bob Kosnik, Vincent Lee, Pearl Liblin, Olga Luzato, Sonia Miller, Lady Mineses, Cathy O'Connor, Kelly Pratt, Silvia Rodriguez, Michele Sahl, Pallavi Sharma, Corinne Sheridan, Phyllis Simmons, Cindy Swickard, Ida Yip

Background

Vaccine-preventable diseases are a significant cause of morbidity and mortality. Patients harbouring such diseases are treated regularly by healthcare workers (HCWs), who may or may not have received corresponding vaccination.

Measles, mumps, and rubella (MMR) are highly contagious viral infections that can result in severe complications, sequelae and congenital anomalies. Measles is one of the most transmissible of all human diseases. Measles is considered to be one of the most deadly vaccine-preventable diseases.

A recent measles outbreak in the USA included 125 cases in California (n=110, 45% non-vaccinated) after exposure in a Disney theme park.[1] **When non-vaccinated healthcare workers are exposed to measles in California, they need to be placed on precautionary leave from the 10th to the 21st day post exposure.** The goal is to vaccinate before exposure.

Ref: 1. Skerdi Haviari, Thomas Benet, Mitra Saadatian-Elahi, Philippe Andre, Pierre Loulergue, and Philippe Vanhems; ***"Vaccination of Healthcare Workers: A review";*** Human Vaccines & Immunotherapeutics 11:11, 2522--2537; November 2015

Project Goals

The aspirational goal is to record evidence of immunity or immunization in all health care workers. Gaps in recording have been created because there has been shifting guidelines for the evidence of immunity; the priority in onboarding has been surveillance; and the lack of a focused data management program.

OHS has developed a data management program (TrackIt) customized to the specific needs of UCSF Health. This program was used to identify the gap and set a project goal for improving the clinical compliance for evidence of immunity to measles, mumps, and rubella.

At the end of fiscal year 2016, The gap for documenting MMR immunity or immunization was 4098 non-compliance staff out of the 8895 total staff, or 46% of staff. **The project goal was set at 40% improvement for each of 2 successive years**.

CDC. Measles Virus

Submitted by:
Robert Kosnik, MD
Patricia Bertlow

Project Plan and Intervention(s)

In order to achieve the project goal, a successive series of experiments were put in place.

1. OHS staff aligned to review the immunization of staff who presented within the clinic. Admin staff checked TrakIt when scheduling appointments and left notes for RNs when non-compliance was identified. Medical Assistants checked TrackIt prior to rooming the staff. Nurse Practitioners reviewed TrackIt for their staff.
2. The results of a 97 tests for MMR titers to validate previous work on the incidence of lack of immunity in staff.
3. OHS Staff reached out to staff through direct telephone calls, department targeted emails, and outreach clinics.

The progress of these interventions were reviewed. Progress was being made, but the pace of improvement was slow because there is a limited number of staff who walk-in to OHS. It was reasoned that the intervention would be more effective if individuals were referred to UCSF OHS. Additional interventions were added in May 2017:

4. Development of a web-based tool for tracking compliance by unit. TrackIt was used to supply a compliance feed to the Human Resources "Umbrella" tool. MMR compliance was added to the Occupational Health Overall Compliance tab. This provided staff and management with the opportunity to review compliance.
5. Communication to supervisors in Managers Weekly and other message boards.

Finally, it was suggested that the rework activity above could be eliminated by completing immunization compliance during onboarding :

6. Follow up with staff on non-compliance identified during onboarded staff leaning on the requirement to follow infection control practices in the offer letter.

Project Evaluation & Impact

Compliance Improvement	FY2017	FY2018
Number of Staff	8895	9298
MMR Non-Compliant Staff	4098	1762
Improvement	46%	19% (as of 5/1/18)

1. *Staff alignment strategies on a shared effort within clinic have can have a significant impact.* For FY2017 compliance was increased by 820 employees.

2. *Theses efforts, even when there is coordination with all clinic staff, is limited by the size of the patient population.*

3. *The project had a greater impact when supervisors were involved to support compliance.* In the project, the impact happened in June 2017 and continuing into FY2018. This FY has increased compliance by 792 by May 1, 2018 (annualized to 950) even with a declining target population on non-compliant staff.

4. *By observation, it was helpful to have a tool for supervisors which could be accessed on the intranet.*

The staff with non-compliance often had their titers checked for measles, mumps, rubella, and varicella. The results are tabulated in the adjacent table. This dataset does shine a light on the impact of an exposures within UCSF Health. Consider the impact of measles case. This dataset says that 91.3% of non-compliant staff will have positive titers. Importantly, 8.7% of non-compliant staff will have no evidence of immunity and require immunization. In the backdrop of an exposure, these staff will not be able to work during the infectious period which is from day 10 to 21 for measles. Consider the impact of a provider who is unable to have direct patient care for almost 2 weeks on the schedule of a clinic.

Vaccine Preventable Disease	Number Positive	Percentage Positive
Measles	92	91.3%
Mumps	93	94.6%
Rubella	74	87.8%
Varicella	88	97.7%

Next Steps, Dissemination & Lessons Learned

Next Steps:
The potential impact of non-compliance has not been eliminated. UCSF OHS will continue to employ the strategies of staff alignment, supervisor involvement, and web-based tools. The aspirational goal is within reach.
The approach will be adapted and applied to allied staff such as the medical staff, campus staff working within UCSF Health in health care settings, and campus staff working at affiliated organizations. Ideally, the program could be extended to all UCSF staff.

Dissemination:
The success of this project will be shared with leadership through the UCSF Occupational Health and Safety Program advisory committee, and the UC Occupational and Environmental Health Advisory Committee. Within UCSF Health, Manager's Weekly will have scheduled announcements and reminders.

Lessons Learned:
1. Staff aligned strategies in clinics can impact positively the quality within the clinic.
2. It is difficult for staff aligned strategies to widely impact quality within UCSF Health.
3. The impact of quality projects are increased when supervisors are directly involved.
4. It is helpful to have a web-based tool that is periodically updated.

BCH-SF CLABSI REDUCTION: A FRESH START WITH CPC

CLABSI Prevention Committee (CPC)

Deb Franzon, MD; Lynn Ramirez, MD, MSc; Lisa Tsang, RN, MN; Olivia Hodgkiss, MPH; Sarah Pollet, MPH; Carrie Meer, RN, MS; Kim Stanley, MPH, CIC

Unit champions from all BCHSF inpatient units and ancillary departments

Background

Central line associated bloodstream infections (CLABSIs) result in prolonged length of stay, and significant morbidity and mortality. Literature shows that standard, evidence-based CLABSI prevention bundles are associated with decreased infection rates. UCSF adheres to a CLABSI prevention bundle that includes these evidence-based standards:

-Dressing clean dry and intact (CDI)
-Biopatch in place
-Timely dressing change
-Intact CVC system
-Timely tubing change
-Daily screening for CVC need
-Passive disinfecting port protectors

The overall BCH-SF CLABSI number and rate increased significantly in the first half of FY18. In FY17, BCH-SF had 30 CLABSIs (1.3/1,000 CVC days). In the first half of FY18, BCH-SF had 22 CLABSs (1.89/1,000 CVC days).

It was also noted that the BCH-SF CLABSI prevention bundle compliance decreased in this same time period. In FY17 the compliance was 88% and it decreased to 85% in the first half of FY18. For the bundle element of dressing CDI, the FY17 compliance was 94% and it decreased to 88% in FY18.

Project Goals

The goal is to reduce CLABSI by 25% from 22 CLABSIs (1.89/1,000 CVC days) in the first half of FY18 to accruing a maximum of 16 CLABSIs (1.38/1,000 CVC days using projected line days) in the second half of FY18.

In order to achieve this goal, the multidisciplinary CLABSI Prevention Committee (CPC) was formed in December 2017. The group includes unit-based nurse and physician leaders, ancillary leadership including aneshesia/perioperative, bedside/ancillary nurse champions, the Vascular Access and Support Team, Patient Safety, and Infection Control.

The group focused on the key drivers identified in the first two CPC meetings:

1. Sharing of CLABSI data with frontline (i.e. visual management)
Not visible on all units or meaningfully presented (days since last event, # patients harmed; increase validity of audits)

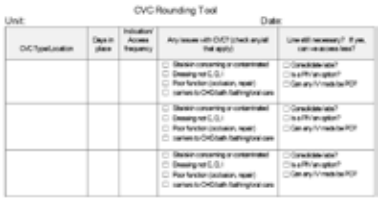
2. CVC discussion in rounds
Line necessity, use, function, and contamination not consistently discussed

3. Standardization of CVC care across BCH
Adherence to nursing policies not uniform

4. Education/training for *all* staff – not standard among all staff in all areas

Project Plan and Interventions

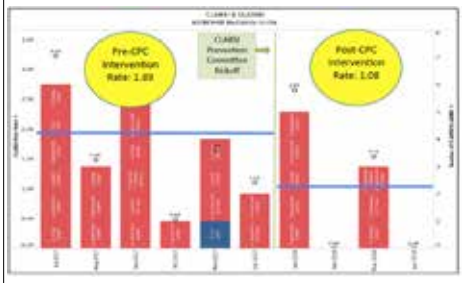
P.D.S.A. #1: Standardize interpretation of Dressing Clean/Dry/Intact
Plan: Using input from all units, reach consensus and create visual tool for this bundle component.
Do: Each unit take 5 pictures of different dressings in various states of intact vs. questionable.
Study: Ask the nurse at the bedside two questions: Would you change this dressing? Why or why not?
Act: In CPC, review all photos together, refine interpretation, reach consensus. Create and disseminate a visual standard.



P.D.S.A. #2: Standardize & Implement CVC Rounding Tool
Plan: Integrate daily discussion about central lines into every clinical inpatient unit.
Do: Each unit provide 3 components that should be included in every unit's CVC discussion.
Study: Try out these 3 elements once with the rounding team on 5 – 10 patients. What worked? What didn't work?
Act: Committee will decide on key elements for all rounding tools and implement by February 2018.

P.D.S.A. #3: CLABSI education sharing across BCH
Plan: Disseminate practice update to all nurses and providers.
Do: Unit-based leadership, champions and medical directors – select among 7 CVC topics to share during change of shift, staff/faculty meeting, email, and/or post.
Study: Survey sent to staff to a) seek their receipt of practice update, and b) assess their knowledge.
Act: Provide staff response and barriers to sharing practice update at March 2018 meeting.

Project Evaluation & Impact



Since the CLABSI Prevention Committee (CPC) kick-off, BCH-SF has only experienced 8 CLABSIs and our rate decreased to 1.08/1,000 CVC days in the first 4 months of the second half of FY18. Five of our eight inpatient units have gone more than 100 days without a CLABSI.

As our overall CLABSI bundle compliance has increased, our CLABSI rate has decreased. There has been an increase in the dressing CDI component of our prevention bundle in the months since CPC initiation.

Next Steps, Dissemination & Lessons Learned

Next Steps:
Focus on other elements of CLABSI bundle compliance - use of passive disinfectant protector, CHG Bathing
Finish implementation of auditing 25% of CVC per month in every unit
Continue engaging ancillary areas and residents
Weekly operational huddle with key leadership - to launch June 2018

Dissemination:
Develop a mechanism for sharing with the UCSF adult CLABSI Reduction Group
Continue to engage adult CLABSI prevention champion and BCH-Oakland as members of CPC
Implement standard "days since last CLABSI" posters and post on units in visible areas
Utilize staff huddles/meetings, faculty meetings, written reminders and visual management

Lessons Learned:
Need for project management, data infrastructure, improvement support for operations, auditing, informatics to optimize charting and ability for real-time audit and feedback with EMR.
Difficult maintaining engagement of frontline and physician staff. Resident education critical.

Implementing a Standardized Nursing Handoff Process on a Pediatric Unit at UCSF

Cassi Whitney

RN, BSN, CPHON, CNIII

Pediatric Hematology, Oncology, Bone Marrow Transplant

Background

Nationally, many institutions have adopted a standardized nursing handoff process. Research shows that standardized nursing handoffs are effective, efficient, and improve patient care and safety.

The pediatric hematology/oncology/bone marrow transplant unit at UCSF Benioff Children's Hospital (BCH), C6, did not have a standardized way of giving nursing handoff. Due to this, there was high variability in the way nurses communicated information at change of shift and errors resulted from poor communication or omissions in nursing handoff.

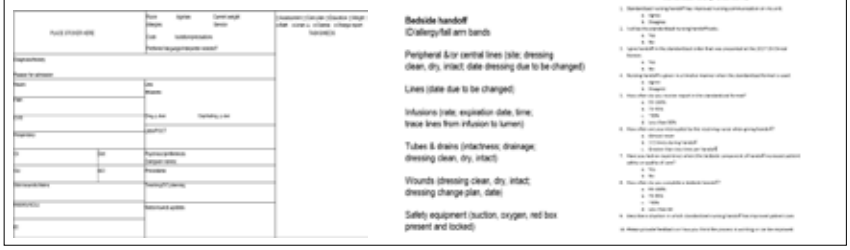
Project Goals

The purpose of standardizing nursing handoff at BCH was to create an effective and efficient way to give shift handoff, prevent and/or discover errors by performing a bedside handoff, equip nurses to participate in rounds, improve patient and family involvement and satisfaction, and ultimately improve patient quality of care.

A secondary goal was to improve continuity across the acute care areas.

Project Plan and Intervention(s)

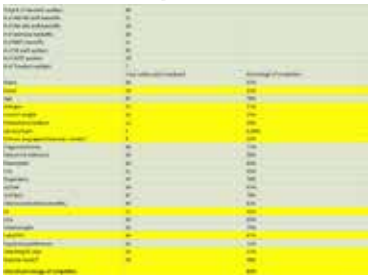
- Plans for standardizing nursing handoff were announced to C6 nursing staff in December of 2016 through an email
- Data was collected by auditing nursing handoffs on C6 from January to April 2017
- The data supporting the need for a standardized nursing handoff was presented at the C6 staff meeting in April of 2017
- An acute care standardized nursing handoff was developed through collaboration with nursing management and two bedside nurses on C5 and C6
- All acute care nurses were educated on the new standardized nursing handoff process at Clinical Review in May of 2017
- The standardized nursing handoff process went live in June of 2017
- Post-implementation data was collected by auditing nursing handoffs on C6 from June to October 2017 and through an anonymous survey sent to all C6 nurses in September of 2017



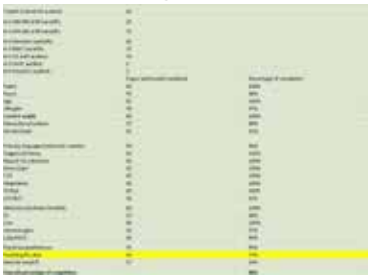
Project Evaluation & Impact

The data from the audits and survey showed an overwhelming improvement in and positive attitudes towards nursing handoffs on the unit. Specifically, the communication of topics in handoff increased from 61% in the pre-audits to 96% in the post-audits. Bedside handoff compliance improved from 48% to 95% and 72% of nurses surveyed reported that the bedside component of handoff increased patient safety or quality of care.

Pre-implementation



Post-implementation



Implementing a standardized nursing handoff on C6 greatly improved the efficiency and quality of information relayed at handoff, increased knowledge of the patient care plan, and decreased interruptions during handoff. Information is now relayed in a standardized and structured order to improve continuity and create accountability during handoff. More consistently performing a bedside handoff has increased patient safety and patient/family satisfaction. Standardizing nursing handoff across acute care has also created better continuity for nurses floating between units. It was a successful implementation and process improvement.

Next Steps, Dissemination & Lessons Learned

Next Steps:
A predicted future challenge is the sustainment of the nursing bedside handoff on C6. Historically, compliance with the bedside handoff has been low so future audits/observations should be gathered to assess compliance over time. Another future factor to measure is the affect the standardized nursing handoff has had on patient/family satisfaction.

Dissemination:
The C6 standardized nursing handoff has already been adopted on C5 and could easily be adapted and used across all BCH units.

Lessons Learned:
Successfully creating a large practice change requires thorough planning, ample time, and clear communication and follow up. Standardizing nursing handoff on C6 has become a successful and sustainable process improvement.

FQHC: Human Papillomavirus Vaccine by 13th Birthday

HPV IMPROVEMENT PROJECT

Kelley E. Meade, MD
Medical Director

Tammy W. Tam, Ph.D.
Principal Investigator, HRSA Program

FQHC Services
5220 Claremont Avenue
Oakland, CA 94618

Background

Some patients served in the FQHC are behind on immunizations. Many preteens and teens are not getting HPV vaccine when they receive other recommend vaccines. According to the CDC, in 2014, 91.3% of 13 year old girls could have received at least one dose HPV vaccine if they had received an HPV vaccine at the same time they received other recommend vaccines. Nationally, in 2016, 43.4% of adolescents (49.5% of females; 37.5% of males) were up to date with the HPV vaccination series, applying the updated HPV vaccine recommendations retrospectively. Vaccine hesitancy is one of the reasons for low vaccine rate with HPV.

http://www.cdc.gov/vaccines/who/teens/vaccination
For more information on the update recommendations, read the Morbidity and Mortality Weekly Report (MMWR):
https://www.cdc.gov/mmwr/volumes/65/wr/mm6549a5.htm .
For more information on vaccination coverage among adolescents, read the MMWR:
https://www.cdc.gov/mmwr/volumes/66/wr/mm6633a2.htm .

UCSF Benioff Children's Hospitals
Oakland | San Francisco

Project Goals

Our aim is to increase the completion of the two dose series of Human Papilloma Vaccine in female patients age 13-15 from 42.8 % to above 50% in FY 2018.

Target/Goal
2014 – 2017: 30%
2018: 50%

Project Plan and Intervention(s)

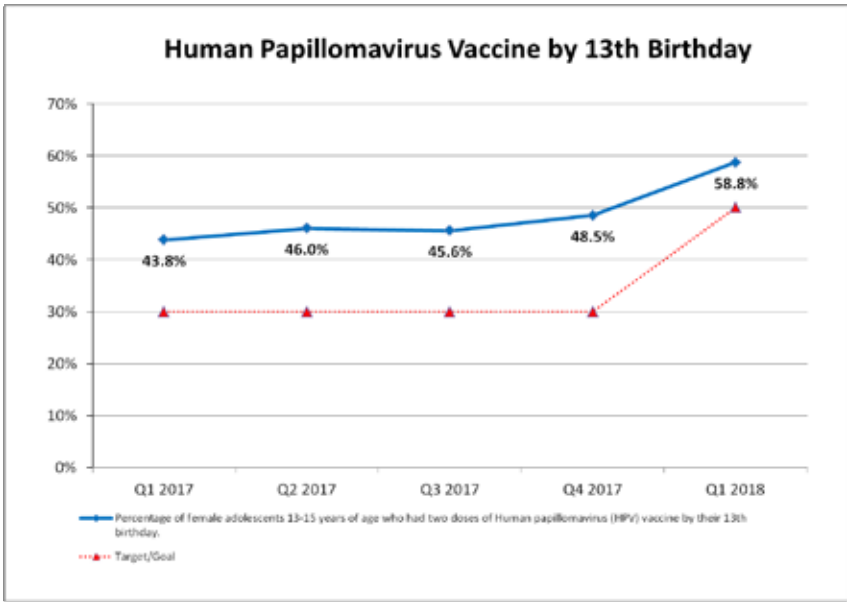
Our indicator generates a list of patients who meet recommended standard as well as a list of "non-compliant" patients who did not get both doses by age 13 but could still be targeted to receive the two dose series prior to their 15th birthday. Providers are given feedback on our rate of completion and offered specific strategies to discuss vaccine hesitancy.

Prior to Q4 2016, recommendation was for 3 doses of HPV vaccine. Since Q4 2016, recommendation is for 2 doses of HPV vaccine for patients under age 15, and 3 doses for patients over age 15.

Numerator: Number of female patients 13 - 15 years during the reporting period who received two doses of Human papillomavirus (HPV) vaccine with an interval of 6 months, prior to their 13th birthday.

Denominator: Female patients 13 to 15 years of age with at least one medical visit during the reporting period.

Project Evaluation & Impact



Next Steps, Dissemination & Lessons Learned

Next Steps:
Add male patients to evaluation in FY 2019.
Dissemination:
Collaborate with other primary care practices to align metric across UCSF system.
Lessons Learned:
Vaccine hesitancy for non-school required vaccines for adolescents requires targeted communication strategies.

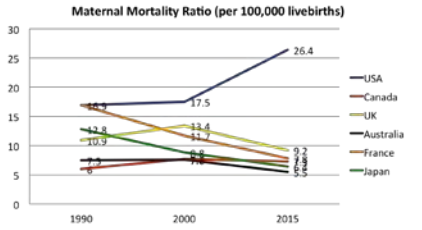
The Critical Care Obstetric Database

Erika Wilson, NP
Kristina Kordesch, NP
Lindsey Huddleston, MD
Jeffrey Sperling, MD
Karin Clifton, NP
Amada Apacible, NP
Critical Care Medicine at Mission Bay

Background

Significance:

- Maternal mortality in the US is uptrending while it has been declining in other developed countries.



Lancet 2016 ; 388:1775-812

- Since 2015 UCSF has had an average of 45 to 70 critically obstetric patients admitted to the ICU per year.
- Current critical care research often excludes the obstetric population from studies due to the physiologic changes of the body and being considered a vulnerable patient population.
- As such, there is a knowledge and research gap with this population.
- The Critical Care Medicine Service at UCSF currently does not specifically evaluate outcomes in critically ill obstetric patients.

Project Goals

The purpose of the Critical Care Obstetric Database is two-fold:

1.To evaluate outcomes such as morbidity and mortality and utilization of resources in the obstetric critical care patient population at UCSF Medical Center.

2.A resource for further research, pending all studies that use the database for external publishing are IRB approved. The database will be searchable and facilitate the ability to do chart review on identified subjects.

Project Plan and Intervention(s)

First, we had to identify the correct patient population. After reviewing current literature and research, we defined our patient population as all antepartum to 6 weeks postpartum patients admitted to any ICU at UCSF. Second, we worked with a health informatics analyst to help us search all ICU admissions since February 1, 2015 with an OB History and Physical, Consult or Progress Note. We timed the data start point to when we moved the obstetric population to Mission Bay.

In creating this database, one of the biggest challenges was trying to determine what data points to collect to better understand our critically obstetric patients and what resources are required to provide the highest quality and safest care. We met with experts in Critical Care and Maternal Fetal Medicine research to determine the most relevant and appropriate data points, but not so many that the data becomes cumbersome.

Once the data set was determined, it was submitted to the IRB for approval. We have since taken that data set and created a HIPAA compliant database in REDCap.

Project Evaluation & Impact

- With the data that is collected we plan to evaluate outcomes, severity of illness, and resource utilization in the critically ill population at UCSF to identify how we can better provide care.
- We hope that this database will help us better understand our sickest obstetric patients and find ways to contribute to decreasing maternal mortality.

Next Steps, Dissemination & Lessons Learned

Next Steps:

- Entering all of the identified patient population data into the database.
- Analyze the data cumulatively and by year.
- Identify problem specific research based on findings from database. (i.e. ARDS in pregnant patients, Relationship between ICU delirium and postpartum depression, Timing of DVT prophylaxis, etc).
- Collaborate with other institutions in evaluating data in this understudied vulnerable population.

Dissemination:

- Share our findings within the Maternal Fetal Medicine, Critical Care and UCSF Health Administration teams to improve resource utilization in this population.

Cloud-based Implementation of New Frontline Clinical Workflows

Jennie Yoo[1], Peter Oishi MD[2], Emilie Menard NP[2], Shelley Diane RN[2], Gemma Jamena MD[3], Phyllis Pei RN[3], Hillary Baldocchi NP[3], Tam Nguyen PhD[3]

[1]UCSF School of Medicine; [2]UCSF Dept. of Pediatrics; [3]Tri-City Health Center

Background

- New practices are **challenging to implement**
  - Staff are already overwhelmed and struggle to maintain consistency
- **Pediatric inpatient setting- Pediatric Intensive Care Unit (PICU)**
  - No standard for sedation and analgesia for intubated patients
  - Clinical approaches varied significantly
  - High-cost narcotics (e.g., Fentanyl) could be replaced by low-cost morphine for a significant portion of intubated patients
  - RT's lacked sufficient awareness of sedation/analgesia practices, affecting ventilator weaning and management
- **Adult outpatient setting- Tri-City Health Center**
  - Key population health measures: colorectal cancer (CRC) screening and opioid safety
  - Lack of clear practice standards
- Cloud-based **just-in-time training solution**
  - Elemeno Health, Oakland; a UCSF-backed innovation
  - Access best practice guidelines, up-to-date checklists, and how-to videos from any device
  - No patient data

Project Goals

PICU

- **Introduce** standard approach to sedation and analgesia for intubated patients

Tri-City Health Center

- **Increase Colorectal Cancer Screening** for clinic population
- **Improve Opioid Safety** for patients with chronic opioid use

Future Directions

- PICU expansion with content based on leadership and frontline nursing needs
- Ongoing tracking of CRC screening, opioid contract, and Narcan prescription volumes at FQHC
- Roll-out of Hepatitis C screening and treatment guidelines
- Adoption at UCSF Benioff Children's Hospital Oakland to standardize workflows

Acknowledgments

Special thanks to Arup Roy-Burman, Scott Cohen, Carol Klove, Ed Nanale, Lisa Rhodes, Patricia Dillon, Asunta Pacheco-Kennedy, Stephanie Jullien, Kathleen Clanon, and John Eric Henry.

Project Plan and Interventions

Critical Care Comfort Algorithm (CALM)

1. **UCSF Pediatric Critical Care Comfort Algorithm (CALM)**

2. **Self-assessment (bottom-up)**

3. **Charge RN audits (top-down)**

Colorectal Cancer Screening

1. **Complex guidelines**

2. **Standardized workflow**

3. **Real-time actionable and trackable decision guide**

4. **Interprofessional gamified roll-out**

Opioid Safety

1. **Multiple sources**

2. **Standardized workflow**

3. **Real-time actionable and trackable decision guide**

4. **Interprofessional gamified roll-out**

Project Evaluation and Impact

Critical Care Comfort Algorithm (CALM)

Evaluation

- RNs are able to **self-assess and self-learn** CALM guidelines
- Charge RNs are able to **perform audits and track** by shift

Impact

- **Example checklist stats:**
  - 107 checklists completed in the last 14 day(s)
  - 12% intubated and ventilated (N=12/94)
  - 83% of intubated patients on CALM protocol (N=10/12)

Colorectal Cancer Screening

Evaluation

- Empowered MAs to perform to **"Top of License"** and off-load Providers
- Providers now have time to **discuss details and benefits** of CRC screening with patients

Impact

- **3-week gamified engagement:**
  - **2,107** checklists completed
  - **74%** of MAs engaged (N=80)
  - **80%** of Providers engaged (N=56)
  - **>70%** increase in CRC screenings

Opioid Safety

Evaluation

- Trained and empowered MAs to **actively participate** in opioid safety
- Providers now have time during the visit to **discuss contracts and weaning** with patients

Impact

- Opioid contract renewals increased year-over-year from **<10/month** to **101/month**
- Narcan prescriptions increased from **<10/month** to **27/month**

FIND*connect*

Addressing the Social & Environmental Factors that Impact Health

Author: Artanesha L. Jackson, MSW

Artanesha Jackson, MSW
FINDconnect Program Manager

Adam Davis, MPH
DCHE Director

Dr. Dayna Long, FAAP
FINDconnect Founder & Director

Background

Where a child eats, sleeps, and plays profoundly impacts health outcomes. Adverse social circumstances like food insecurity, housing instability, and discrimination can have dramatic, negative impacts on the health of children. In safety-net settings, the prevalence of these adverse social circumstances is alarmingly high.

One study reported that over 90% of urban adolescent girls endorsed having at least one adverse experience, and 85% had specifically witnessed violence in their community (Lipschitz, 2000). Another study found that 67% of youth (mean age of 8) screened positive for at least one Adverse Childhood Experience (ACE). (Burke, 2011). Adversity in children have been correlated with fair or poor general health (Bethell, Newacheck, Hawes, & Halfon, 2014; Flaherty et al., 2013), illness requiring a doctor (Flaherty et al., 2013), fair or poor dental health (Bright, Alford, Hinojosa, Knapp, & Fernandez-Baca, 2015), lifetime asthma risk (Bethell et al., 2014; Wing, Gjelsvik, Nocera, & McQuaid, 2015), ADHD (Bethell et al., 2014), autism (Bethell et al., 2014), and being overweight or obese (Bethell et al., 2014; Burke, Hellman, Scott, Weems, & Carrion, 2011). In addition, studies on ACEs during childhood and adolescence have found an association between ACEs and violent behavior (delinquent behavior, bullying, physical fighting, dating violence, weapon-carrying) (Duke, Pettingell, McMorris, & Borowsky, 2010) and learning difficulties (Burke et al., 2011).

Given these health outcomes associated with childhood adversity, the American Academy of Pediatrics (AAP) policy statement calls on pediatricians to actively screen for childhood trauma and adversity (Garner et al., 2012). Pediatric providers offer a unique opportunity for identifying and ameliorating how Pediatricians who see children at regular intervals, are trained to provide anticipatory guidance to prevent and educate families about a wide variety of public health issues, and understand the important role of parents and communities in determining a child's well-being (Garner et al., 2012).

The FIND program at UCSF Benioff Children's Hospital Oakland (BCHO), consists of two entities; the help desk known as the FIND desk and the technology tool known as FINDconnect. The FIND desk was initially piloted in 2012 as a special project by a medical student at BCHO, the earliest version of the program sought only to provide interested families with summer activities and resources for their children. Subsequently, Dr. Dayna Long, along with Dr. Laura Gottlieb and team at San Francisco General Hospital conducted 2 randomized trials between 2013-2016 that demonstrated that technology can be used to effectively screen families for unmet needs, that pairing families with Navigators to provide tailored resources helps to resolve at least 1 unmet social needs and that when at least 1 social needs resolves, child health outcomes improve. (Gottlieb et al 2014, 2016, 2017).

Beginning in May 2015, the FIND program transformed from a research project to transform standard clinical care. Hence the birth of the FINDconnect technology tool. FINDconnect is an innovative cloud based platform that empowers patients and care teams to collaboratively address social determinants of health. The primary focus is to treat the preventative, upstream causes of illness in order to reduce health disparities among under-resourced populations and improve the health of families throughout the life course. In 2018, addressing social determinants of health within the health care setting has become the new practice of care.

Project Goals

Through a systems change approach, the FIND program aims to reduce health inequities by partnering with families within the medical home to address social determinants of health. We will engage with, acknowledge and mitigate these factors in order to achieve health equity for all children. FIND will make connecting with resources for social and environmental determinants of health easy and effective for all. The goals of the FIND program are included below:

- Partnering with:
  - families to identify unmet social and environmental needs
  - providers to treat the root causes of medical problems
  - community-based organizations to expand services within the medical home
  - researchers across the country to facilitate collaborative networks in order to inform evidence-based practices to mitigate the effects of toxic stress and adversity
  - academic institutions to train the next generation of health care professionals in an upstream, multidisciplinary, and preventive approach to care
  - policy makers to provide clinical evidence for advocacy and systems change
- Shifting the paradigm of medicine to improve population health
- Improving the health outcomes of children and their families over lifespans
- Significantly increasing enrollment in community and government programs
- Implementing team-based care as a medical model through policy change
- Improve patient satisfaction rates and quality of service provided

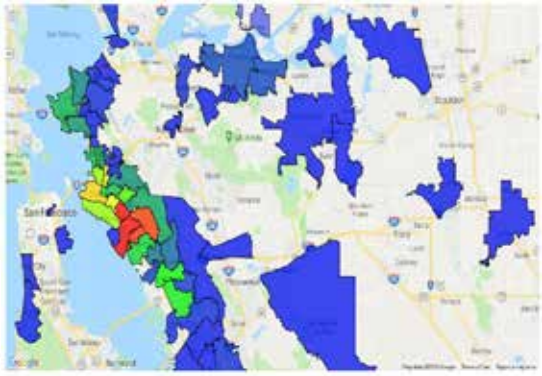
Project Plan and Intervention(s)

From 01/08/16 – 5/15/18
Number of Enrollments

- = 1 enrollment
- = 2 – 9 enrollments
- = 10 – 19 enrollments
- = 20 – 29 enrollments
- = 30 – 39 enrollments
- = 40 – 49 enrollments
- = 50 – 69 enrollments
- = 70 – 81 enrollments

UCSF Benioff Children's Hospital Oakland
Department of Community Health and Engagement

Geolocation by zip codes



This map represents where FIND families live by zip code

Project Evaluation & Impact

From 05/01/17 – 4/31/18:

- Patients screened: **481**
- Resource referrals provided: **1479**
- **21%** of families present with food insecurity and are now connected to navigators to help resolve food insecurity
- **49%** of our families need support finding activities for their children

Next Steps, Dissemination & Lessons Learned

Next Steps:

As a result of ongoing development and piloting the platform, we are planning to:

- Develop new interventions to support early literacy, early math, transportation, breastfeeding, clothing and safety, i.e., cribs, car seats and gun safety. We will develop and code these algorithms during our next phase of development
- Scale the community resource portal for community agencies to manage their own resources
- Create a shared Knowledge Base for local partners
- Hire additional full-time FIND desk staff to support the Primary Health Clinic

Dissemination:

- Expansion within UCSF Benioff Children's Hospital Oakland
  - Behavioral Health Intervention Program
  - Neurology Department
  - Oncology Hematology Department
- External Expansion
  - Berkeley Unified School District
  - Child care referral agencies

FIND connect™
Addressing the Social & Environmental Factors that Impact Health

Lessons Learned:

- Understanding the impact that social determinants have on patient health and care
- Effective population health requires universal screening and data management capability that does not exist yet but are developing
- Eliminate silos and develop strong partner relationships
- Develop action plans that connect resources with patients in need and follow up

2018 UCSF Health Improvement Symposium

Video Microlearning and Gamification to Streamline Unit-based Nurse Training with a New Device

Besen B, RN
Canty B, RN
Konstantin A, RN

BCHO PICU

BACKGROUND

Delay in Device Delivery Highlighted Training Flaws

BCHO invested in 20 new external ventricular drains (EVDs) for the PICU, scheduled to be rolled out on the PICU floor in **July 2017**.

The EVD is a **high-risk, low-frequency** device. It was important that everyone using these machines be familiar with the equipment **prior** to introduction in the PICU. Initial training for the equipment change was a series of traditional in-service trainings. However, the EVDs were delivered **60 days later than expected**, and nurses had not retained earlier training.

Looking for a more effective alternative, PICU management piloted a cloud-based **just-in-time training solution** (Elemeno Health, Oakland; a UCSF-backed innovation) to help frontline healthcare teams deliver best practice at the point of care.

The training solution applied gamification (the use of gaming mechanics in non-game contexts) to engage users in a specific activity as directed by clinical leadership. Participation was voluntary.

Project Goals

Examples of Traditional Training Methods:

- Infrequent staff meetings (one trainer: large group; not in clinical context)
- 1:1 in-person in-servicing (resource- and time-consuming)
- vendor-based collateral (generic; one-off websites; paper handouts)
- email explanations
- locally made breakroom posters
- hurried small group training during shift hand-off.

As a result …

Tracking training viewing/participation is **difficult,** generally relying on paper documentation.
Processes are **disconnected** from actual practice
Potential for large **gaps** of time between training and actual practice **negatively** affects retention.
Challenging to sustain the effect of the initial training over the long term.

Objectives:

Ensure all ICU nurses (n=100) across three shifts:

- are aware of the switch
- understand differences between old and new EVDs **to prevent operational errors**
- can refresh their training, on-demand, for low frequency usage

Target State for Training:

Use a **context-driven, microlearning solution** to help frontline nurses adhere to the consistent delivery of best practices at the point of care.

Project Plan and Interventions

The Plan

Given the delayed delivery of the EVD devices, the PICU **needed a way for nurses to have knowledge at their disposal**, so that they did not rely solely on recall from one-time trainings. **Video-based microlearning could capture both verbal and tacit knowledge** and provide a way for our nurses to have concise refresher training available **on-demand** to help ensure correct and standard practice.

Interventions

Capture training in microlearning video

PICU recorded two under 3 minute refresher videos walking through the different elements and operational steps of the new machines.

Curate and host approved video on accessible unit and institution-specific site

Final versions approved by BCHO PICU leadership, hosted on BCHO Elemeno site and accessible on any web-enabled device.

Disseminate practice across nursing staff

To leverage the competitive spirit among shifts, we set up a two-week contest, with approximately 30 nurses per shift/team. Nurses earned points for their teams by viewing each video once.

Tracking engagement and drive peer-accountability

Set up a **dynamic contest leaderboard** with each team member's name and points visible to the entire team. This allowed team members to use **peer accountability**.

Project Evaluation and Impact

Instead of having restricted opportunities to learn about the new EVDs, our nurses were able to access the critical information **when they needed it, right on their own personal devices.**

Out of the 79 nurses who registered, **nearly 70%** of the nurses watched both videos.

In addition to the contest videos, our nurses also took the opportunity to view Level 1 Rapid Infuser, Codman DirectLink, Manual ICP, and Defibrillator videos (along with other resources) **at their own convenience**, educating themselves during shift change, on breaks, on the floor, or from home.

Next Steps, Dissemination & Lessons Learned

Next Steps:	Since completion of the pilot, we have created over ten microlearning videos, including Intra-Abdominal Pressure Monitoring, Cytotoxic Drug Administration, and Tracheostomy Tube Suctioning. Our staff nurses have since viewed videos (along with other resources) on-demand **at their own convenience**, educating themselves on the floor, during shift change, on breaks, or from home.
Dissemination:	The just-in-time training has been formally adopted in the ICU and is scaling to additional units/specialties in BCHO. Another site for the training solution is live at BCSHF PCICU, and specific video microlearning content is being shared between institutions.
Lessons Learned:	High-quality videos can be created with personal mobile devices. Audio availability may be limited at the bedside; adding subtitles to videos can allow for an effective visual learning experience without sound. Workstation access was facilitated by addition of a shortcut icon While nurses found desktop access doable, expansion to mobile access increased accessibility; even at the bedside,nurses access content without interrupting EHR workflows.

Improving Patient & Family Education to Prevent Pediatric In-Patient Falls

Jennifer Miller, BSN, RN-BC, Barbette Murphy, RN, MSN, CPNP, Caralisa Lacson, RN, MSN Student SFSU

C5 Med/Surg & Transitional Care, UCSF Benioff Children's Hospital – Mission Bay

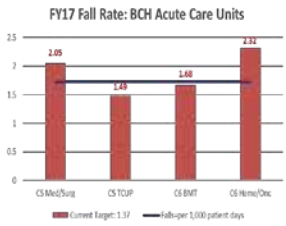
Background

Patient falls are a significant issue in hospitals because of their prevalence and the injury they can inflict, which ranges from minor to serious. Children especially are often at increased risk for falls due to developmental changes related to learning to walk, impulsivity, and affinity for independence. Consequently, consistent use of falls prevention measures is needed to keep patients safe and free from injury. This projects aligns with the UCSF True North Pillars of Quality & Safety and Patient Experience, which strive to achieve zero harm.

While the FY17 fall rate of 1.13 per 1,000 patient days shows that BCH is meeting its target fall rate of 1.37 per 1,000 patient days, data reveals BCH is only **89%** compliant with established falls process measures. Thus, a quality improvement project using posted reminders was developed and executed in two of BCH's acute care units: C5 Med/Surg, C5 Transitional Care, C6 Bone Marrow Transplant & C6 Hematology/Oncology .

Project Goals

The goal of this project was to prevent patient falls and improve falls process measures that were not meeting target goal of ≥90%. In particular, the falls process measure of "Patient/Family Education" was the main focus as FY17 compliance for BCH was **74%**. Other underperforming falls process measures included "Fall Risk Indicators" (86%) and "Nursing Care Plan Active" (80%).



Project Plan and Intervention(s)

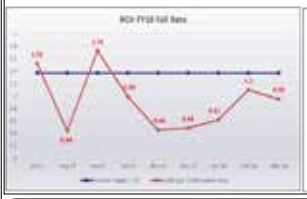
- A "Fall Prevention Reminders" sheet was created and posted in all in-patient rooms in BCH. This functioned as a list of teaching points for nursing staff to reference during admission and hourly rounding.

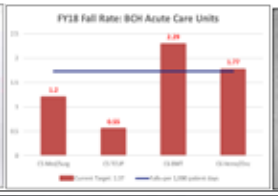
- Starting July 24, 2017, a CN III implemented additional "Falls Tip of the Week" fliers designed to serve as easy-to-read reminders for nurses and staff about falls prevention strategies. "Falls Tip of the Week" sheets were posted in shared spaces such as breakrooms and conference rooms and rotates periodically.

- Falls prevention education were included during Annual Skills Validation for all BCH acute care nurses in September of 2017.

Project Evaluation & Impact

Project impact was evaluated using UCSF QualDash data. While improvements cannot be attributed to this intervention specifically, FY18 data through three quarters shows a BCH fall rate of 0.93 per 1000 patient days, representing a decrease of **0.20** from FY17. Additionally, "Patient/Family Education" compliance improved to **87%**, a 13% increase compared to FY17, while "Fall Risk Indicators" and "Nursing Care Plan Active" increased to **98%** and **88%**, respectively, in FY18.





Next Steps, Dissemination & Lessons Learned

Next Steps:

- Integration of the "Fall Prevention Reminders" flier into OneView and APeX EHR system is underway to streamline provision of patient education. Once live, the education document will automatically populate under the education tab once the nurse activate a falls nursing care plan in APeX.

Dissemination:

The "Falls Tip of the Week" sheets can be made available online to all inpatient units for use in reminding staff to educate patients and families on falls prevention. Collaborations with other children's hospitals can also facilitate greater impact on falls reduction and improvement of current educational efforts.

Lessons Learned:

Translation of the "Fall Prevention Reminders" sheet to languages other than English and Spanish would also be beneficial and lead to greater cultural competency.

COMPASS: A Group ACT Program for Cancer Patients in Psycho-Oncology

Psycho-oncology

Matina Mamounas BS

Naomi Hoffer MA CHES

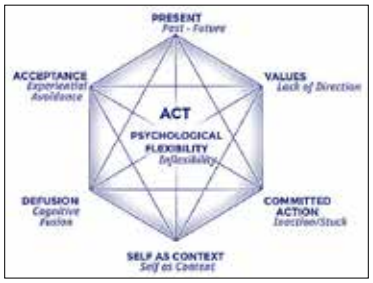
Michelle Melisko MD

Dianne Shumay PhD

Background

Acceptance and Commitment Therapy (ACT)

- Shows growing empirical support for addressing anxiety and other psychological symptoms in cancer patients and survivors.



COMPASS

- Revised version of WiLLoW study; showed feasibility and acceptability of ACT for breast cancer survivors.
- Pilot data on fear of recurrence, anxiety, depression and process variables.

Project Goals

A. Describe the COMPASS patient population.

B. Show feasibility and acceptability of COMPASS ACT intervention for UCSF cancer patients.

C. Show improvement in fear of recurrence, anxiety and depression.

D. Show improvement in process variables such as psychological flexibility, mindfulness and values-based living.

Project Plan and Intervention(s)

Hypothesis: ACT will help UCSF Cancer Patients:

- Confront experiential avoidance
- Learn acceptance, cognitive defusion, and mindfulness skills
- Enhance perspective-taking
- Clarify and define personal values
- Promote behavior change in the service of chosen values

7 Session Group Intervention
90 minute sessions
10-15 participants

Sessions:

1. **Introduction**
2. **Mindfulness**
3. **Values**
4. **Defusion**
5. **Commitment**
6. **Willingness**
7. **Wrap Up**

Manualized Intervention: All participants are given a standard binder with COMPASS materials for each session

All sessions:

- Mindfulness opening and closing exercise
- Experiential exercises and metaphors
- Homework: Bold Moves

Methods

Recruitment: referrals/flyers

REDCap

Measures

PROMIS 4 item Anxiety
PROMIS 4 item Depression
Fear of Cancer Recurrence Inventory Severity (FCRIS)
Acceptance and Action Questionnaire (AAQ-II)
Valuing Questionnaire (VQ)
Five Factor Mindfulness Questionnaire (FFMQ)

- **T1 Baseline**
- **T2 post intervention**
- **T3 6 week follow-up**
- **T4 6 month follow-up**

Project Evaluation & Impact

DEMOGRAPHICS

- 6 COMPASS groups held Sept 2015 – January 2018
- *n*=84 cancer patients enrolled in the 6 groups
- Mean age = 74 years (range 30-83)
- *n*=24 completed all 4 assessments
- 78 (93%) female
- 62 (74%) Caucasian; 2 Asian; 3 other
- Mean age =74 years (30 - 83)
- 69 (82%) at least a college degree
- 57 (67%) were retired, disabled or part-time
- 41 (49%) earning <$75,000
- 51 (61%) married or partnered
- 49 (58%) were breast cancer patients
- 25 (30%) had metastatic disease

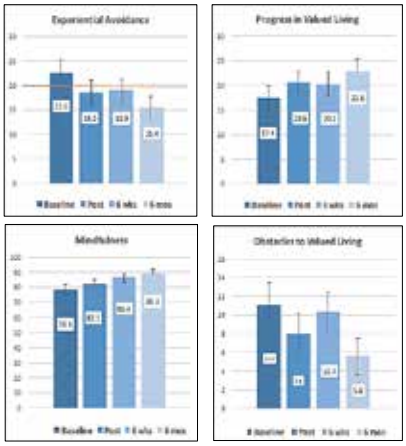
PATIENT SATISFACTION

How worthwhile would you rate this program?
- mean score **8.9 out of 10**; range 7-10

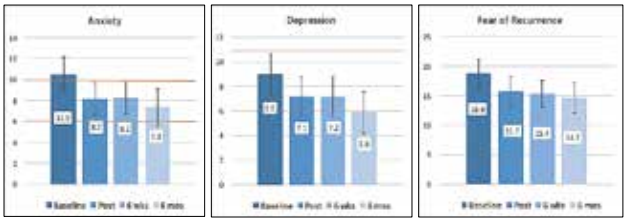
How effective were the facilitators?
- mean score **9.2 out of 10**; range 9-10

Would you recommend this program?
- **95.3% said yes**

PROCESS MEASURES N=24



PRIMARY OUTCOMES N=24:



Next Steps, Dissemination & Lessons Learned

Next Steps:

- Next Group (7) currently recruiting for September 2018
- COMPASS Group 6 to complete final 6 mo. survey in June.
- We are improving our follow up assessment adherence.

Limitations:

- Participants more frequent/longer sessions, smaller groups. asked for
- Broad patient eligibility criteria yields a self-selected convenience sample heterogeneous in cancer stage and type.
- Ceiling effects may limit changes in variables of interest.
- No control arm; other factors may account for improvement.
- Therapist adherence to tx manual not tracked or rated.

Conclusions:

Acceptability/feasibility:

- Adherence to follow-up assessments limited feasibility.
- High patient satisfaction indicates satisfactory acceptability of the program.

Primary Outcomes and Process Measures:

- Anxiety, Depression and FCR scores moved in the right direction.
- Process measures of Psychological Flexibility, Mindfulness and Values moved in the expected direction and could be acting as mediators.
- Findings are very preliminary on a small subset of participants.

Participant Feedback:

"I thought this program was highly worthwhile. I entered anxious and depressed about my post-cancer life. The program gave me support, a safe place to share my concerns and fears, and real tools to help me deal with my self-doubts and my anxieties."

"Back to Basics" Initiative to Reduce CAUTI among Inpatient Adults

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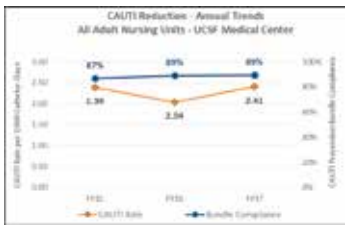
Background

Hospital-wide efforts to reduce Catheter-associated Urinary Tract Infections (CAUTI) began in 2012 with the introduction of CAUTI Prevention Care Bundles. Initially in FY13, the bundle compliance among adult nursing units was at 62% but by FY15 had improved and plateaued at 87% or better. From FY13 through FY15, there was a 23% reduction in the annual CAUTI rate among adult nursing units. But from FY15 to FY17, the annual CAUTI rate fluctuated but did not demonstrate sustained improvement despite stable bundle compliance.

During this time a number of barriers to CAUTI reduction were identified:

- Urine culture samples were ordered and sent simultaneously with urinalysis samples.
- Inconsistent adherence to appropriate reasons for keeping an indwelling urinary catheter.
- Majority of bacteria found in urine cultures suggested contamination from stool.

Successful interventions piloted in one unit (Neuro ICU) during FY17 had potential to be spread more widely.



The **CAUTI Prevention Care Bundle** is comprised of the following components:

- Catheter secured to avoid pulling and dislodgement.
- Tubing looped to allow free flow of urine to gravity.
- Urinary catheter system intact without any breaks or open ports.
- Drainage bag below level of bladder.
- Drainage bag and tubing not on floor.
- Drainage bag level kept below 2/3rds full.
- Documentation of daily perineal or foley care.
- Documentation of daily screening of need for catheter based on national standards of appropriate catheter use.

Monthly bundle compliance is measured through direct observations of the condition of the indwelling urinary catheter system and documented care on each adult nursing unit. Bundle compliance is the percentage of observations that found ***all*** elements of the bundle to be in compliance with standards of care. If one or more of the bundle elements is not compliant, then no credit is received for that observation.

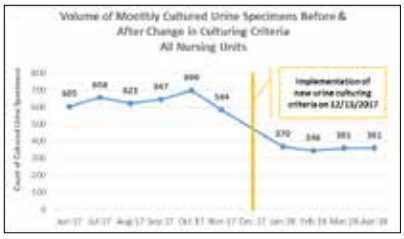
Project Plan and Intervention(s)

Interventions:

- 1:1 education across multiple patient care units of perineal/urinary catheter care to RN and Patient Care Assistant (PCA) staff by RN CAUTI champions that included:
  - Use of a standardized care "check-list" to ensure the same care was being taught to all staff.
  - CAUTI education and awareness content.
  - Fecal management strategies, particularly for patients with fecal incontinence.
  - Use of groin task trainer to allow for simulated care outside of view of patient or families.
- Collaboration between nursing, providers and clinical lab services to begin performing urine culture only if urinalysis results meet specific criteria. New culturing criteria went into effect on 12/13/2017.
- Focused rounding asking nurses to speak to the indication of continued need for indwelling urinary catheter to support appropriate use.

Project Evaluation & Impact

- In FY18, there has been a **32% reduction** in the annual CAUTI rate among inpatient adults from a rate of 2.41 in FY17 to the current rate of 1.64 in FY18 as of April 2018.
- Over 400 RNs and PCAs have been trained to date on this standardized checklist for care.
- The number of urine cultures processed per month decreased from an average of 636 cultures/month in the 6 months prior to the change in urine culturing criteria to 360 cultures/month in the 4 months after the change, a **43% reduction**!



Project Goals

CAUTI Reduction Goals

- In FY18, reduce the annual CAUTI rate among inpatient adult units to below the FY17 rate.
- Ensure RN and PCA staff are oriented to indwelling urinary catheter care expectations.
- Ensure RN and PCA staff have awareness about CAUTI and our reduction efforts.
- Reinforce available fecal management strategies.
- Spread and reinforce best practice of performing urine culture only if urinalysis meets specific criteria.

Next Steps, Dissemination & Lessons Learned

Next Steps:

- Continue reinforcement of indwelling urinary catheter care technique.
- Continue reinforcement of fecal management strategies.
- Continue to explore effective alternatives to the use of indwelling urinary catheters.
- Reinforce proper technique to obtain clean catch urine for samples.
- Pilot the use of a nursing algorithm to remove urinary catheters.

Dissemination:

- Success from this work has been disseminated to organizational leadership, unit leadership, and staff.

Lessons Learned:

- Patient Care Assistants are key members of the care team for CAUTI reduction initiatives, yet are often left out of education campaigns.
- "Back to basics" campaigns are often overlooked as a source of positive change. This work illustrates that this is not always the case.

2018 UCSF Health Improvement Symposium

Developing a System to Track and Reinstate Patients Lost to Follow-Up

UCSF Health

Nephrology Clinic

Lead: Lowell Lo MD

Nephrology Clinic Team

Background

Reducing the number of patients "lost to follow-up" (LTFU) is a cornerstone of achieving the "triple aim" of reducing health care costs, increasing health care quality, and improving the health of the community at large. The positive effect of retention in care and adherence to therapy has been best studied in HIV care and can be extrapolated to management of other chronic diseases (Sebastian, AIDS Behav 2014). In nephrology, continuity of care is particularly important for patients who are transitioning from chronic kidney disease care to renal replacement therapy and has been shown to reduce morbidity and mortality (Ifudu, AJKD 1996). At our tertiary academic Nephrology and Hypertension Faculty Practice, we identified that approximately **23%** of patients seen in 2016 had been instructed to return to clinic but did not within 4 weeks beyond the requested date. It has been shown that individuals with CKD who do not receive optimal therapy have more rapid progression to ESRD (Elaine, CJASN 2018). If we are able to reduce the number of patients who are lost to follow up, we can improve both quality of care, patient experience, and patient outcomes.

Project Goals

In the field of nephrology, being able to actively manage our patients is particularly crucial during early stages of chronic kidney disease (Elaine, CJASN 2018). When patients receive suboptimal care, individuals with poorly controlled DM or hypertension experience 20% (1.8/7.9) and 80% (6.1/7.9) less time in early stage CKD -- more rapid progression of kidney disease:

My goal is to reduce the % of lost to follow up patients to less than **5%.**

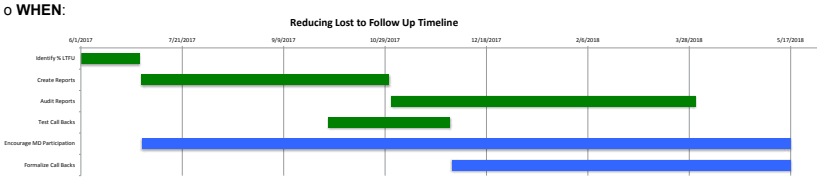
Project Plan and Intervention(s)

o **WHAT**: 1) Create a system to identify patients who have missed a follow-up appointment in nephrology 2) Determine the reasons for patients' missing their appointments 3) Schedule patients for appropriate clinic follow-up

o **WHO**: 1) Clinic director evaluates scale of problem; works with APEX team to generate necessary report; encourages MD participation to track patient follow-up appointment timing using "follow-up button" tool in "Wrap Up" section of APEX; audit accuracy of report. 2) Nurse manager and team convert APEX report into patient call list; call patients directly and schedule appointments as necessary

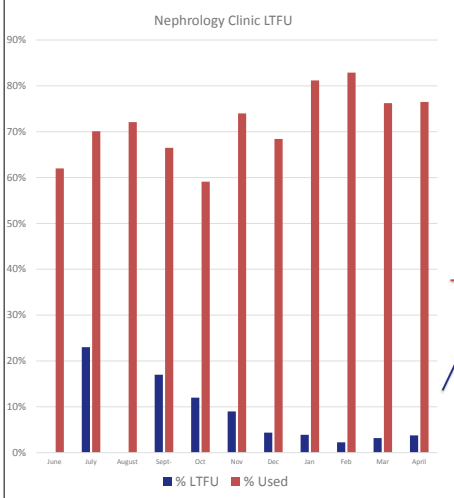
o **WHERE**: UCSF Nephrology and Hypertension Faculty Practice

o **WHEN**:



o **HOW**: Team Huddle, APEX report review and True North Board rounds (at least monthly)

Project Evaluation & Impact



Target = <5% of our patients will be LTFU

Current = 3.76%

Target = >95% will use the follow up button feature

Current = 76.5%

***Sensitivity Analysis – 436 "no show" patients from 05/2017 to 3/31/18 are all captured with our report**

Next Steps, Dissemination & Lessons Learned

Next Steps:
- Create an automatic monthly LTFU report, call patient, and update "no call" list system
- Implement support to help MDs use return-to-clinic APEX feature

Dissemination:
- UCSF Health Symposium Poster Presentation
- Discuss with other chronic disease management clinics regarding successes and suggestions
- Implement in Rheumatology clinic

Lessons Learned:
- We lack data about patient outcomes following LTFU.
- Developing this system is time- and effort-intensive and lacks reimbursement

Optimizing Care for Pediatric Patients with Autism Spectrum Disorder in Perioperative Services Using Lean Tools and A3 Thinking to Improve Workflow

Scout E. Hebinck, MSN, RNC-OB
Perioperative Services, UCSF Benioff Children's Hospital Oakland
Susan Martinez, MS
Kaizen Promotion Office, UCSF Benioff Children's Hospital Oakland
Ian Fong, MSN; Charlene Noce, MSN; Sandra Lieu MSN; Erin Scheller MSN; Heather Ford, MSN

Background

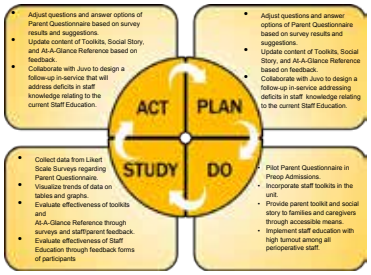
17.8% of pediatric perioperative patients at UCSF Benioff Children's Hospital Oakland had a behavioral diagnosis (2017). Using Lean tools, mapping and A3 thinking, it was identified that patients with autism spectrum disorder (ASD) were not adequately prepared for the environment, processes, and people they would encounter. Lack of individualized care for children with ASD, accompanied by communication deficits, lack of staff training, and inadequate identification of ASD diagnoses, resulted in significant delays, OR down-time, poor patient satisfaction, and potential safety issues for patients and staff.

In 2017 this resulted in **5455 delayed case hours** at a **cost of $14 million**.

- **55% of staff surveyed reported a patient behavioral crisis** resulting in delayed care.
- **97% of staff wanted specialized training** to manage challenging behaviors.

Project Goals

1. 100% of staff will have the skills, tools, and knowledge to provide high-quality and efficient care for pediatric patients living with ASD.
2. Improved assessment protocols and tools will be instituted to better identify patients with ASD and improves staff awareness of these patients.
3. Parents and caregivers will have sufficient tools to optimally prepare for their perioperative appointments.



Project Plan and Intervention(s)

A resource bundle was developed including a Parent Questionnaire, Perioperative ASD Toolkits for staff and parents, and an At-A-Glance reference for staff.

Parent Questionnaire
One-page bilingual English/Spanish questionnaire with checkbox questions inquiring about patient behaviors, fears, and care techniques using simple, non-targeted language.

Perioperative ASD Toolkits

Staff Toolkit
- Unit-accessible booklet educating staff on how to best care for children living with ASD

Parent Toolkit
- Explains to caregiver how to best prepare their child and what to expect before surgery

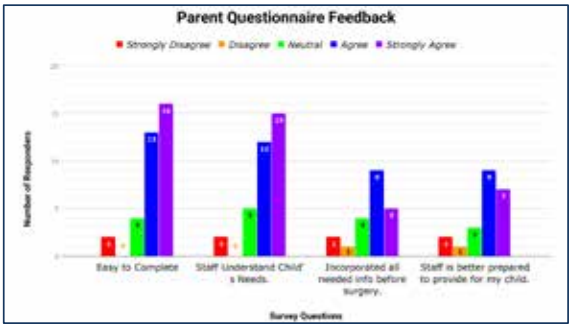
Social Story
- Guides the child through the process of their procedure, using photos and simple language

At-A-Glance Reference
Easily-accessible,condensed version of the Staff Toolkit.

Staff Education: The staff education is planned for April 2018. Initial response to this opportunity has been positive across nurses, technicians, and physicians within the perioperative unit. Participation and engagement is expected to be high, which should correlate to an improvement of staff preparedness in caring for the target population.

Project Evaluation & Impact

Questionnaire: A pilot implementation of the Parent Questionnaire was conducted in Perioperative Admissions.
35 families were randomly selected over 3 days and were given the questionnaire to fill out along with the post-questionnaire Likert Scale effectiveness survey.
More than **66% of all families responded positively** to the questionnaire across all metrics.



Toolkits & At-A-Glance: Toolkits were implemented in the perioperative units and on the hospital's website. Positive feedback was given by The Family Advisory Council, the Nursing Leader and Quality Council, and staff who work in the unit.

Staff Education: Initial response to this opportunity has been positive across nurses, technicians, and physicians within the perioperative Unit. Participation and engagement is expected to be high, which should correlate to an improvement of staff preparedness in caring for The target population.

Next Steps, Dissemination & Lessons Learned

Next Steps:
- Continue Staff Education with Juvo Behavioral Health.
- Assess the effectiveness of the resource bundle in the long term, comparing 2018's surgical delays with 2017's data.
- Integrate the Parent Questionnaire into EMR.

Dissemination:
With continued PDSA, the resource bundle can be rolled out system-wide, tailoring the individual resources to the needs of each unit. In addition, "larger-scale" behavioral health services models can be adopted into the unit, supported through grants and other funding.

Lessons Learned:
Making visible the patient's behavioral needs and providing training and resources for staff can improve the patient experience as well as improve throughput and reduce OR downtown.

2018 UCSF Health Improvement Symposium

PICU Cares about Cost: Increasing Staff Awareness of Supply Costs in the Pediatric Intensive Care Unit

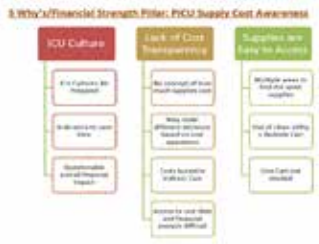
PICU Experience Workgroup:

Bryce Jensen, PCA; Amy Romer, MD; Emily Balkin, MD; Marcela Wade, PCA; Cynthia Fialho, RN; Brandie Hollinger, RN; Peter Oishi,MD; Deborah Franzon; Rudolph Pacol, RN; Jen Zwass, RN; Shelley Diane, CNS;Naomi Takazawa, RN; Patricia Preston, RN; Emilie Menard, NP; Layne Feferman, MD;Andria Camp, RN; Mary Nottingham, RN; Tim Schang, RN;

Background

The PICU Experience Workgroup (PEWG) is a multidisciplinary committee which leads improvement projects on the unit based on the UCSF True North Pillars. During the Financial Strength Pillar discussion, unit-specific data from UCSF Finance was presented.

It was noted by the team that knowledge of and access to supply cost data was not readily available to staff. The PEWG utilized the 5 Why's exercise to better understand why the problem existed (see below) and did a pre-survey of staff to determine the severity of the issue. This problem has a considerable impact to UCSF as the PICU demonstrated that staff is unaware of how much supply items that they use every day cost which could contribute to waste and overuse of unnecessary supplies.

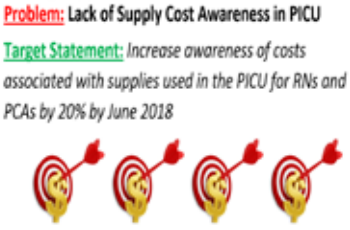


Project Goals

Our target goal was to increase staff awareness of cost associated with supplies used in the PICU for RNs and PCA's by 20% by June 2018.

Usage and cost of pulse oximeter "pulse ox" probes and Z-flo positioners were the metrics used. Our current state for usage of pulse-ox probes per patient was 3.3. Z-flo usage was 0.35 per patient.

"Awareness" was defined as correct selection of price for chosen supplies: pulse ox probes & Z-flo positioners and an increase in the degree to which cost influences decision making when



Project Plan and Intervention(s)

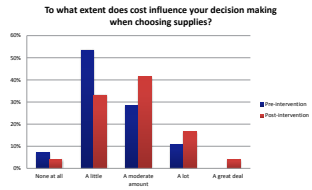
After utilizing the Five Why's problem solving tactic, the PEWG concluded that lack of awareness around how much supplies cost was a problem that needed to be addressed in the PICU. Our project was planned around the assertion that increasing awareness of supply cost among staff would lead to a decrease in supply use, and ultimately an overall reduction in cost per case in the PICU.

We planned to focus our interventions on two specific supplies frequently used in the unit based on high cost and usage: oxygen saturation probes and Z-flo positioners. The implementation plan for this project was executed in stages including **pre-intervention cost analysis** for each item, distribution of a **staff pre-test survey, a "Did You Know" Cost Awareness Campaign** with posters and signs in high traffic areas, **staff presentation/education at a staff meeting, a post- test survey, and post-intervention cost analysis.**

Project Evaluation & Impact

A survey was provided to PICU RNs and PCAs before and after the intervention. Twenty-eight people participated in the pre-intervention survey and twenty-six people participated in the post- intervention survey. We noted an overall increase in awareness of cost related to pulse ox probes with an **increased number of staff recognizing the correct cost.** Additionally, our utilization of pulse-ox probes in the PICU decreased from **3.3 to 1.8 probes per patient.**

Figure 1: Responses to selected questions from survey done pre- and post intervention:



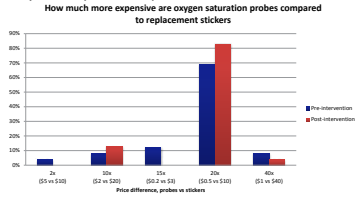


Figure 2: Impact of different interventions' on decision-making on post-intervention survey

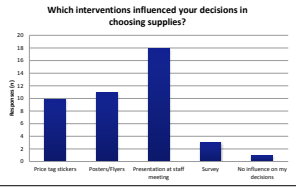
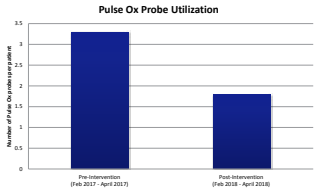


Figure 3: Pulse Ox Probe Utilization-Pre/Post



Next Steps, Dissemination & Lessons Learned

Next Steps:
Next steps for this project include expanding the interventions and surveys to other members of the PICU team including Physicians and Respiratory Therapists. We also plan to develop education and awareness campaigns focused on other items that are high cost or have high rates of inappropriate use leading to waste. Based on the results of our post-test survey which asked many in-process metric questions, we will continue to provide staff meeting education and use posters/flyers to disseminate information to staff for our next PDSA.

Dissemination:
This improvement project to easily be replicated in other unit focusing on the same products or other ones of particular importance for that unit.

Lessons Learned:
Interest in limiting unnecessary cost and waste is a priority among most members of the PICU team as shown in our survey. However, barriers continue to exist related to lack of awareness about cost as well as other issues such as job-related and time constraints. As a team, we felt that utilizing better pre-intervention data in regards to Z-flo use would have also been helpful.

2018 UCSF Health Improvement Symposium

INPATIENT MANAGEMENT OF HYPERKALEMIA WITH INSULIN: DECREASING POST-TREATMENT HYPOGLYCEMIA

Heidemarie Windham MacMaster, PharmD, CDE, FCSHP[1,3]; Allen Tran [3] ; Bradley Monash, MD[1]; Sara Murray, MD[2]; Priya Prasad, PhD, MPH[2]; Robert J. Rushakoff, MD[2]

[1]University of California, San Francisco Health, Institute of Nursing Excellence,; [2]University of California, San Francisco, Health, Department of Medicine; [3]University of California, San Francisco, School of Pharmacy

Background

- Hyperkalemia (serum potassium ≥5.1 mEq/L), if left untreated, may result in cardiac arrhythmias, severe muscle weakness, or paralysis. [1,2]
- Hypoglycemia in the inpatient setting is associated with higher mortality and increased length in hospital stay. [3]
- One treatment option for acute severe hyperkalemia is to shift serum potassium intracellularly through insulin administration. [4]
- Treatment of hyperkalemia with insulin is not benign and leads to significant rates of hypoglycemia (blood glucose <70 mg/dl), approximately 8.7% to 13% for studies lacking mandatory glucose checks. [5-6]
- At the University of California, San Francisco Medical Center (UCSFMC), utilizing a UCSFMC adult inpatient hyperkalemia revised orderset (Orderset 1.1) that requires blood glucose point-of-care testing (POCT) pre-insulin administration and post-insulin administration (1, 2, 4, and 6 hours post-insulin), we uncovered a hypoglycemia rate of 21%.
- Through mandatory glucose checks, we found that 92% of these hypoglycemic episodes occurred within 3 hours of insulin administration.
- In addition, **we identified risk factors for hypoglycemia, including decreased renal function (creatinine clearance <30mL/min), high doses of insulin (>0.14 units/kg) and pre-treatment blood glucose <140 mg/dL**.
- As a result of these finding, we developed and implemented a new revised orderset (Orderset 1.2) that included: 1) weight-based dosing of insulin options, 2) provider alerts to identify patients at higher risk of hypoglycemia, and tools to help guide decision making based on the pre-insulin blood glucose measured for a hyperkalemic patient. [7]
- Currently, Orderset 1.2 is the only active version.

Project Goals

Primary Objective:

- To determine the rate of post-treatment hypoglycemia after implementation of the revised orderset.
  - Goal – further reduce hypoglycemia rate post insulin for hyperkalemia treatment using clinical decision support and targeting independent risk factors:
    - Insulin dose >0.14 units/kg (~ 10units for a 70kg patient)
    - Pre-insulin POCT<140mg/dL
    - CrCl <30mL/min
  - Current hypoglycemia rates:
    - Hypoglycemia rate (<70mg/dL) = 21%
    - Severe hypoglycemia rate (<40mg/dL) = 5%

Secondary Objective:

- To identify possible gaps that could contribute to hypoglycemia post-insulin treatment for hyperkalemia in regards to:
  - Provider compliance with Insulin for hyperkalemia ordered via adult inpatient hyperkalemia orderset
  - Nursing compliance to the adult inpatient hyperkalemia orders for 4 POCT glucoses within 6 hours post insulin and a repeat d50 IV 1 hour post insulin

Project Plan and Intervention(s)

- **Study Design:** Cross-sectional study, using patient data from UCSFMC from January 1, 2016 to March 19, 2017 (Orderset 1.1) and then March 20, 2017 to September 30, 2017 (Orderset 1.2) for patients administered insulin for hyperkalemia treatment.
- **Inclusion Criteria:**
  - Patients who received insulin for treatment of hyperkalemia through the revised orderset [Figure 1]
  - POCT glucose level pre-insulin administration and post-insulin administration
    - Within 4 hours prior to insulin
    - Within 30 minutes to 180 minutes (0.5 – 3 hours) after insulin
    - Within >180 minutes to 360 minutes (3 – 6 hours) after treatment insulin
- **Exclusion Criteria:**
  - Patients without 3 or more unique POCT levels as listed in inclusion
  - Patients receiving multiple insulin treatments for hyperkalemia within 6 hours, the first treatment data points were excluded to prevent duplication of data

	Orderset 1.1 n = 225	Orderset 1.2 n = 145	p-value
Age (y)	58.6 (14.4)	56.9 (17.0)	0.372
Female	78 (35%)	60 (41%)	0.245
Weight (kg)	78.8 (26.9)	75.7 (25.4)	0.349
Weight-Based Dose (units/kg)	0.12 (0.05)	0.09 (0.02)	**<0.0001**
Pre-Insulin Blood Glucose (mg/dL)	170 (140)	173 (114)	0.806
Serum Creatinine (mg/dL)	4.22 (3.64)	4.39 (3.79)	0.714
Creatinine Clearance (mL/min)	37.9 (30.6)	34.7 (27.4)	0.298
T2DM	77 (34%)	54 (37%)	0.614
Concomitant Albuterol	72 (32%)	39 (27%)	0.298
Concomitant Corticosteroid	14 (6%)	9 (6%)	0.995

- **Measurements:** Glucose levels before and for 6 hours after insulin injection. serum creatinine prior to treatment, weight, known diagnosis of diabetes, use of albuterol and corticosteroids, and insulin dose given for treatment of hyperkalemia
- **Data Analysis**: Statistical analysis for our data includes $\chi 2$ for nominal data Student *t* test for continuous data. Bivariable analysis identified potential risk factors and protective factors for hypoglycemia and logistic regression determined independent predictors of hypoglycemia. Through bivariable analyses, any factor that revealed a p-value below 0.05 was included in the multivariable analyses to investigate significant contribution to hypoglycemia outcomes. All analyses were rendered utilizing Stata version 14 (Stata Corp LLC, College Station, Texas).

Hyperkalemia Orderset Version 1.1 (12/2015)

Features Included:

1. Hyperkalemia Treatment Modalities (includes)
   - Insulin 10 Units IV x1
   - D50 25g IV x1
2. (**NEW**) POCT Pre- and Post-Insulin Administration

Hyperkalemia Orderset Version 1.2 (3/2017)

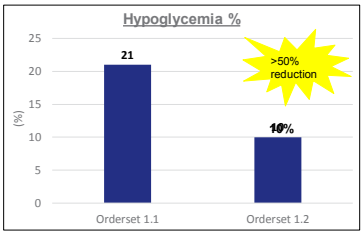
Features Included:

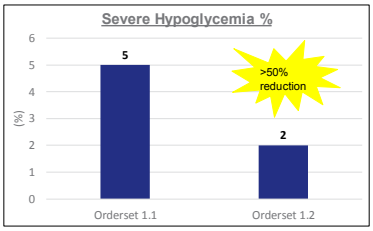
1. Hyperkalemia Treatment Modalities*
2. POCT Pre- and Post-Insulin Administration

NEW:

1. *Weight-Based Dosing for Insulin (0.1 units/kg, 10 unit maximum)
2. Provider Alerts to Identify At-Risk Patients for Hypoglycemia (including most recent Potassium and Blood Glucose level prior to treatment)
3. Concomitant Dextrose Administration Based on Pre-Insulin Blood Glucose
   - If Pre-Insulin Blood Glucose <150 mg/dL, then Add an Additional Dextrose 50% (50 mL) IV Once 1-Hour Post-Insulin Administration.
   - If Pre-Insulin Blood Glucose is >300 mg/dL, then Remove Dextrose 50% (50 mL) with Insulin Administration.

Project Evaluation & Impact





Hypoglycemia Rates	Orderset 1.1 n = 225	Orderset 1.2 n = 145	p-value
Hypoglycemia	48 (21%)	14 (10%)	**0.008***
Severe Hypoglycemia	11 (5%)	3 (2%)	0.207

Provider Compliance: Insulin via Hyperkalemia Orderset			
2 Month Review **1.1:** 1/1/17 – 2/28/17 **1.2:** 8/1/17 – 9/30/17	**Orderset 1.1 n = 96**	**Orderset 1.2 n = 92**	**p-value**
Insulin via Orderset	70 (73%)	71 (77%)	0.500

RN Compliance to POCT Glucose Orders	Orderset 1.1 n = 352	Orderset 1.2 n = 239	p-value
RN Compliance	225 (64%)	145 (61%)	0.423

Next Steps, Dissemination & Lessons Learned

Next Steps:

1. Publish : see Dissemination
2. Identify ways to further reduce hypoglycemia
   A. Identify a plan to further protect patients with CrCL <30ml/min from hypoglycemia .
3. Identify ways to further improve provider and RN compliance:
   A. Improve provider compliance to ordering insulin for hyperkalemia via the Hyperkalemia orderset
      i. Increase from 77% to 100% - ACTION: EPIC upgrade in 2017 provided transparency to insulin ordersets
   B. Improve RN compliance to checking POCT glucose and administering a repeat d50 IV if ordered.
      i. Increase from 61% to 100% - ACTION: Linked 2 d50 IV orders; clarified d50 administration order
   C. Improve compliance with Luer Lok insulin (unit) syringe 100 unit/1mL.
4. National campaign to re-evaluate the 2005 AHA guidelines for emergent electrolyte imbalances (Hyperkalemia)

Dissemination:

1. ADA Scientific Sessions 2018 – poster presentation
2. JAMA 5/2018 letter to the editor on reducing hypoglycemia events through standardizing syringe
3. Publication pending on research data and request to re-evaluate 2005 AHA guidelines for hyperkalemia treatment.

Lessons Learned:

1. Clinical decision support can be a powerful tool in identifying patients at risk for hypoglycemia and preventing hypoglycemia events.
2. Despite improved clarity around insulin ordersets , post insulin POCT glucose and repeat d50 orders, there is still room for improvement in educating providers and nurses to optimize APeX navigation and compliance.

2018 UCSF Health Improvement Symposium

Removal of 2RN double check for SQ insulin for adult patients at UCSF Health

Heidemarie Windham MacMaster, *PharmD, CDE, FCSHP;*

Sabina Gonzalez, *RN, MSN*;

Adam Cooper, *RN-BC, MSN;*

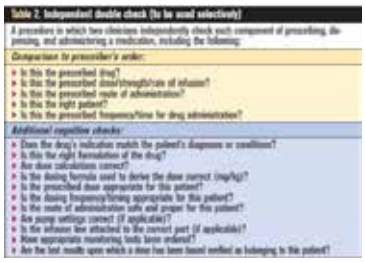
Daphne Stannard, *RN-BC, PhD, CNS*

Institute of Nursing Excellence, UCSF Health

Background

1. ISMP and Joint Commission recommend an independent double check prior to administration of high risk medications, including insulin.

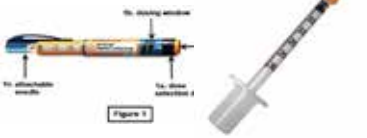
2. However, ISMP and Joint Commission acknowledge that with the increase in volume of high risk medications, institutions should require independent double check for very selective high-alert medications., not all high-alert medications.



Glucometers: At UCSF Health , Acute Care and Procedural Areas store their glucometers in centralized medication areas. These are shared among patients and cleaned in between each new patient use.

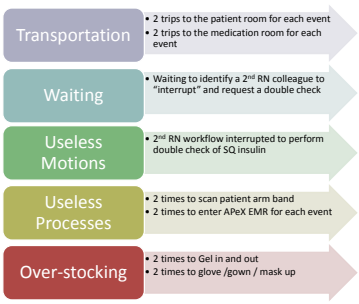
Insulin : Adult Inpatients ordered SQ Insulin at UCSF Health will receive insulin via an Insulin Pen.

1. Insulin Pens have been shown to :
   a. Increase dose accuracy, especially when majority of SQ Insulin correctional and nutritional doses are 3 units or less
   b. Have Visual, Auditory and Tactile clues to help ensure accurate dose vs syringe (visual only) .

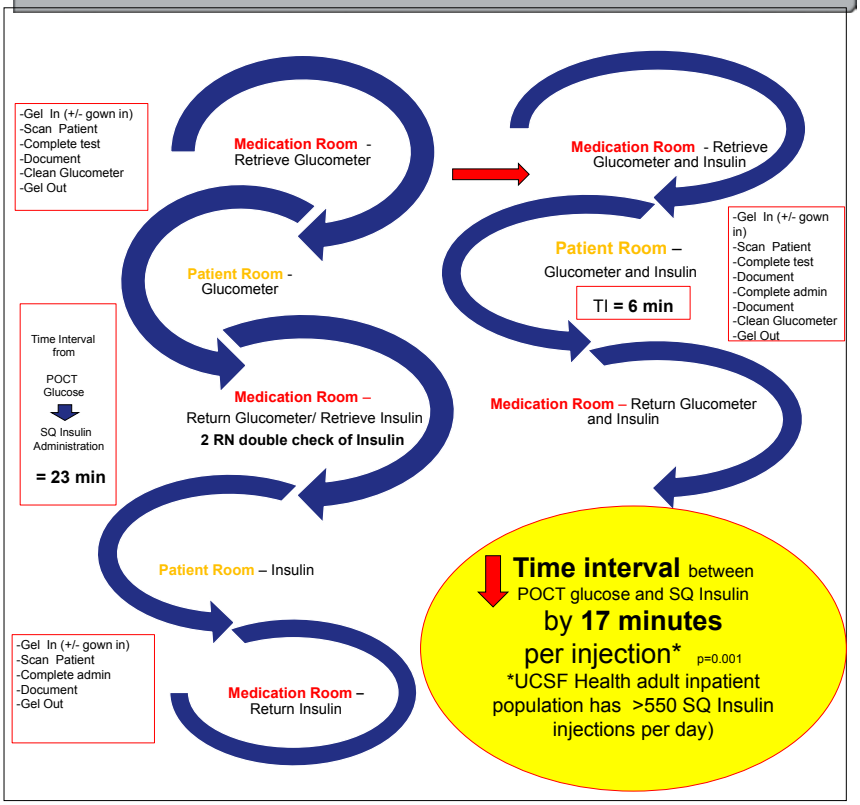


Project Goals

1. Improve patient's access to time critical medications (SQ Insulin)
2. Create nursing efficiencies
3. Reduce waste (MUDA) without compromising patient safety (eg wrong dose; wrong time; wrong patient's insulin pen)



Project Plan and Intervention(s)



Project Evaluation & Impact

EVALUATION of removal of 2 RN double check for SQ Insulin:

1. *Improved interval between POCT glucose and SQ Insulin*
2. *More patients with POCT glucose within due time*
3. *More patients with SQ Insulin within 30 minutes of POCT glucose*
4. *Less RN Interruption*
5. *Reduced waste (gloves, gowns, masks)*
6. *No increased patient harm (IR data and Nursing Audits)*
7. *Decreased patient interruptions*
8. *Reduced travel/motion for nursing.*

% Compliance to Time Critical Medication Policy (data: Correctional SQ Insulin for POCT glucose >200mg/dL	2016 (n=100)	2017 (n=100)
% Administered *within 30 minutes of POCT glucose (New* Time-Critical Medication Policy)	70%	↑ 88% (p=0.0018; CI 6.7-28.8)
% Administered within 60 minutes of POCT glucose (previous Time Critical Medication Policy)	90%	95% (p=0.18)

Next Steps, Dissemination & Lessons Learned

Lessons Learned:
Wrong patient insulin pen alerts have allowed us to detect and evaluate compliance discrepancies to our patient medication administration policies – Over 50 RNs identified as carrying more than 2 patients' medications at a time since 4/2017. Early interventions have aided in course correction.

Inpatient Insulin Pens: Time critical medication dispensed on the unit and the development of an RN led-patient specific bar code label

Heidemarie Windham MacMaster, *PharmD, CDE, FCSHP*[1]; Sabina Gonzalez, *RN, MSN*[1]; Andrew Maruoka, *RN-BC, MSN*[2]; Craig San Luis[2], *Robert Rushakoff, MD*[3], Daphne Stannard, *RN-BC, PhD, CNS* [1]

[1]Institute of Nursing Excellence, [2]APeX/ EPIC Clinical Systems Department, [3] Department of Medicine: **UCSF Health**

Background

Despite the technological advancement of multi-dose injectable pen over vial and syringe for both patients and clinicians, there are biohazard risks that must be considered when developing injection technique expectations.

The FDA in 2009 put out a warning stating that regurgitation of blood into the insulin cartridge after injection can occur creating a risk if used on more than one patient.

It's not about single use needles - – The Insulin Pen technology relies on a 2 way needle that access the insulin in the pen cartridge and inject into the patient.

After the insulin SQ injection, there is a possibility of biological regurgitation back into the insulin in the cartridge from the patient

This work creates the potential risk of blood borne pathogen contamination if a patient shares an insulin pen with another patient that carries blood borne pathogens.

Project Goals

Inspired by the movement to reserve 2RN independent double check for the most high-risk of all high-alert medication practices, multiple UCSF medication and safety committees took the opportunity to identify 2RN double check practices.

Goal 1: Keep using insulin pens for greater dosing accuracy: Since the majority of rapid acting insulin is 3 units or less at UCSF Health for adult patients, the insulin pen is known to provide greater accuracy for small doses.

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Goal 2: Keep insulin pens on the nursing units. Rapid acting insulin is a time-critical medication and optimize pharmacy technology where possible to prevent medication delays

Goal 3. Create patient-specific barcode label on units for multi-dose medications dispensed from automated dispensing machines (Pyxis).. *EPIC customization developed by Andrew Maruoka

Goal 4: Remove 2RN double check of SQ insulin for adults without increasing risk of wrong patient insulin pen administration * EPIC Alerts built by Craig San Luis

Project Plan and Intervention(s)

Wrong Patient Insulin Pen Alerts by Department By Monthpper

Wrong Patient Insulin Pen Alerts (4/17-3/18)			Month											
UNIT	Alert Total	Avg alerts / month by unit	18-Mar	18-Feb	18-Jan	17-Dec	17-Nov	17-Oct	Sep-17	Aug-17	Jul-17	Jun-17	May-17	Apr-17
8 NICU	8	0.6	1	0	2	4	0	0	0	0	0	0	0	0
11NE NICU	5	0.4	0	0	1	0	1	0	2	0	0	0	1	0
A4 ICU MB	2	0.2	0	0	1	0	0	0	0	0	1	0	0	0
9NE M/S ICU	4	0.3	1	0	0	0	0	0	0	2	0	0	0	1
10NE CARD ICU	16	1.3	2	2	1	2	1	2	3	0	1	1	1	0
13I M/S ICU	6	0.4	1	0	0	1	0	0	2	1	0	0	0	0
8S TCU	11	0.8	0	0	1	0	2	1	2	1	0	1	2	0
10LS CVT	**67**	5.1	4	7	5	3	3	1	10	8	7	6	6	1
14M MS-HI-ACUITY	25	2.1	0	0	3	3	4	1	1	2	7	3	1	0
A6 SURB MB	10	0.8	6	1	0	2	0	0	1	0	0	0	0	0
A5 ONC MB	8	0.7	0	1	1	1	1	1	1	1	0	0	1	0
6S MED/SURG	8	0.7	0	2	0	0	1	4	0	0	0	0	1	0
6L NEUR TRAN	18	1.5	1	2	1	2	2	3	0	0	2	1	3	1
7L MUSCULOSKELETAL	9	0.6	0	1	0	1	0	0	3	0	0	0	2	0
8L NEUROSCIENCES	15	0.9	2	2	0	0	0	3	0	1	0	0	2	1
9L TRANSPLANT	49	3.3	3	2	3	4	2	2	6	3	3	3	1	7
11L MEDSURGE-ONC/BMT	3	0.3	1	1	0	1	0	0	0	0	0	0	0	0
12L MEDSURG-ONC/BMT A	10	0.8	1	0	2	0	0	1	2	2	0	0	1	1
12M MED/SURG/ONC	2	0.2	1	0	1	0	0	0	0	0	0	0	0	0
13L GEN SURG	32	2.6	5	5	1	2	4	3	4	2	2	2	1	0
14L MEDICINE	15	1.2	6	1	0	3	1	0	1	0	0	0	1	1
15L ADULT ACUTE CARE	16	1.3	1	3	1	1	0	0	1	3	2	2	2	0
ED	3	0.3	0	0	2	0	0	1	0	0	0	0	0	0
PERIOP PARN	1	0.1	0	0	0	0	0	0	0	0	1	0	0	0
4E SURG MZ	1	0.1	1	0	0	0	0	0	0	0	0	0	0	0
TOTAL/ MONTH	**344**	**26.5**	**36**	**30**	**26**	**30**	**22**	**23**	**21**	**26**	**26**	**19**	**24**	**13**
estimate total sq insulin pen admin/month			15659	13673	15020	14000	12861	14040	13894	12729	13929	12999	12859	10412
			0.23%	0.22%	0.17%	0.20%	0.17%	0.16%	0.15%	0.20%	0.19%	0.15%	0.19%	0.12%

Project Evaluation & Impact

1. Over 700 insulin pens dispensed per month from unit based Pyxis machines.
2. 100% of insulin pens SQ Injections were scanned by BCMA (>150,000 in 12 months)
   A. Average ~500 SQ Insulin pen injections/day; ~15,000/month
3. 96% of insulin pens SQ Injections were scanned with patient specific insulin pen label
4. Of those, less than 0.2% were identified as wrong patient insulin pen
5. >99% of those were course corrected – and 100% were followed up on an individual level
   A. RN Barriers/Workflow issues for wrong patient insulin pen scanned
      1. Acute Care/ Procedural: ~1.2 alerts per month per unit –
         - carried more than 1 patient's medications at a time (30%)
         - patient's insulin pen put back in wrong patient medication cassette (65%)
      1. Critical Care: ~0.5 alerts per month per unit --
         - 2 patient charts opened at the same time (90%)
6. Time critical medication policy compliance: 25% Increase in compliance (from 70% to 88%) of rapid acting SQ insulin injections given within 30 minutes of POCT glucose > 200mg/dL.

Next Steps, Dissemination & Lessons Learned

Working with Nursing Clinical Informatics and Unit Nurse Leaders to provide dashboard reports of medication administration wrong patient alerts to help patient safety and establish timely identification of policy non-compliance to patient medication administration practices and provide course correction.

Road to Discharge

Improving Discharge for Pediatric Transitional Care Patients Improving the Family Experience

Discharge Workflow Improvement Workgroup

Team Leaders: Deb Franzon MD, Jessie Duvall MD, Amy Kangwankij RN

Team Members: Michael Spiegel; Dinarte Viveiros MHA BSN RN; Nancy Lee MSN RN; Amy Kangwankij BSN RN; Deborah Yracheta MSN RN; Marina Roberts BSN RN; Alicia Bonilla CPNP; James Bisgaard RRT-NPS;; Rebecca Gates, MSW; Sarah Lucas PharmD; Valerie Bednar MA BSN RN; Tamara O'Connor BSN RN; Shannon Fitzpatrick MSN RN Bhumi-Gandhi-Patel PharmD; Lisa Lee, Family Advisory Council; Samareen Shami,Family Advisory Council

Sponsors: Kim Scurr MPA RN, Steve Wilson MD

C5Transitional Care Unit/BCH

Background

The Transitional Care Unit (TCU) at Benioff Children's Hospital is a 16-bed medical/surgical multidisciplinary unit that cares for a wide range of patients with complex needs including renal and liver failure/transplant patients, orthopedic spinal surgery, sometimes after a prolonged stay in intensive care for critical illness with an average daily census of 13. The discharge process for inpatients TCU is lengthy and inefficient. It impacts a few of our UCSF True North Pillars:

December 2016, **Discharge Workflow Improvement Group** was implemented.
• Developed an A3, performed process map of discharge workflow, developed interventions to target discharge efficiency.

•March 2017, a daily discharge huddle was implemented to create a shared understanding of discharge needs. It has now been ingrained into the workflow. Each patient is discussed with anticipated discharge date and needs identified. Key team members attend and needs are specified by role.

•March 2017-December 2017, resulted in increase in discharge by noon rate from 15% to 20%.

QUALITY & SAFETY:
•Serious safety events resulting in readmissions back to the unit have occurred in part due to the complexity and inefficient coordination of the discharge.

PATIENT EXPERIENCE:
•Time series observations (N=7) conducted in TCU in January 2017 indicated a discharge lag time of up to 5 hrs.

•Families rated the Press Ganey "felt ready for discharge" at a mean score of 89% FY17, which is at the 49th percentile nationally.

Project Goals

SMART Goal:
•Maintain BCH TCU discharge by noon rate > 20% 10 out of 12 months by June 1, 2018.

•Increase Press-Ganey average satisfaction with "felt ready for discharge by 5% from FY18 pre-intervention average to May 2018.

Countermeasures:
•Increase in average LOS
•Increased in 48h readmissions

Expected Benefits:
•Overall increased capacity at Benioff Children's Hospital
•Decreased PICU LOS (timely transfer to TCU)
•Decreased readmission rate
•Decreased discharge related adverse events
•Increased provider and staff satisfaction
•Improved patient and family experience

Aligns with UCSF True North

Project Plan and Intervention(s)

Fig. 1

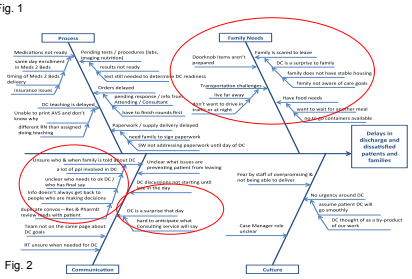


Fig. 2

Using UCSF LEAN methodologies and an A3 approach to continuous process improvement, convened a multidisciplinary workgroup to meet biweekly per project timeline (Fig 1).

Understanding the Problem: After completing time series observations, and gap analysis (fig 2) utilized a P-I-C-K chart to identify interventions for Family Needs and Communication barriers.

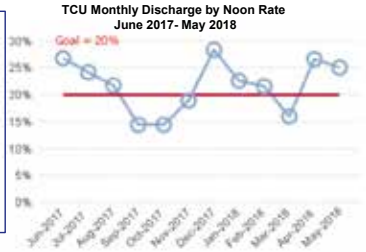
Barrier: Family not aware of projected discharge date. Family has last minute questions and concerns that delay discharge time

INTERVENTION: **FAMILY FACING CHECKLIST**
1. Implement Checklist
   - Incorporate discharge checklist into daily rounds
   - Engage families to complete checklist
   - Develop standard workflow to activate checklist
   - Develop standard workflow to maintain checklist & pen in room for new patients with housekeeping
2. Process measure:
   - Checklist ready in room: visual audit
   - Checklist validity: Compare actual discharge time to family preferred discharge time

Project Evaluation & Impact

ROAD TO DISCHARGE: FAMILY FACING CHECKLIST
- Began to trial on select patients December 2017
- Revised and updated checklist based on user feedback
- Engaged Family Advisory Council to provide content feedback
- Sustained discharge by noon >20% 5 out 6 months
- Actual to family preferred discharge time within 12h 72% of the time out of 29 patients.
- Press Ganey response "felt ready for discharge" increased during trial intervention period.

TCU Monthly Discharge by Noon Rate
June 2017- May 2018



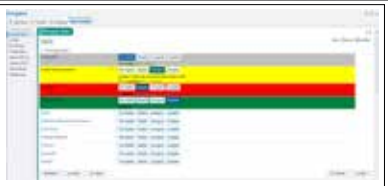
TCUP DISCHARGE CHECKLIST

PRESS GANEY FAMILY SATISFACTION SURVEY RESULTS

Ready for Discharge	Pre-Intervention	Post-Intervention
Mean % Satisfied	87.1	92.5

Next Steps, Dissemination & Lessons Learned

Next Steps:
1. A Clear Path Home: EMR Real Time Discharge Checklist
Creating a real-time visual tool in APEX to be utilized and seen by all team members to track and viewkey steps in patient's progression towards discharge (May/June 2018)
2. Revision of Discharge Checklist v2.0
Clinical Innovations Center engaged to conduct team observation and interviews with families to provide input improvements (June 2018)



Dissemination:
•Expand discharge checklist for home to all inpatient pediatric units.
• The visual tool in APEX can be utilized and made available to all
•Work with translation services to make available in multiple languages

Lessons Learned:
•Utilize executive sponsors to leverage support for solutions/resources out of team's reach
•Refer often to gap analysis and make sure intervention is solving the right problem
•Standardizing roles and setting expectation for all team members involved
•Collaborate with other team members from other parts of the hospital.
•Engage Family Advisory Council at outset
•Leverage Apex to optimize usability/efficiency of intervention and to get data

2019 UCSF Health Improvement Symposium

Creation and Implementation of Postoperative Debrief after Cesarean Section

Diana Robles, MD

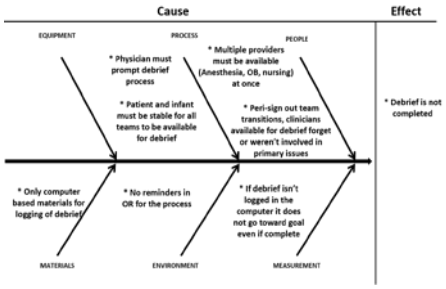
On behalf of the Resident and Fellow Quality Improvement Team

Department of Obstetrics and Gynecology

Background

Though it is the most commonly performed surgery in the United States, cesarean section is by no means the easiest. Each one requires the coordination of multiple teams, at minimum Obstetrics, Anesthesia, and Pediatrics. Therefore optimizing the communication of teams around cesarean delivery is crucial to meeting our True North strategic priority of continually improving patient care. A crucial element to the communication around cesarean deliveries is the opportunity to reflect on how the procedure went and how to optimize it in the future. At our weekly M&M rounds, we discuss adverse events, however, we previously did not have a routine or a standardized postoperative debriefing process to address quality improvement opportunities and potential near-misses. Thus we focused our UCSF OB, GYN and RS Residency QI Incentive Project on execution of a postoperative debrief process that addressed systems issues after every cesarean section.

Figure 1: Fishbone diagram describing barriers to design and implementation of standard post-cesarean debrief



Project Goals

- Creation of standardized postoperative debrief after cesarean section
- Implementation of postoperative debrief in ≥65% of cesarean sections in 3 out of 4 Quarters

Project Plan and Intervention

- Project development started in March 2017.
- Project design team included OB/GYN attendings, residents, midwives, and nurses.
- Development and posting of our standardized debrief checklist accomplished in OB, Anesthesia and Nursing
- RN documentation facilitated through with step-by-step instructions on how to document the debrief in every OR
- The initiative was posted to the Birth Center's True North Board's Quality and Safety pillar
- Regular updates to resident teams on their performance on a weekly basis.
- Provided attending-specific debrief rates with the primary surgeon

Figure 2: Post-cesarean debrief checklist

Procedure, complications, I/O's, specimens.

Do any of the following postoperative issues apply?

a. Transfer outside of L&D
b. Need for non-routine labs
c. Unique pain medication considerations
d. Need for IV Magnesium for 24 hours
e. Need for IV Antibiotics for 24 hours
f. Need for postpartum anticoagulation
g. Management of lines and/or drains
h. Other issue(s)

Were any of the following indicated and NOT given/done?

a. Antibiotics before incision
b. Antibiotics at cord clamp
c. Magnesium sulfate
d. Insulin
e. Delayed cord clamping
f. Skin-to-skin

Were there systems issues (eg. communication challenges, equipment problems, preference card errors?)

Project Evaluation & Impact

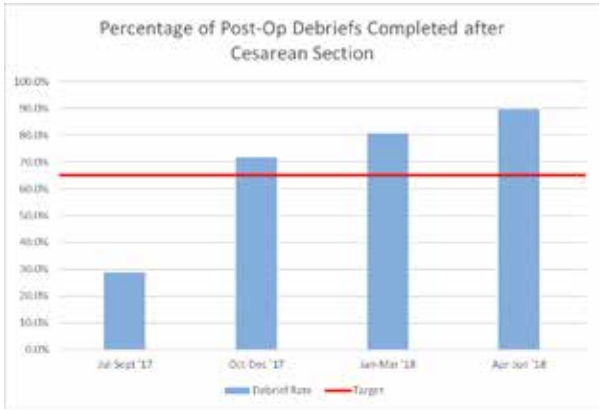


Figure 3: Percentage of postoperative debriefs performed each quarter during the 2017-2018 Academic Year Fourth Quarter data reflect debrief rate for month of April 2018 only

Next Steps, Dissemination & Lessons Learned

Next Steps:

- Continue data collection and analysis until June 2018
- Consider expansion of similarly comprehensive post-procedure debrief to be completed after vaginal deliveries
- Review rates of postoperative complications before and after implementation of standardized debrief to analyze differences in rate and time to identification
- Improvement of data extraction from electronic medical record to facilitate institutional compliance

Dissemination:

- Share success of formal debrief process with other surgical specialities

Lessons Learned:

- Disseminating individual provider rates fueled a significant improvement in our completion percentage.

Timely Accessioning of Consultation Cases

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Department of Pathology

Background

Consultation cases received in Pathology from outside institutions must be accessioned in a timely manner to allow for optimal patient care. The goal is to accession 70% of cases on the same-day, 80% by the next-day and the remainder by the third-day.

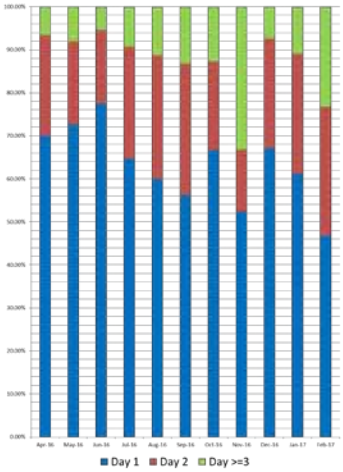
Historically, approximately 60% of consult cases were accessioned on the day of receipt; however, in some cases, accessioning was delayed 3 or more days due to missing information, insurance authorization delays, short staffing, or inefficient processes.

Project Goals

Currently, 70% of cases are accessioned same-day (3 out of 11 months). Same-day accessioning ranged from 45% to 77% during this period. (Figure 1)

The project goal is to achieve same-day accessioning of 70% of the cases on a routine monthly basis, as well as 80% by the next-day, and the remainder by the third-day.

Figure 1. Project Start: Accession Cases by Day 1, 2, 3 (%) April 2016 thru February 2017



Project Plan and Intervention(s)

- **Correct information:** A tip sheet was created and provided to clinics outlining requirements for requesting a pathology consultation, minimizing trouble-shooting by staff.
- **Administration reorganization:** Consultation accessioning currently performed at all 3 campuses.
- **Accessioning Cross training:** All 3 campuses (Mission Bay, Mt Zion, Parnassus) provided cross coverage and improved staff morale.
- **Enhanced Communication:** Daily email communication between all 3 campuses regarding workload allowed staff to evenly distribute cases.
- **Staggered shifts:** Allowed for extended processing time.

Project Evaluation & Impact

Same day processing from April 2016 to Feb 2017 was achieved only by 27% of the time. (Table 3)

From July 2017 to December 2017, same-day accessioning was achieved 100% of the time.(Table 2, 3)

Consistent communication and team work proved to be the **key to success** in improving pathology consultation registration and accessioning turn-around-time. Through improved communication, case workload can be evenly distributed to reduce bottlenecks.

Figure 2. Same-day Accessioning From April 2017-December 2017 (%)

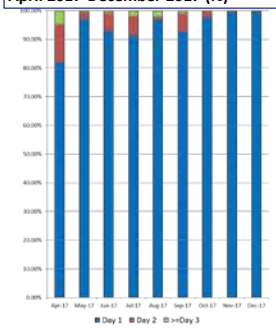
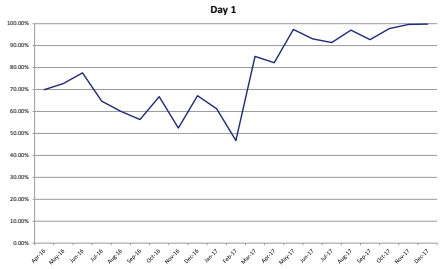


Figure 3. Same-day Accessioning April 2016-December 2017 (%)



Next Steps, Dissemination & Lessons Learned

Next Steps:
Maintain the culture of accessioning cases within 24 hours by prioritizing cases and cross training additional personnel.

Dissemination:
Communication between team members, as well as cross training, creates strong team morale and productivity.

Lessons Learned:
Shortage of staff caused an imbalance in case load among three different sites. Assigning staff to each site improved the balance. Consistent daily communication between the consult team enhanced shifting work loads to different sites to reduce delays.

Perioperative Anesthesia Lean Implementation is Associated with Increased Operative Efficiency in Posterior Cervical Surgeries

Simon Ammanuel BS[1], Andrew Chan MD[1], Anthony DiGiorgio DO[1], Mohanad Alazzeh BS[1], Catherine Miller MD[1], Seema Gandhi MD[2], Mark Latronica MD[2], Errol Lobo MD[2], and Praveen Mummaneni MD[1]

[1]Department of Neurological Surgery
[2]Department of Anesthesia/Perioperative Care

Background

- Lean management strategies aim to increase efficiency by eliminating waste or by improving processes to optimize value.
- These strategies may be applied toward improving efficiency in the neurosurgical operating room (OR).
- Specifically, targeting strategies that may streamline OR turnover time may increase operative productivity and improve profitability.
- We observed that perioperative anesthesia took longer than the surgery itself.
- We recorded the perioperative anesthesia times in 15 posterior cervical surgeries, and the process on average took 88 minutes
- In the present study, we applied lean methodology for perioperative anesthesia associated with posterior cervical spine surgeries to assess for associations with OR efficiency.

Project Goals

The two goals for our project:

Improve perioperative anesthesia process time by 20% over one year.

Improve Overall OR time by 20% over one year.

Project Plan and Intervention(s)

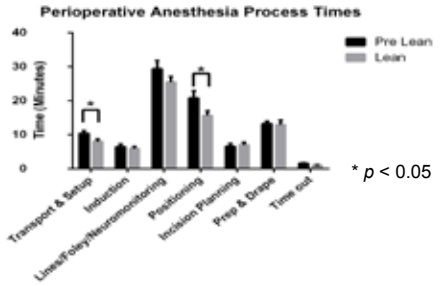
We identified 7 key steps in the perioperative anesthesia process: Transport & Setup, Induction, Line/Foley/Neuromonitoring, Positioning, Incision Planning, Prep and Drape and Time Out. Description of these steps are outlined in Table 1. Before lean implementation, we recorded the durations for each of the 7 key steps across 15 patients (Group 1, pre-implementation). We identified areas where lean improvements could be applied. Lean methods that were implemented are shown in Table 1. After lean implementation, we recorded the durations for each of the 7 key steps across 15 patents (Group 2, post-implementation).

We also collected patient demographics including age, gender, body mass index (BMI), modified Japanese Orthopaedic Association (mJOA) score, which delineates the severity of cervical myelopathy, and American Society of Anesthesiologists (ASA) score, which asseses patient comorbidity.

Steps	Description	Lean Improvement Strategies
Transport and Setup	Patient is transported into the OR. ECG monitoring and IV lines are connected.	Preoperative nurses to start PIV in preoperative area
Induction	Patient is administered propofol and intubated with endotracheal tube	A-line placement will be placed via ultrasound guidance as soon as patient is intubated
Lines, Foley and Neuromonitoring	Patient has arterial line, foley, and neuromonitoring wires placed.	Utilize more experienced anesthesia staff, CRNAs, and residents to administer anesthesia for obese or low mJOA patients
Positioning	Patient is flipped into the prone position and secured for the surgery	Expedite transport and positioning by increasing manpower for high risk patients (e.g., obese, low mJOA patients)
Incision Planning	Patient is shaved and has incision site marked. X-ray is obtained to confirm surgical location.	Experienced X-Ray tech and fluoro machine in the OR prior to positioning process
Prep and Drape	Operative area is cleaned with surgical prep and surgeons scrub and drape the sterile field	
Time Out	Confirmation of patient identity and surgical procedure	

Project Evaluation & Impact

- Regarding patient characteristics, there were no differences between the two groups with regards to age (65.1 ± 3.0 vs. 64.3 ± 2.8 years, p=0.86), gender (males: 46.7% vs 53.3%, p=1.00), mJOA score (11.6 ± 1.1 vs. 12.3 ± 0.8, p=0.59), ASA score (2.33 ± 0.2 vs. 2.40 ± 0.1, p=0.75), and BMI (25.6 ± 1.7 vs. 25.9 ± 1.1, p=0.89).
- After the implementation of lean strategies, there was a statistically significant decrease in time of the overall perioperative anesthesia process (88.4 ± 4.7 vs. 76.2 ± 3.2 min, p=0.04). This was driven by significant decreases in the following steps: Transport and Setup (10.4 ± 0.8 vs. 8.0 ± 0.7 min, p= 0.03) and Positioning (20.8 ± 2.1 vs. 15.7 ± 1.3 min, p= 0.046).
- The time of the remaining steps did not significantly differ between Groups 1 and 2. Of note, total time spent in the operating room (i.e., from room entrance to exit) was lower for Group 2 (270.1 ± 14.6 vs. 252.8 ± 14.1 min) but the result was not statistically significant (*p*=0.40).



Next Steps, Dissemination & Lessons Learned

Next Steps:
Lean methodology may be successfully applied to posterior cervical spine surgery whereby improvements in the perioperative anesthetic process is associated with significantly increased OR efficiency. We will apply our changes to other neurosurgical procedures and assess for improvements in OR efficiency.
Dissemination:
Our work has important implications for multiple stakeholders including for clinicians, patients, and hospitals. We identified areas of posterior cervical spinal surgery that are inefficient and implemented strategies for increased efficiency. Broad implementation of these strategies may improve operative workload and hospital revenue.
Lessons Learned:
It is critical to confirm "buy-in" from all involved stakeholders (e.g., perioperative anesthesia staff, nursing staff, radiology technicians, etc.) so that lean implementation is effective.

2018 UCSF Health Improvement Symposium

Implementation and evaluation of a weight-based heparin dosing protocol

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Background

- The gold standard for unfractionated heparin infusions is achieving a therapeutic aPTT at 24 hours
- Prior medication use evaluation data demonstrated room for improvement in achieving time to therapeutic aPTT and appropriate initial bolus when indicated
- A revised, weight-based heparin dosing nomogram was implemented in May 2017
- Safety of anticoagulants is a Joint Commission National Patient Safety Goal, and safety improvements are consistent with UCSF True North pillars
- According to the CDC, the proportion of the US population with obesity continues to rise, necessitating formal strategies for dosing in this patient population

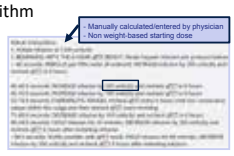
Project Goals

- Implement revised algorithm
- The goal of this study was to evaluate the impact of a revised systemic unfractionated heparin dosing protocol and order set on:
  - Time to therapeutic aPTT
  - Adherence to guideline-recommended dosing

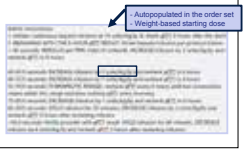
Intervention

- Heparin infusion order sets were consolidated and updated from a fixed dose to a weight-based heparin dosing and titration algorithm

Pre Order Set



Post Order Set

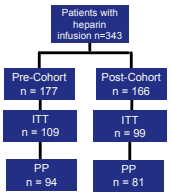


Intervention (cont) and Project Plan

- Default initial doses per guidelines
- Indications required/pre-selected
- Dose cap for obese patients (100 kg)

- Data stratified into two cohorts
  - Pre order set implementation (6/16 – 9/16)
  - Post order set implementation (6/17 – 9/17)
- Outcomes
  - Primary: time to therapeutic aPTT
  - Secondary: % therapeutic at 24 hours
  - Adherence to guideline-recommended dosing
  - Subgroups: outcomes by indication, among obese patients

- Exclusion criteria
  - Heparin infusion < 18 hours
  - Elevated baseline aPTT
  - Heparin started @OSH
  - Pregnant
  - <18 years old
  - Non-standard aPTT range*
  - Antiphospholipid antibody syndrome*
  - Heparin induced thrombocytopenia*
  - Incomplete documentation*
  - Indication: VAD, ECMO*



*Excluded from per protocol analysis
VAD = Ventricular Assist Device
ECMO – Extracorporeal Membrane Oxygenation

ITT= Intention to Treat
PP= Per Protocol

Project Evaluation & Impact

- Time to therapeutic aPTT was similar between groups in intent to treat (ITT) and Per Protocol (PP) analyses
- Significant improvements were demonstrated in process measures in all subgroups

Demographics

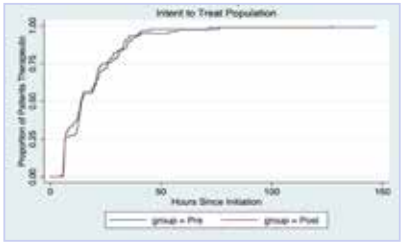
Characteristic	PP Population		ITT Population	
	Pre-cohort (n=94)	Post-cohort (n=81)	Pre-cohort (n=109)	Post-cohort (n=99)
Sex: Male	62 (66%)	46 (59%)	71 (65.1%)	56 (58.3%)
Patient height (cm), mean (SD)	169.9 (10.5)	170.8 (11)	170.3 (10.8)	170.7 (11.3)
Actual body weight (kg), mean (SD)	82.3 (18)	78.2 (20.7)	82.2 (17.9)	77.7 (20.2)
Dosing weight (kg), mean (SD)	81.3 (18.7)	75.6 (18)	79.5 (17.7)	75.6 (17.8)
Indication associated with initial heparin order:				
DVT/PE	43 (46%)*	42 (52%)*	54 (49.5%)^	50 (50.5%)^
Atrial fibrillation w/ high stroke risk	6 (6%)	12 (15%)	6 (5.5%)	14 (14.1%)
High risk of bleeding	19 (20%)	3 (4%)	21 (19.3%)	6 (6.1%)
ACS	14 (15%)	14 (17%)	15 (13.8%)	15 (15.2%)
Mechanical heart valve	2 (2%)	8 (10%)	2 (1.8%)	9 (9.1%)
Vascular thrombolysis	1 (1%)	0 (0%)	0 (0%)	1 (1%)
ECMO/ECLS			1 (0.9%)	1 (1%)
Other	9 (10%)	2 (2%)	10 (9.2%)	3 (3%)
Baseline aPTT level, (median, IQR)	27.7 (24.9, 30.9)	27.6 (25.3, 30.9)	27.5 (24.9, 30.9)	27.5 (25.3, 30.9)

*p-value of 0.001
^p-value of 0.005

Outcome and Process Measures

	ITT Population			PP Population		
All Indications	Pre (n = 109)	Post (n = 99)	p-value	Pre (n = 94)	Post (n = 81)	p-value
Therapeutic aPTT reached ≤ 24h	58.7%	56.6%	0.75	60%	58%	0.84
VTE & ACS Subgroup	Pre (n = 69)	Post (n = 65)	p-value	Pre (n = 57)	Post (n = 56)	p-value
Therapeutic aPTT reached ≤ 24h	52%	55%	0.71	53%	55%	0.77
Initial Dose Appropriate for Indication	43%	86%	<0.001	49%	87%	<0.001
Initial Bolus Ordered	30%	74%	<0.001	35%	73%	<0.001
Rebolus Ordered	6%	68%	<0.001	7%	71%	<0.001

Time to Therapeutic aPTT



Subgroup Analysis: Obese Patients (> 100 kg)

	Pre (n = 12)	Post (n = 8)	p-value
Therapeutic aPTT reached ≤ 24h	33%	62%	0.20
Initial Dose Appropriate for Indication	33%	75%	0.068
Initial Bolus Ordered	17%	50%	0.28
Rebolus Ordered	0%	62%	0.006
Appropriate weight used for infusion	N/A	100%	N/A

Next Steps, Dissemination & Lessons Learned

Conclusions:
A weight-based heparin dosing algorithm did not result in improved time to therapeutic anticoagulation but did demonstrate an increase in guideline-concordant dosing. Subgroup analyses showed a clinically significant improvement in time to therapeutic anticoagulation among obese patients, although in a small population.

Next Steps:
Continue to work with the interprofessional team to determine whether further protocol refinement is needed. Explore the impact of increased bolus dosing on time within therapeutic range. Determine if the auto-population of starting doses by indication impacted outlying dose errors (e.g. 18 units/hour intending 18 units/kg/hour). Further evaluate the protocol's impact in an adequately powered sample of obese patients.

Dissemination:
This study may be repeated in excluded populations or other anticoagulants to determine if similar findings can be applied. House-wide implementation and coordination with infusion pump library update could be scalable to other high-risk updates.

Lessons Learned:
Implementation of a house-wide algorithm can be accomplished with an interprofessional team.

2018 UCSF Health Improvement Symposium

UCSF Health

#UCSFHealthImprove2018

UCSF Health & Graduate Medical Education: Resident & Clinical Fellow Quality Improvement Incentive Projects

Smoking Cessation Screening & Education in the Cardiac Cath lab

Team: Cardiology

Lead Fellows:

Blake Charlton, MD

Jeremy Tietjens, MD

Faculty Mentor:

Krishan Soni, MD

Background

- Tobacco use contributes to the global burden of cardiovascular disease.
  - Prevalence of smoking among Californian Adults was 11.6% in 2014 according to the Behavioral Risk Factor Surveillance System, 1988-2014
- Therefore, reduction of smoking rates are an important aim at both the public health and individual level.
- Systematic screening of patients for tobacco use and provision of counseling and cessation resources for active smokers have been shown to reduce the use of tobacco products.
- UCSF has prioritized tobacco cessation by implementing systematic screening and cessation counseling for adult inpatients.
- Outpatients referred for coronary angiography have significantly higher baseline cardiovascular risk as compared with the general population and therefore would particularly benefit from tobacco screening.
  - However, these patients are not systematically screened for active tobacco use and are rarely offered cessation counseling.

Project Goals

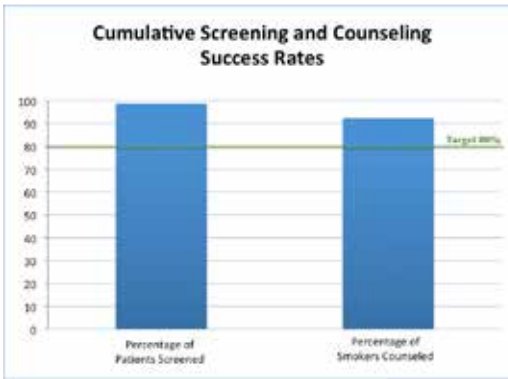
Goal #1: Screen at least **80%** of adult outpatients referred to the UCSF cardiac catheterization lab for coronary angiography for active tobacco use.

Goal #2: Provide at least **80%** of patients who self-identify as active tobacco users with **brief counseling** as to the importance of smoking cessation and **printed resources** for further assistance with cessation.

Project Plan and Intervention(s)

- Integrate tobacco screening & counseling into the daily cath lab workflow.
  - Fellows educated about importance of screening & counseling.
  - Identified tobacco cessation as a departmental priority.
  - Document current tobacco use status into pre-procedure H&P.
  - Aid provider compliance by providing reminder for tobacco use.
  - Provide a reliable mechanism for measuring provider compliance.
- Create standardized tobacco cessation materials to provide smokers.
  - Ensure that all tobacco users are provided with high quality information about cessation resources (pictured right)
  - Standardizing resources is also optimally efficient from workflow perspective.

Project Evaluation & Impact



As shown in the bar graph to the left, our group was successful in meeting the project's prespecified improvement targets. Specifically, we achieved a 98.6% rate of screening outpatients for current smoking and a 92% rate of providing smoking cessation counseling to those patients who screened positive for active smoking – both of which were greater than the 80% target rate for both objectives.

While our group achieved both project goals, our data revealed a surprisingly low prevalence of active smoking in our target patient population. Of 442 patients screened, just 3.2% self-identified as active smokers. Therefore despite high rates of both screening and counseling, a net total of just 13 active smokers received counseling throughout the first 3 quarters of the year.

	1st Quarter	2nd Quarter	3rd Quarter	Totals
Number LHCs	149	139	160	**448**
Number screened	143	139	160	**442**
Number smokers	6	4	4	**14**
Number counseled	6	4	3	**13**

Next Steps, Dissemination & Lessons Learned

Next Steps:
Our immediate next step will be to collect and integrate data from the 4th quarter to ensure our screening and counseling rates remain high. Given the low prevalence of active smokers in our target patient cohort, the crucial next steps will be to determine whether the unexpectedly low number of active smokers to whom counseling was delivered justifies the provider-level workload necessary to continue carrying out the project in future years.

Dissemination:
All outpatient procedures performed at UCSF Medical Center require a pre-procedure H&P, and thus dissemination to other departments and settings could be performed in a relatively straightforward fashion by adapting our SmartPhrase to the respective H&P template.

Lessons Learned:
The most unexpected aspect of our project thus far was the surprisingly low number of active smokers who ultimately received counseling due to the lower than expected smoking prevalence, despite succeeding in our goals of screening and counseling the majority of patients in our target cohort. Potential explanations for this include inaccurate reporting/data collection and/or a real discrepancy between our expected and real-world smoking prevalence. We performed two quality control checks by independently reviewing individual Apex charts during a given month to verify current smoking status using documentation outside the cath lab visit. We found no cases during the two months reviewed in which current smoking was documented in Apex outside the pre-cath H&P. Plausible explanations for a smoking prevalence lower than projected include possible referral bias - outpatients patients referred to our cath lab may be less likely to be active smokers than would be expected based on data published by the Department of Health pertaining to California smoking rates (11.6% in 2014). Additionally, we observed a very high proportion of patients who had been referred for angiography as a component of evaluation for solid-organ transplantation. While we did not formally collect data on this in order to precisely quantify, our estimate is that roughly 1/3 of patients in our target cohort met this criteria. The true smoking prevalence in this subgroup would undoubtedly be 0% as active smoking would preclude transplant candidacy.

UCSF Resident and Clinical Fellow Quality Improvement Incentive Program
in partnership with the 2018 UCSF Health Improvement Symposium

UCSF Health

Acne Wisely

Reducing unnecessary laboratory costs for isotretinoin

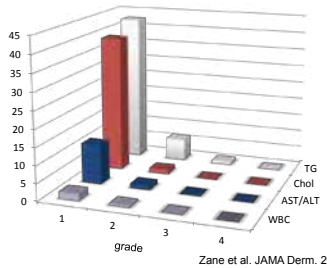
Jason Meyer, MD, PhD
Timothy Schmidt, MD, PhD
Department of Dermatology

Background

Laboratory monitoring is expensive!

True North Pillar: Financial Strength (Lower our costs)

Isotretinoin lab abnormalities: typically mild



Zane et al. JAMA Derm. 2006.

Serious adverse effects are very rare
(case reports only for pancreatitis, hepatitis, agranulocytosis)

Project Goals

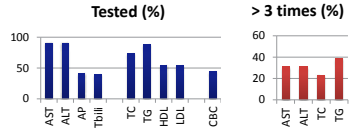
Routine acne patients
No risk factors, normal baseline labs

Recommended tests
Baseline: Fasting lipid panel + ALT
1 or 2 months: Triglycerides + ALT

***Unnecessary* testing (definition):**
Any testing beyond the above

Goal: Reduce unnecessary laboratory costs by 25%

Testing at UCSF Dermatology (baseline)



$11,500 in unnecessary testing ($217/pt)

Project Plan and Intervention(s)

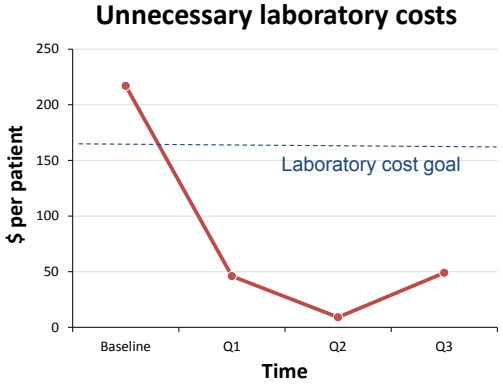
Root causes and barriers to appropriate laboratory testing:
- Non-evidence based recommendations (e.g. package inserts)
- Uncertainty and lack of evidence, education on the topic
- Habit, custom or institutional teaching
- Fear of litigation, defensive medicine
- Patient concerns

Intervention: short lecture presentation with discussion
- Live presentations may have a greater impact on retention and behavior than other modalities
- Comprehensive literature review performed to strengthen evidence basis
- Meetings and consultation with department faculty

Supplementary Intervention: APEX dot phrase for progress notes
- Reminder of monitoring recommendations while saving time documenting
- Presented during lecture

Alternative interventions considered: handout, email reminders, APEX tools

Project Evaluation & Impact



Cost reductions of at least 76% sustained through Q1 – Q3
Certain individual providers were over-represented in excess testing
Random surveys: Recommendations were forgotten

Next Steps, Dissemination & Lessons Learned

Next Steps:
- Systematize reminders (by email, grand round announcements) to maintain cost reductions
- Extend the project to monitoring for other retinoids (acetretin, bexarotene)

Dissemination:
- Literature review and educational lecture to reduce cost of monitoring for other medications

Lessons learned:
- Literature review is important in evaluating the rationale for laboratory monitoring
- Educational interventions can be very effective in reducing laboratory costs
- Reminders are important to maintain good practices

UCSF Resident and Clinical Fellow Quality Improvement Incentive Program
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"Reverse to avoid the adverse:" Improving compliance to evidence-based reversal of non-depolarizing neuromuscular blockade

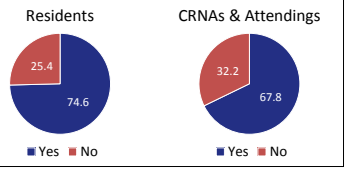
Residents: J. Jeng, L. Xu, J. Cecil, S. Lee, T. Wang, J. Libaw

Faculty: L. Liu, A. Anderson, M. Braehler

Department of Anesthesia and Perioperative Care

Background

- Non-depolarizing neuromuscular blocking drugs (NDNMBDs) are commonly used in ORs
- Evidence-based guidelines to prevent residual neuromuscular blockade include:
  - Quantitative monitor showing TOF-R ≥ 0.9 or
  - Administration of reversal agent (e.g. neostigmine or sugammadex) or
  - Leaving patient intubated
- Important because residual neuromuscular blockade associated with:
  - Postoperative adverse respiratory events (i.e. hypoxia, aspiration, pneumonia)
  - Prolonged PACU stay
  - Unintended ICU admission
  - Increased utilization of resources
- Literature: 20-40% of PACU patients found to have residual neuromuscular blockade
- 2016 UCSF baseline rates of adherence to evidence-based guidelines:



Project Goals

Goal: Increase resident adherence to evidence-based guidelines on preventing residual neuromuscular blockade by **10%**

- 2016 Resident Baseline: **74.6%**
- Resident Goal: 74.6% x 110% = **82.1%**
  - Cumulative rate from July 2017 – June 2018

Project Plan and Intervention(s)

Outcome

- % of patients who received NDNMBDs treated according to evidence-based guidelines:
  - Spontaneous neuromuscular recovery with quantitative TOF ratio ≥ 0.9 prior to extubation
  - Reversal agent administered prior to extubation
  - Patient remained intubated

Inclusion criteria

- Patients ≥ 18 years of age
- Patients who received NDNMBDs

Exclusion criteria

- Patients < 18 years of age
- Patients with a medical contraindication to reversal or where reversal was clinically inappropriate

Interventions

- Departmental education on evidence-based guidelines for monitoring and reversal of NDNMBDs
  - Quarterly presentations at Grand Rounds with performance updates
  - Email reminders with educational materials
  - Reminder pages to anesthesia residents
  - Reference cards on anesthesia carts in operating rooms
- Acquisition of additional quantitative neuromuscular monitors (STIMPOD and E-NMT)

Project Evaluation & Impact

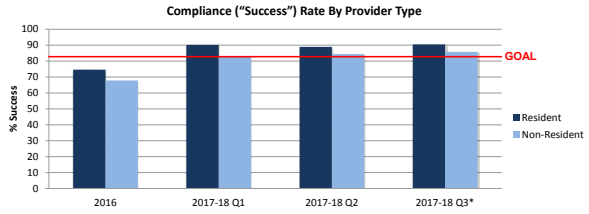


Figure 1. Historical compliance or "success" rate for the year 2016 (prior to onset of QI project) was 74.6% and 67.8% for resident and non-resident (CRNA or attending only) providers, respectively. After the QI project started, residents increased their compliance rate to ~90% in Q1 and have sustained this in subsequent quarters. This is above the target goal of 82.1% for residents (red line). Non-resident providers also increased and maintained their compliance rate at ~83-84%.

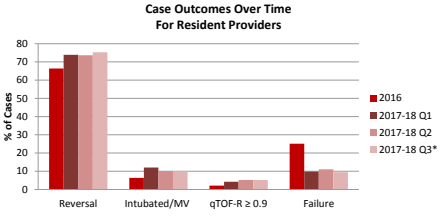


Figure 2. In 2016, for adult patients undergoing GA with use of NDNMBDs, residents gave reversal 66% of the time. Of the remaining patients not reversed, 6.4% remained intubated and 2% did not need reversal as shown by qTOF-R ≥ 0.9. Residents failed to reverse or demonstrate recovery prior to extubation 25% of the time. In 2017-2018, the failure rate decreased to 10% as 1) residents gave reversal in 73-75% of the cases, 2) 10-12% of patients remained intubated, and 3) qTOF-R ≥ 0.9 demonstrated recovery without reversal 5% of the time.

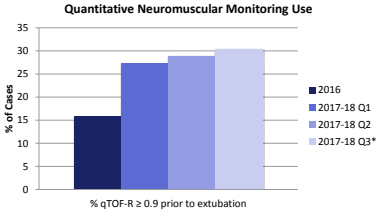


Figure 3. In 2016, quantitative neuromuscular monitoring prior to extubation was only being used in 15% of all resident cases (regardless if patients were given reversal or not). During the 2017-18 QI project, this percentage increased over time from 27% in Q1 to 30% in Q3.

*Only partial quarterly data was available for Q3 2017-18.

Next Steps, Dissemination & Lessons Learned

Next Steps:

- Compare pre and post survey results on provider knowledge and practices regarding monitoring & reversal
- Correlate reversal/no reversal with PACU length of stay
- Correlate reversal/no reversal with PACU desaturation events and supplemental O_2 requirement
- Evaluate cost effectiveness of monitoring & reversal with respect to drug usage and OR time utilization

Dissemination:

- Encourage same practice guidelines in ICU and pediatric populations when using NDNMBDs
- Present QI project and results at national conferences to help spread best practices

Lessons Learned:

- Provider education on evidence-based guidelines is key to changing clinical practice and achieving sustained compliance
- Launching a successful project and attaining buy-in required the coordinated efforts of a multi-disciplinary team, which included administration, faculty, CRNAs, residents, anesthesia techs, and IT support

Language specific discharge instructions

Jessica Paz, Julia Chang, Cortlyn Brown

Mentors: Jacqueline Nemer, Steve Polevoi

UCSF Department of Emergency Medicine

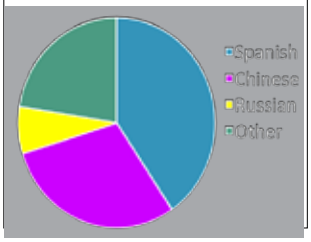
Background

Discharge instructions (DCI) are an essential component of all emergency department (ED) visits. Written discharge instructions allow patients to understand what happened in the ED, the next steps that need to be taken for their health (follow up plan, medications, etc), and the concerning symptoms to prompt a return visit.

8% of UCSF ED patients report that English is not their primary language, yet at the beginning of our QI period, nearly all DCI were given in English.

Studies show that DCIs written in patients' preferred language lead to better compliance and satisfaction.

Figure 1.
Breakdown of most common non-English primary languages spoken by UCSF ED patients



Project Goals

Primary outcome:
Increase the percentage of patients who receive language-specific discharge instructions by 30% among patients with non-English preference.

Numerator= # visits by non-English preferring patients who receive DCI in their preferred language.

Denominator= # visits by non-English preferring patients.

Secondary outcome:
Increase the understanding of DCI during callbacks for emergency department visits.

Project Plan and Intervention(s)

- Residents developed discharge instructions for the 6 most common ED chief complaints in Spanish, Chinese, and Russian (the three most common non-English languages in our patient population).
- DCI were vetted by the UCSF Patient Education Committee, then translated by certified UCSF Medical Translation Services
- DCI were imported into Apex as dotphrases for use by MDs, AHPs
- Performed mid year evaluations for barrier to use of DCI dotphrases and incorporated visual alerts on computers, email reminder

Figure 2. Root cause analysis for barriers to patients receiving language specific DCI

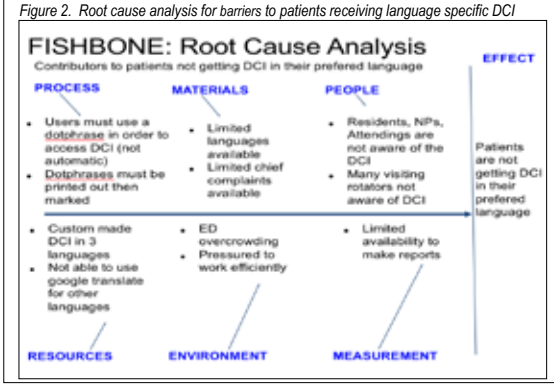


Figure 3. Sample DCI for chest pain, Chinese

Project Evaluation & Impact (First Quarter)

Table 1. Percentage of non-English speaking patients in Q1 that received language specific DCI

Language	Discharge instructions that used language specific DCI	Total N of patients who list this as their primary language	Percentage of language specific DCI used
Russian	2	55	3.6%
Chinese	37	249	14.9%
Spanish	5	572	1.9%
Total	44	572	7.7%

Table 2. Frequency of chief complaint DCIs utilized

Breakdown of top language specific DCI used- chief complaint/language	
BACK PAIN - Russian	2
LACERATION - Chinese	2
SHORTNESS OF BREATH - Chinese	2
BACK PAIN - Chinese	3
ABDOMINAL PAIN - Spanish	5
CHEST PAIN - Chinese	5
HEADACHE - Chinese	5
ABDOMINAL PAIN - Chinese	8
Department visit - Chinese	12

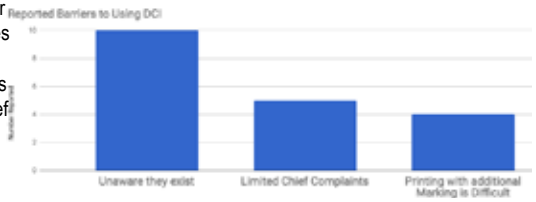
Next Steps, Dissemination & Lessons Learned

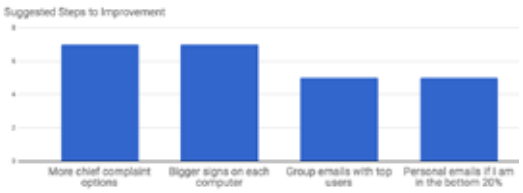
Challenges:
- With unexpected upgrade of EPIC (UCSF Apex), we were unable to continue to track our data by searching for the use of the dotphrases beyond Q1.
- Some users were unaware that the dotphrases existed and others would have liked more chief complaints .

Next Steps:
Encourage residents to continue to use the discharge instructions and develop process in EPIC to track use.

Possibilities to increase awareness:
- Embedding champion like charge nurses or senior residents who can audit and educate in real time.
- Consider using an EPIC notification that the patient might need language specific discharge information.

Figure 4. Results of staff-wide Q1 survey on suggested steps to improvement and perceived barriers to language-specific DCI





Dissemination:
These DCIs will be accessible to all providers using UCSF Apex since these DCIs will be beneficial to other specialties, particularly primary care as there is significant overlap between the ED and primary care chief complaints.

Special Thanks
Dr. Glenn Rosenbluth, Alexis Stanley, and the UCSF Patient Care Fund for their generous support, Tobias Schmelzinger for technical support, and the UCSF Patient Education Materials Committee for their time and input

UCSF Resident and Clinical Fellow Quality Improvement Incentive Program
in partnership with the 2018 UCSF Health Improvement Symposium

Delirium Prevention in General Surgery Patients

Jenny Kaplan and Steve Wisel

Mentor: Ryutaro Hirose

General Surgery

Background

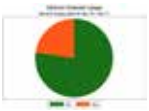
Postoperative patients are at high risk for development of delirium - up to 65% of surgical inpatients and up to 80% of surgical inpatients in the ICU experience some degree of postoperative delirium (1).

Postoperative delirium can lead to a host of complications:

- Safety: Delirium leads to increased rates of falls, pneumonia, and mortality (1).
- Financial: Cognitive impairment and functional decline related to delirium can increase the overall cost per case, increasing utilization of resources such as rehabilitation and physical therapy.
- Systematic Growth: Complications related to delirium increase the overall length of hospital stay.

UCSF nursing units have begun delirium screening. Surgery residents will need to learn how to interpret these tests and respond appropriately in the form of preventative nursing care orders and appropriate workup and management should delirium occur.

General Surgery Pilot Data



- We generated our pilot data while the AWOL screening went into effect (2).
- We developed a delirium prevention orderset and accompanying resident education concurrent with hospital-wide implementation of the NuDESC (3) which is part of Mission Bay ERAS orderset.
- In pilot data from December 2016 – February 2017; 123 general surgery patients were screened for delirium, 23% had the prevention orderset and in only 14% of those patients was the orderset in place at the time of their hospital admission.

1. Chevillon C, et. al. Preoperative Education on Postoperative Delirium, Anxiety, and Knowledge in Pulmonary Thromboendarterectomy Patients. Am J Crit Care. 2015 Mar; 24(2): 164-71.
2. Douglas VC, et. al. The AWOL tool: derivation and validation of a delirium prediction tool. J Hosp Med. 2013 Sep; 8(9): 493-9.
3. Gaudreau JD, et al. Fast, systematic, and continuous delirium assessment in hospitalized patients: the nursing delirium screening scale. J Pain Symtom Manage. 2005 Apr;29(4):368-75.

Project Goals

With development and implementation of the AWOL screening as a reliable predictor of delirium, our goal is to improve physician utilization of delirium prevention measures in at-risk patients

Goal Target State:

- Surgical services to use delirium orderset in 75% of at risk patients (based on clinical suspicion or AWOL score)
- Delirium orderset to be used in a timely fashion so as to be preventative, within 3 hours of unit admission

Project Plan and Intervention(s)

Target Services: acute care surgery, colorectal surgery, general surgery – Dunphy, general surgery-Galante, thoracic surgery, surgical oncology, vascular surgery.

Interventions:

- Monthly emails with reminders and results
- Intern education
- Handouts in all call and work rooms

Barriers:

- No communication around AWOL screening score
- Not all patients who received delirium orderset also were screened for AWOL
- No development of surgery-specific AWOL score
- Many services included in project

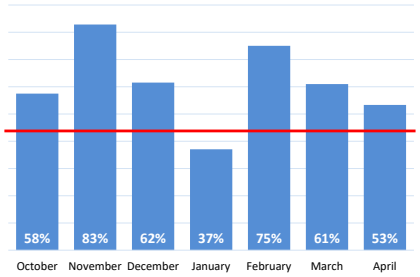
New Goal Identified in February 2018

Given difficulty with implementation new goal of 50% compliance with orderset usage in patients who either screened positive for AWOL or scored positive on NuDESC at any time during admission.

Project Evaluation & Impact

Main outcome measure #1:

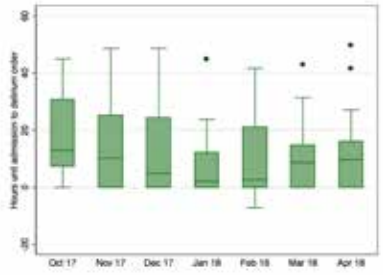
Use of orderset in patients screening AWOL positive or testing positive on NuDESC



Revised goal of 50% met in 6/7 months

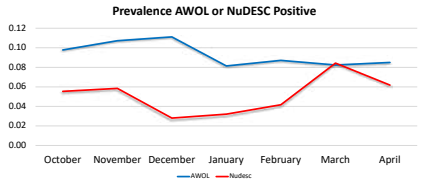
Main outcome measure #2:

Time from unit admission to placement of delirium orderset



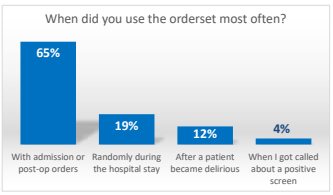
Initial goal of 3 hours not met

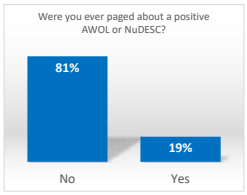
Additional data:

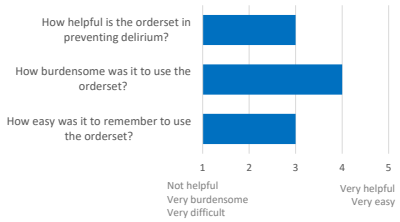


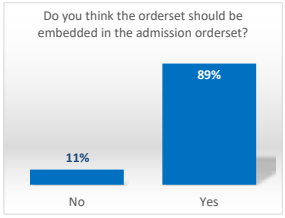
Medical center report: *Includes cardiac, transplant plastic, ambulatory, breast, and endocrine surgery*

Resident survey results:









Next Steps, Dissemination & Lessons Learned

Next Steps:

- Work with department to identify a report writer for general surgery
- Embed delirium order in admission order set
- Work with delirium team on surgery specific AWOL score
- Work with PACU and floor nurses around communication of positive screening scores

Dissemination:

Surgical teams can work together with nurses to streamline paging workflow and identify communication barriers. Creation of care pathways (i.e. colorectal ERAS) is the best way to improve compliance.

Lessons Learned:

Placing the onus on residents to remember to use an orderset when no reminder system is in place, and when the screening tool does not perform well in their target population, is difficult and was unsuccessful.

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Universal Financial Toxicity Screening in Medical Oncology Clinics

Sam Brondfield, Hala Borno, Claire Mulvey, Li Wen Huang, Pelin Cinar

Division of Hematology/Oncology; Helen Diller Family Comprehensive Cancer

Background

Financial toxicity is an increasingly recognized problem for patients receiving cancer treatment and is defined as the "unintended financial consequences of patients embracing expensive treatments."

This is a problem because: Financial toxicity can include the objective financial burden and the subjective financial distress. In the era of precision medicine, the rise in the cost of cancer care may have serious potential effects on the delivery of high-quality, patient-centered care.

Figure 1. *Schematic framework relating severe illness, treatment choice, and health and financial outcomes. Scott Ramsey*

Project Goals

ACGME fellows at the University of California San Francisco rotating in a 1-month immersion block in solid oncology outpatient clinic prospectively performed a three-item physician-initiated verbal screening tool among patients seen for new or follow-up visits. The financial toxicity screening result was documented in the medical record and triggered physician referral to social work if elevated. The cumulative goal for the quality improvement project was to screen 30% of all eligible patients seen over the intervention period.

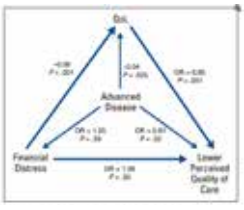

Figure 2. *Financial burden is prevalent among cancer survivors, related to QOL. (Zafar, 2015)*

Project Plan and Intervention(s)

Figure 3. *The screening tool was developed by multiple conversations with the HDFCCC social work team to identify themes that may inform a financial toxicity screening tool.*

Figure 4. *The initial intervention was a dot smart phrase in Apex.*

Figure 5. *The refined intervention became an Apex tab.*

Figure 6. *PDSA cycle we changed from screening all new or established patients to only screening established patients.*

Project Evaluation & Impact

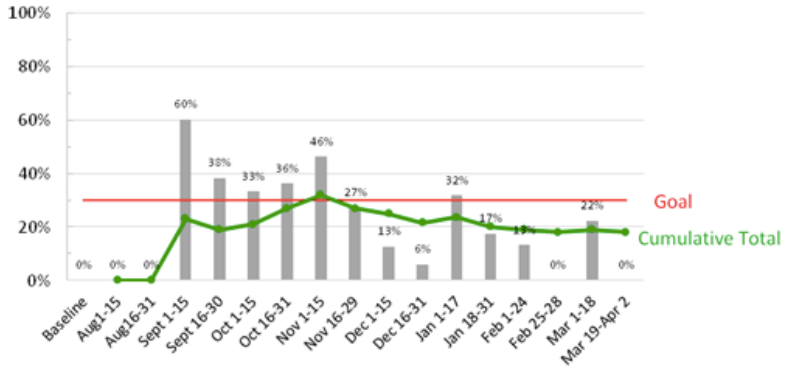

Figure 7. *Participating fellows (N=8) rotated in five disease-specific medical oncology practices (gastrointestinal, thoracic/sarcoma, genitourinary, breast, and melanoma/head and neck) and worked with 26 medical oncology attending physicians. At baseline, 0% of fellows documented financial toxicity measures among patients seen in clinic. At the mid-point of the intervention the cumulative goal was achieved at 32% however at the end of the intervention the screening total decreased to 18%.*

Next Steps, Dissemination & Lessons Learned

Next Steps: Based on qualitative feedback obtained from participating fellows.

- Explore financial toxicity screening by non-fellow clinic staff prior to the clinical encounter.
- Augment provider financial toxicity training in improve provider comfort with this topic.
- Improve financial toxicity screening adherence with continual reminders.

Dissemination:

- Develop institutional best practices for detecting financial toxicity for high cost chronic conditions.

Lessons Learned:

- Fellows felt financial toxicity was an important subject that impacted patients significantly.
- Fellows were generally unfamiliar with financial toxicity and felt uncomfortable discussing it with patients.
- Packed clinic visits and difficulty remembering to screen were significant barriers to effective screening.
- Fellows felt that other clinic staff might be better suited to screen patients for financial toxicity.

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Goals of Care Documentation in Inpatient Palliative Care Consultations

UCSF Health

Brieze Keeley, MD

Jennifer Olenik, MD

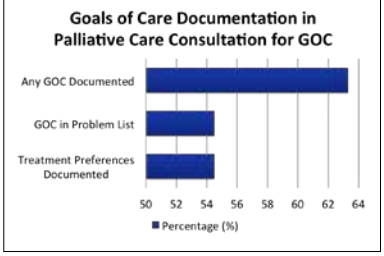
Jessi Humphreys, MD

Laura Schoenherr, MD

Hospice and Palliative Medicine Fellowship

Background

- In June 2017, a baseline analysis of a sample of 20 patients seen by the Palliative Care Service (PCS) over prior 4 months revealed that **55%** were seen for goals of care (GOC) discussions.
- Among patients seen for GOC:
  - **63.3%** had goals documented anywhere in the chart by PCS (e.g., in the note or in the problem list).
  - Only **54.5%** had documentation of overall goals of care (e.g., curative, comfort-focused) and at least one specific treatment preference (e.g., code status, dialysis).



Project Goals

Primary Outcome

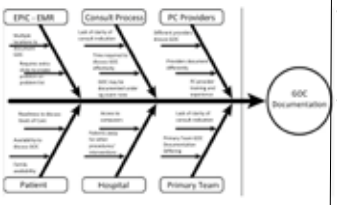
Among palliative care consultations "Advance Care Planning/Goals of Care," who are discharged from UCSF Medical Center at Parnassus between September 1, 2017 and May 31, 2018, HPM fellows will increase the overall percentage of patients **with documentation of GOC and treatment preferences, or an attempt to discuss these topics, in the palliative care consult note from 54% to 80%.**

Secondary Outcome

Among palliative care consultations for "Advance Care Planning/Goals of Care" above, HPM fellows will increase the overall percentage of patients with **dot phrase (.PCSACP) documentation of GOC and treatment preferences in the permanent problem list ("Overview").**

Project Plan and Intervention

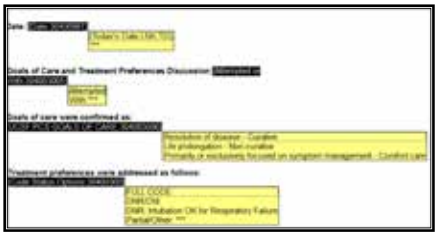
Root Cause Analysis



- PCS providers document goals of care in **varied locations without standardized of content**
- Providers on non-PCS services do not have a standardized way to identify GOC in the EMR
- Intervention **must not increase note-writing burden**

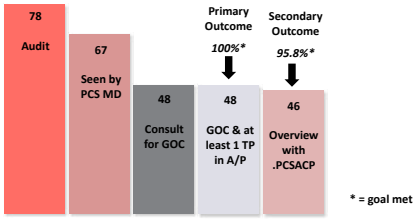
Intervention

- The team **created a dot phrase (below)** to encourage consistent, succinct, and time-saving documentation of GOC and at least one treatment preference
- The project and dot phrase were introduced at **monthly palliative care meetings** and through **monthly emails to the division** to encourage dot phrase use



Project Evaluation & Impact

Example Month: February 2018

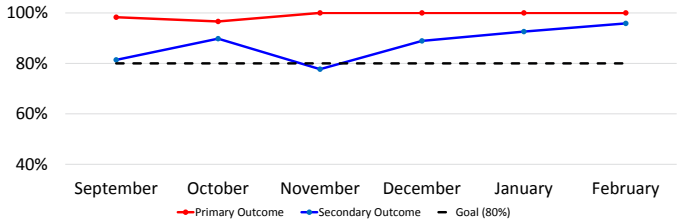


* = goal met

Key Results:

- Surpassed **primary goal of > 80% documentation of GOC and 1+ treatment preference** in each month
- Implementation of dot phrase to centralize and summarize GOC and treatment preferences **increased overall GOC documentation rates**

Monthly Outcomes



Next Steps, Dissemination & Lessons Learned

Next Steps:

1. Improve orientation materials on the ACP dot phrase for residents and fellows rotating on PCS
2. Investigate ways to automatize the use of the ACP dot phrase
3. Incorporate overview of the ACP problem on problem list into ACP Navigator

Dissemination:

1. Submission to the American Academy of Hospice and Palliative Medicine national conference for presentation in Spring 2019
2. Collaborate with non-PCS services at UCSF the ACP dot phrase for improved standardization of GOC documentation

Lessons Learned:

1. MD-focused intervention undervalues work and documentation of PCS team members of other disciplines who lack access to problem list

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#DeleteDelirium: A Internal Medicine Residency Program's Efforts to Reduce In-Hospital Delirium

Carine Davila, MD, Lev Malevanchik, MD, Leslie Suen, MD, Serge Gajic, MD, Janet Chu, MD, Connie Wang, MD, Sharmin Shekarchian, MD, Cary Kraft, MD, Amanda K. Johnson, MD, Katie Raffel, MD, Bradley Monash, MD, Catherine Lau, MD, Stephanie Rogers, MD,
Department of Medicine,
University of California San Francisco

Background

- Delirium is a syndrome that develops acutely & fluctuates, characterized by disturbed attention, awareness, and cognition.
- Delirium is a serious illness which impacts the experience and safety of our patients. It prolongs their length of stay and cost of hospitalization.
- In hospitalized patients, the AWOL and NuDESC tools are used by nurses to screen for delirium risk and active delirium, respectively.
- The delirium orderset (DO), a non-pharmacological delirium pathway, has been implemented at UCSF for patients with positive AWOL and NuDESC scores. This has led to decreased length of stay and improved outcomes.
- However, the DO has been under-utilized for patients on the hospital medicine teaching service.

Project Goals

Primary Goal: to decrease delirium rate and subsequent morbidity for patients with delirium

- **Specific Measure:** For patients who screen (+) for AWOL or NuDESC, increase % who have DO placed to >75% in 3 of 4 quarters from 7/1/2017-6/30/2018
- **Baseline**: From the period of January to June 2017, medicine residents successfully placed the DO on 63% of AWOL- and NuDESC-positive patients during their hospitalizations.

Secondary Goals:

- Improve recognition and management of delirium by internal medicine residents
- Improve outcomes (e.g. decrease length of stay (LOS)) for patients with delirium (NuDESC-positive)

Project Plan and Intervention(s)

Delirium Pathway

Pt admitted to hospital floor → RN calculates AWOL & NuDESC → If +, resident is paged by RN or resident finds score in EMR → Resident orders DO → Care Team works to provide DO

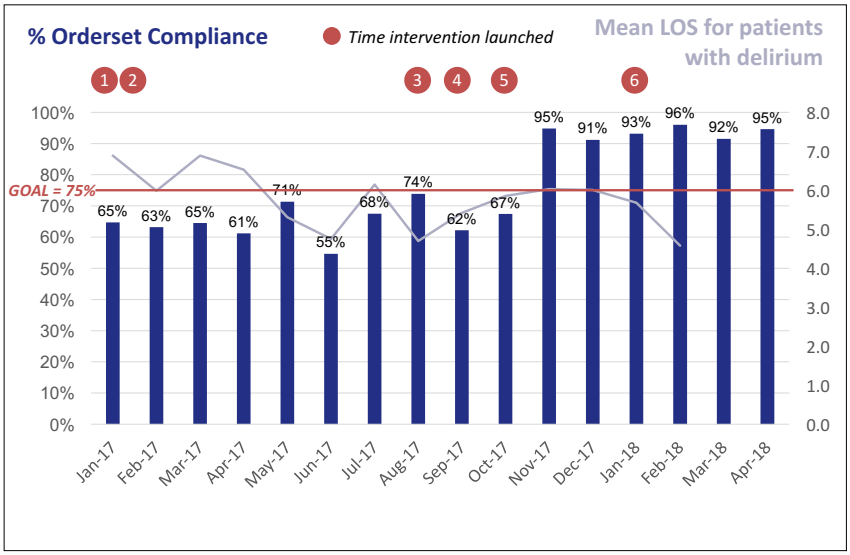
Key Project Interventions

Education	1 Disseminating bimonthly progress dashboards to residents
	2 Resident education at conferences and via email
Tech	3 Adding NuDESC and AWOL scores to EMR to allow for daily checks of all medicine residents' patients
Feedback	4 Directly contacting medicine teams that performed well and poorly to help identify barriers and successes
Outreach	5 Proactively paging residents about patients with delirium
	6 Incorporating paging into existing resident role (Bat)

The Delirium Orderset (DO)

- Notify provider if no BM > 48 hours
- Initiate fall precautions
- Up to chair for all meals, ambulate in halls
- Provide patient with therapeutic activities appropriate for cognitive status
- If no foley, bladder scan x 1; straight cath for > 300cc
- Reorient patient to location and date
- Nursing care bundle – fluids within reach, hearing aids to bedside, close blinds at night, encourage daytime family visitors
- Non-pharmacologic sleep protocol – provide warm drink, relaxing music, eye mask, minimize interruptions between 11pm to 5am

Project Evaluation & Impact



Next Steps, Dissemination & Lessons Learned

Next Steps:
While placement of the DO is an important place to start, it would be interesting to better understand how effectively the individual elements of the DO are being executed for patients with the DO on hospital units.

Dissemination:
The delirium work done by internal medicine residents is also being implemented in the general surgery and urology departments. The delirium working group has broadened efforts to nearly all of the floors of the UCSF Moffitt-Long Hospital. Our work could be included in a how-to guide for other institutions looking to tackle delirium in a similar way.

Lessons Learned:
Tackling delirium reduction is a multidisciplinary effort requiring buy-in from the front-line providers – physicians, nurses, patient care associates, physical and occupational therapists, alike. DO placement is merely one component, but we need to engage all providers to help execute the plan for at-risk or delirious patients to create meaningful improvements.

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Improving Parent Communication Around Time of Infant Delivery and Intensive Care Nursery Admission

Rachael Beckert

Janet Shimotake, Elizabeth Rogers, Kimberly Johnston, and the rest of the ICN UBLT

Neonatology Fellows

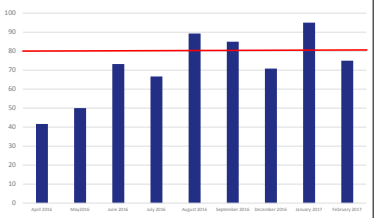
Background

Parents of infants taken to the Intensive Care Nursery (ICN) after delivery often do not have an understanding of the status of their infant, or where their infant is located in the hospital. This creates a poor patient experience. Often, the mother is still recovering from surgery, and the father is overwhelmed with caring for both his wife and child, so they cannot adequately retain spoken information provided by the ICN staff. This problem has the greatest effect on the first day of an infant's hospitalization, before the parents have had the chance to visit the ICN, or attend rounds.

Project Goals

Increase the percentage of families receiving written communication from the ICN team on the medical status of their baby from from 0% to 80% or greater by June 30, 2018.

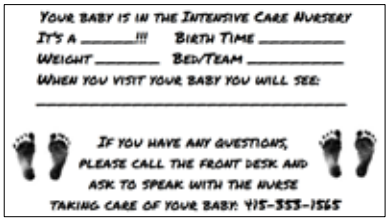
According to Press Ganey survey, prior to our intervention, we have only provided adequate (>80%) information about the baby's medical condition at birth for 3 out of the last 11 months (see graph below).



** October and November 2016 surveys were removed due to delayed in distribution and low responder rate

Project Plan and Intervention

Provide a paper "half sheet" with written status of baby, location of baby in ICN, ICN contact information, and pertinent birth information that parents may refer to.

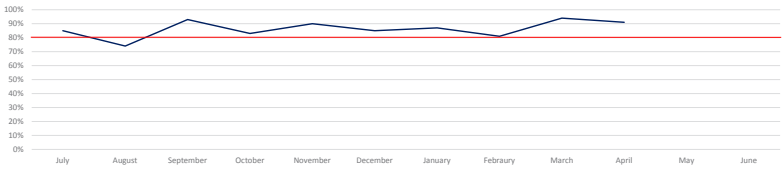


A member of the ICN team will return to parents' room to provide further updates on infant multiple times through stabilization period of infant

We predict these interventions will help the parents feel more informed on the status of their infant and they will have a better patient experience.

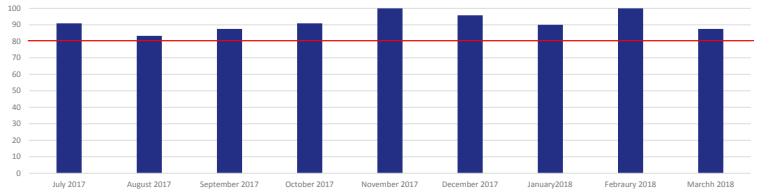
Project Evaluation & Impact

Percentage of Families Receiving Written Communication from ICN Team on Medical Status of Their Baby at Time of Delivery



We have provided half sheets to >80% of patients admitted to the ICN at time of delivery for 9 out of the past 10 months. Cumulatively, 87% of infants admitted to the ICN since July 1, 2017 have received half sheets.

Press Ganey Scores Post Intervention
Information About Baby's Medical Condition at Birth



According to our Press Ganey Scores we provided adequate (>80%) information about baby's medical condition at birth for 100% of the last 9 months since starting our intervention

Next Steps, Dissemination & Lessons Learned

Next Steps:
We are going to continue giving out written communication, in the same form as the half sheet shown above, for any infant admitted to the ICN at time of delivery.

Dissemination:
Written communication could be given to parents of children in the hospital for treatment plans, discharge requirements, or other complicated medical information.

Lessons Learned:
Good communication strongly impacts parent experience in the ICN and small interventions can make a big difference.

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Assessment and Improvement of Neurosurgical Drain Documentation

Derek Southwell
Ramin Morshed
Noah Nichols
Sujatha Sankaran
Dept. of Neurological Surgery

Background

Neurosurgical patients frequently undergo drain placement for management of post-operative fluid collections or removal of cerebrospinal fluid. Without close monitoring, neurosurgical drains may be left in place for longer than necessary. This may in fact pose harm to the patient as drains are foreign objects associated with increased infection risk, prolonged length of stay in higher level-of-care nursing units, and decreased patient comfort and mobility. Together, these factors impact quality and safety, as well as patient experience.

At the outset of this project, there were no standards for assessing and then documenting 1) length of drain application (i.e. duration of ongoing drain use) and 2) daily requirement/indication for continued drainage.

Project Goals

Our goal was to determine and improve upon the rate of drain documentation in resident progress notes.

This included:

1)The presence of drains (including number of drains and drain output)

2) The indication/requirement for ongoing drainage

Project Plan and Intervention

Providers manage a multitude of postoperative treatment factors, of which drain management if an essential component. Without a simple method for identifying patients undergoing drainage, nor a trigger/prompt for documenting drainage, providers may not reliably assess and document drain presence/indication for drainage .

In part, these problems exist because we lacked a charting method that allows providers to easily and remotely identify which patients are undergoing drainage. Additionally, we lack a method for prompting providers to document drainage on a daily basis.

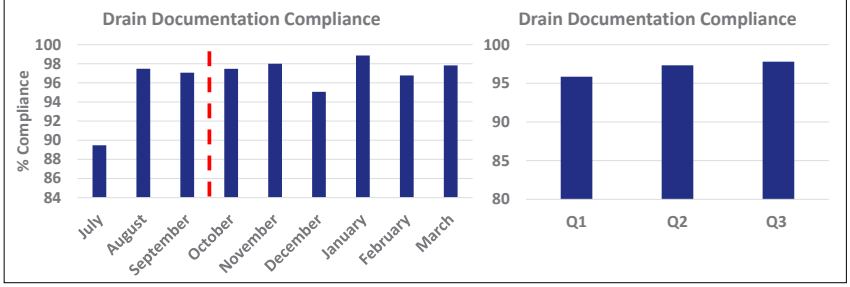
We hypothesized that by increasing daily drain documentation and developing a drain-identifier within the electronic medical record, we would improve the reliability of drain assessment by care providers, and thereby achieve a secondary reduction of unnecessarily prolonged drain use.

Our interventions included 1) modification of the Apex Patient List to include a column that denotes presence of a drain, which allows care providers to quickly and remotely identify which patients are undergoing drainage, and, 2) frequent verbal reinforcement and assessment of drain documentation compliance within the neurosurgical service.

Project Evaluation & Impact

Neuro Drain Column:
- Identifies patients with drains as well as drain duration
- Part of daily rounding list to help quickly identify patients with a drain
- Implemented Oct 2017 with drain documentation compliance quantified starting July 2017 until present

Drain Documentation Compliance:
- Compliance appeared to increase steadily over sequential quarters
- Compliance also noted to be higher after implementation of the Apex Drain Column



Next Steps, Dissemination & Lessons Learned

Next Steps:
We will continue to assess drain documentation compliance and standardize the use of the Apex Patient List 'drain' column. In an effort to reduce unnecessary drain use, we will begin to quantify length of drain application for different surgical procedures, and attempt to develop standards for length of drain application.

Dissemination:
Our intervention, the Apex Patient List drain column, can be adapted and incorporated into Patient Lists used by other services.

Lessons Learned:
Prior to our intervention, drain documentation compliance was relatively high. While our efforts appear to have improved compliance, our experience indicates the importance of the Gap Analysis.

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POLST: Quality Improvement Initiative to Enhance Advance Care Planning and Transitions in Care

Jeremy A. Tanner, Jessamyn Conell-Price, Brian Sauer, Thomas Ragole, Maulik P. Shah, Vanja C. Douglas

Neurology

Background

- ~1/3 of elderly and seriously ill patients lack advance directives[1]
- Only ~1/5 have such documents readily accessible to providers[2]
- Improving goals of care discussions, documentation, and accessibility can ensure patients' wishes are met
- Proposed as a quality metric for inpatient neurologic care[3]
- **Physician Orders for Life-Sustaining Treatment (POLST)**:
  - Medical form enabling patients to communicate their preferred medical treatments
  - Transforms patients' wishes into actionable physician orders
  - Transfers between facilities and applies in ALL settings

Project Goals

Target

- 75% of patients discharged from neurology services who are not "Full Code" have POLST forms completed and uploaded to their medical record

Status Quo

- Only 26% of patient discharged from neurology services had POLST forms completed and uploaded despite "code status" orders reflecting wishes against interventions
- Cases of patients inappropriately receiving emergency CPR against their wishes on re-presentation due to lack of accessible POLST form at time of initial discharge

Project Plan and Intervention

Preparation

1) Surveyed residents, nursing, and staff to identify baseline knowledge and perceptions
2) Outlined status quo workflow for completing and uploading POLST
3) Engaged unit and department leaders to identify gaps and opportunities
4) Strategized approach with field experts

Systems

1) Created and implemented a streamlined workflow with interdisciplinary team
2) Outlined team approach with fail-safes
3) Ensured accessible forms
4) Included reminders in note templates
5) Added to discharge checklist for multidisciplinary rounds

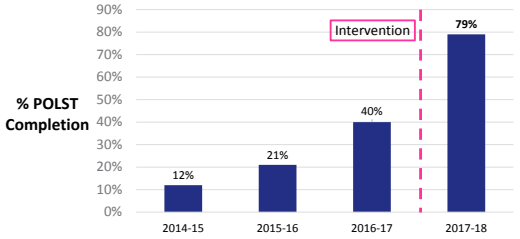
Education

1) Resident education via conference presentation, handouts, and email
2) Nursing and staff education via staff meeting presentations, handouts, and email
3) Created instructions for EMR resources
4) Informational flyers on neurology units
5) Bimonthly email reminders

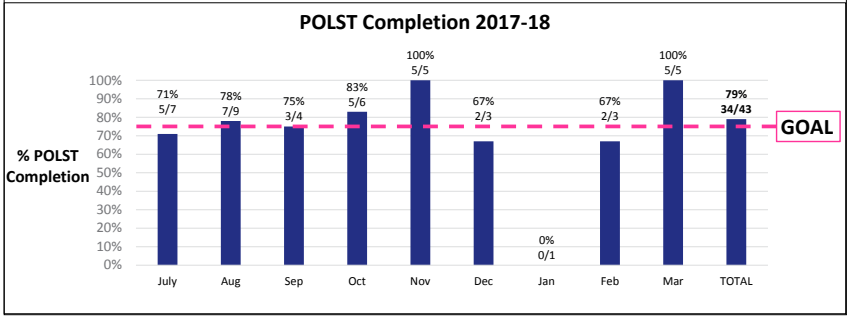
Evaluation

1) Created EMR report to tract measurements for all patients discharged from neurology units
2) Provided bimonthly results dashboard to teams
3) Shared positive public announcements for teams that surpassed goal
4) Results posted on neurology unit boards

Project Evaluation & Impact



- Post-intervention: 79% of patients who were not "Full Code" at discharge had POLST forms completed
- Significant improvement from pre-intervention 26% POLST completion ($p < 0.001$)



Next Steps, Dissemination & Lessons Learned

Next Steps:

- Design system to ensure sustainability including positive reinforcement and education

Dissemination:

- Creates an interdisciplinary model that can be applied to other inpatient units

Conclusions:

- Targeted educational and system-level interventions can improve advance care planning and transitions in care to promote treatment aligned with patients' wishes
- Interdisciplinary approach critical to creating and promoting a successful system change

References:
1. Silveira MJ, Kim SY, Langa KM. Advance directives and outcomes of surrogate decision making before death. N Engl J Med. 2010;362(13):1211-1218.
2. Wilson CJ, Newman J, Tapper S, et al. Multiple locations of advance care planning documentation in an electronic health record: Are they easy to find? J Palliat Med. 2013;16(9):1089-1094.
3. Josephson S, Ferro J, Cohen A, Webb A, Lee E, Vespa P. Quality improvement in neurology: Inpatient and emergency care quality measure set. Neurology. 2017;89(7):730-735.

UCSF Resident and Clinical Fellow Quality Improvement Incentive Program
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Improving Inpatient to Outpatient Follow-up for Ophthalmology Consults at Parnassus

Catherine Sun, MD

Ophthalmology Residency

Background

Inpatients seen for ophthalmology consultation are not always seen for their recommended follow-up in ophthalmology outpatient clinics following discharge. It is important to ensure that patients with serious ophthalmic conditions that can be vision-threatening are not lost-to-follow-up.

Between 3/1/17-3/28/17, 33 inpatient ophthalmology consults were seen at Moffitt-Long Hospitals.

•Of the 16 patients whom we recommended outpatient follow-up and who did not have an existing non-UCSF eye provider, 5 (31%) had scheduled appointments listed for ophthalmology clinic as of 4/7/17.

•Of those 5 patients, 2 (33%) patients no-showed and were rescheduled, and 1 patient had follow-up scheduled in the near future (after review date of 4/7/17).

While these numbers are only representative of one month, it appears that there is room for improvement in terms of scheduling follow-up and increasing outpatient follow-up adherence.

Project Goals

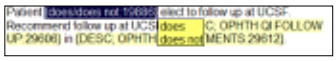
Residents will increase the outpatient follow-up adherence from **33% to 50% for 3-out-of-4 quarters** for Moffitt-Long inpatients who were seen as ophthalmology consults and had recommended outpatient follow-up scheduled in ophthalmology clinic.

Project Plan and Intervention(s)

Factors that may contribute to low outpatient follow-up include difficulty scheduling appointments, insurance coverage issues and patient no-show. Barriers to scheduling a follow-up appointment include lack of communication between the primary team and ophthalmology consult resident, and/or between the ophthalmology consult resident and the ophthalmology scheduling staff. In patients who no-show for their appointment, this may be due to lack of reminders, difficulty with transportation or other unidentified reasons.

We reviewed and updated our consult note template with clearer instructions regarding recommended outpatient follow-up with pull-down menus. These changes were incorporated into a public smartphrase called **.ophthofollowup** (see below) that we incorporated into all of our consult notes on 7/28/17.

1)



2)

3)

4) The patients who elected to follow-up at UCSF autopopulated an Epic report (**Ophthalmology QI REP0066557**) that could be accessed by our support staff to help schedule appointments. Residents also sent Epic messages to our scheduling staff about follow-up appointments.

This QI report that we created and fine-tuned with the help of the EHR Reporting team also allowed us to better track patient follow-up. It provided information regarding:

- Next ophthalmology/optometry clinic visit date
- Type of ophthalmology/optometry clinic
- Visit status (scheduled, completed, no showed, cancelled)

Project Evaluation & Impact

	Quarter 1 (8/2017-10/2017)	Quarter 2 (10/2017-1/2018)	Quarter 3 (1/2018-4/2018)
Number of Consults seen	47	126	87
No. of scheduled outpatient appointments at UCSF ophthalmology	33	76	62
No. appts that occurred*	32	64	60
No. of completed appts*	**27 (84%)**	**48 (75%)**	**37 (62%)**
No. of no shows*	5 (16%)	12 (19%)	19 (32%)
No. of cancelled appts*	0 (0%)	4 (6%)	4 (6%)

*Of all the appointments that occurred at the time the report was run at the end of each quarter

Met goal of >50% outpatient follow-up adherence for 3 out of 4 quarters!

Next Steps, Dissemination & Lessons Learned

Next Steps:
- Better utilization of the Epic report to send patient reminders about appointments
- Trying to reduce the extra step of sending Epic messages to scheduling staff to schedule follow-up

Dissemination:
- Creating a smartphrase for follow-up that autopopulates into a report that can be tracked can be utilized by many consult services.

Lessons Learned:
- Tracking patient follow-up is the first step to improving adherence

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Reducing Discharge Opioid Prescriptions after Orthopaedic Surgery

Trevor Grace, MD; Patrick Curran, MD; Bobby Tay, MD; Mohammad Diab, MD; Erik Hansen, MD

UCSF Department of Orthopaedic Surgery

Background

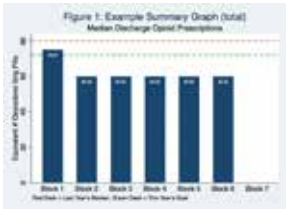
- The U.S. is currently in an opioid epidemic, which has been a focus of recent legislation and media attention
- Unfortunately, opioids prescribed after surgery are common sources for misuse and diversion, and may be a significant contributor to the opioid crisis
- Musculoskeletal is known to be more painful than other procedures, and Orthopaedic Surgeons thus hold an important responsibility to curb excessive opioid prescriptions

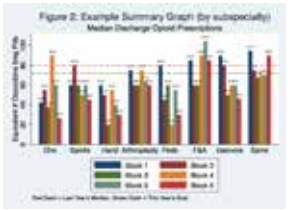
Project Goals

- The goal of this QI initiative is to promote judicious and standardized prescribing practices by reducing the number of opioids prescribed by our department
- Specifically, we sought to decrease the median discharge opioid prescription by 10% compared to the 2016-2017 academic year

Project Plan and Intervention(s)

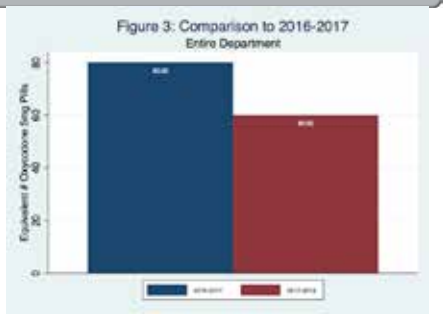
- We performed continuous quantification and monitoring of discharge opioid prescriptions provided to Orthopaedic inpatients being discharged by Orthopaedic Residents, Nurse Practitioners, or Physician's Assistants at UCSF
- After each rotation, summary graphs (Figs 1-2) would be emailed to the entire Orthopaedic department detailing the median discharge opioid prescription provided for that rotation, and comparing it to the prior year's median and the goal
- Encouraging tips, techniques, and reminders were included with each email to promote judicious prescription practices

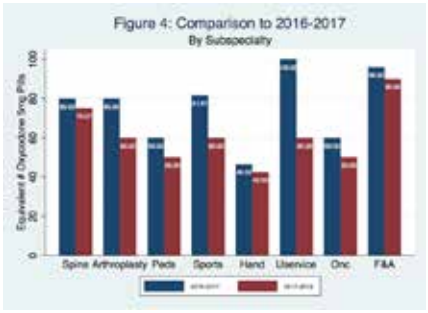




Project Evaluation & Impact

- We observed a substantial decrease in the median discharge opioid prescription across the entire orthopaedic department in the 2017-2018 academic year, as compared to the 2016-2017 academic year (Fig 3)
- This decrease was observed in each Orthopaedic subspecialty (Fig 4)





Next Steps, Dissemination & Lessons Learned

Next Steps:
Analyze post-discharge data including refill rates within 0 and 30 days after surgery to gauge the effect of reduced opioid prescriptions
Implement an order set to further standardize discharge prescription regimens in each subspecialty
Continue quantification and monitoring of discharge opioid prescriptions as means to promote judicious prescription practices

Dissemination:
Periodic notifications of discharge prescription quantities could be provided to each department or even each provider to promote transparency
The Electronic Medical Record (EMR) could automate discharge prescription quantities and notify providers if they exceed recommended regimens

Lessons Learned:
The most valuable lesson we learned from this project is the importance of teamwork and collaboration in working toward a collective goal. We had multiple meetings to openly discuss strategies, ideas, and directions to take in order for us to achieve our target. These discussions were invaluable in the success of our Quality Improvement project this year.

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Head and Neck Surgery Complex Discharge Coordination

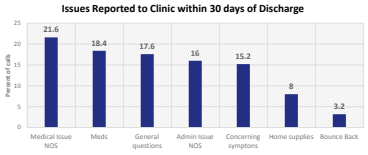
Sean Alemi, MD; Elizabeth Cedars, MD; Molly Naunheim, MD; Conor McLaughlin, MD; Samantha Kahn, Cherie Adrian RN, MSN, OCN

Otolaryngology – Head and Neck Surgery

Background

UCSF as an institution aims to achieve zero harm and continually improve patient care. Head and Neck Cancer patient discharges after free-flap surgery are complex, requiring coordination of equipment and home health services, as well as patient understanding and support. However, there are concerns about patient safety at discharge: patients call after discharge with many issues, including confusion about wound care and lack of appropriate supplies, and can have subsequent ED visits or readmissions.

- OHNS service readmitted **11.96%** of its patients within 30 days of discharge from July 2016 – March 2017 (ReDash).
- The average length of stay for the H&N service is **6.41 days** for YTD as of Jan 2017 (Svcline dash), with 7 medically unnecessary days of inpatient care per week due to discharge delays (1 wk resident tracking).
- Outpatient clinic RN receives **20.8** post-operative issues/day (1 wk RN tracking). 47.2% of issues are a result of medication issues, general questions, home supplies, and unplanned medical care.



Project Goals

- From July 1 2017 – June 30 2018:
  - Reduce number of post-op issues managed by outpatient RN by 20%
  - Reduce readmissions rate to be no more than 11.6% to align with UCSF target.
  - Maintain or reduce current average length of stay and medically unnecessary inpatient days
  - ***Process measure: 80% compliance with intervention***

Project Plan and Intervention(s)

Our gap analysis revealed the following areas as potential contributors to our current state:

- Medication Issues: conflict between national initiative to reduce pain meds and patient need; unknown pain med requirements; drug not a covered benefit and requires further authorization; patients do not leave hospital with medications in hand
- General Questions: different hospitalization experiences for every patient; different needs with different discharge instructions; patients don't know what is normal after discharge; information is too much and nonstandard = patient confusion, forgetful, not relevant at time
- Home supplies: patients don't have DME they need upon discharge; insurance doesn't cover DME; no access to supplies they need in their community
- Bounce back: unanticipated medical problems; inability to tolerate PO; poor pain control; lack of understanding of normal post-op course; lack of supplies in their community/outpatient

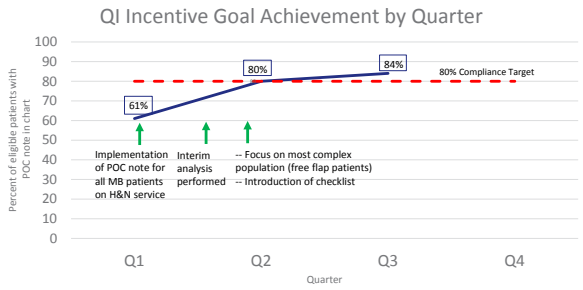
After discussion with residents, attendings, and the UBLT, the planned intervention entailed:
Standardized communication tool in the form of a "Plan of Care" note placed by primary team on transfer from ICU to floor (usually POD2) for all Mission Bay free flap patients. Includes checklist of the following information:

- Anticipated discharge destination
- Wound care
- Anticipated discharge diet
- Anticipated home equipment needs
- Anticipated home care
- RN teaching needs
- Outpatient follow-up needs

The goal is to improve communication such that all team members have an understanding and early awareness of the discharge plan; provide consistent patient and family teaching throughout admission; and enable outpatient team to reference the anticipated plan after discharge.

Our resident incentive goal consisted of the following process measure:
Use of the communication tool in at least 80% of Mission Bay free flap patient care episodes between July 1 2017 – June 30 2018.

Project Evaluation & Impact



- Readmissions: **7.5%** FY2018 TD (ReDash, OHNS MB units A5, A6).
- LOS: **5.06 days** (Svcline dash, Head & Neck Surg)
- Outpatient team tracking of calls and resident assessment of medically unnecessary days pending.

Next Steps, Dissemination & Lessons Learned

Next Steps:
-Assess utility and ease of use from perspective of care team (attendings, residents, PT, OT, SLP, case management), and modify as needed
-Incorporate information contained in note into standardized pathway currently being developed
-Assess outpatient tracking of calls to identify areas of continued care breakdown and consider additional interventions to improve understanding and care

Dissemination:
Incorporation of a system of documentation for early coordination of care during admission could be performed by other services, with modification of checklist to address individual service needs

Lessons Learned:
Improvement is best implemented with involvement of multiple people rather than reliance on a single individual to achieve a task; Communication continues to be an area of improvement that can significantly impact patient care.

UCSF Resident and Clinical Fellow Quality Improvement Incentive Program
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Reducing Perioperative Costs: Parental Presence Induction Gowns

Team Members

Denise Chang, M.D.
Masood Memarzadeh, M.D.
Jina Sinskey, M.D.
Marla Ferschl, M.D.
Pediatric Anesthesia Fellowship

Background

- Anxiety-reducing strategies surrounding anesthesia in pediatric patients is important and improves patient experience.
- Historically, this was accomplished with pharmacologic agents, which have undesirable side effects including delayed emergence and prolonged PACU stay.
- A promising alternative strategy to reduce pediatric preoperative anxiety is parental presence induction during anesthesia, where a familiar adult stays with the child until he or she is completely asleep, thereby reducing stranger anxiety.
- Approximately 80% of scheduled pediatric OR cases involve parental presence on induction.
- Procedurally, parents wear a disposable protective suit (bunny suit) over their street clothes and a bouffant hat.
- However, these bunny suits are quite expensive, with a cost of $1.12/suit. In addition, these suits are not gender-sensitive or culturally sensitive.

Project Goals

- We aim to reduce spending on protective garments for family members by 10% cumulatively over FY17.
- As pediatric anesthesia practice has changed, more and more parents are invited back into the operating room with their child and therefore must wear appropriate covering for the sterile environment.
- Although the number of bunny suits used per year has increased dramatically over the past 5 years, the cost impact of this change has not been analyzed.

Project Plan and Intervention(s)

1. Determine baseline levels of bunny suit usage over a two week period in September 2017, extrapolating this data to approximate number of suits used annually, and annual cost.
2. Survey other major pediatric surgical centers who regularly invite parents into their ORs for the induction of anesthesia to determine what alternatives to the bunny suits exist.
3. Compare pricing for different options, and propose a new garment that is satisfactory and cost effective to the pediatric OR committee for evaluation and approval prior to implementation.
4. Purchase and roll out cost effective parental presence induction gowns.
5. Determine post-intervention parental presence induction gown usage over a two week period and extrapolate cost savings.

"Bunny suit"


Covered hood


"Blue smock"

Project Evaluation & Impact

1. Average baseline bunny suit usage (determined over two week period in Oct 2017): 11 gowns/day. Annual cost of bunny suits = $4,496 (11 gowns/day x $1.12/gown x 365 days).
2. Survey sent nation-wide to 21 major pediatric surgical centers, with 11 responses – Most centers that utilize parental presence induction utilized bunny suits.

3. Selected "blue smock" protective gown (pull over, fluid-resistant, accommodates wide range of height/weight, dresses/skirts). Cost efficient at $0.55/gown.
4. Approved by perioperative OR nursing committee with formal roll out starting 4/2/2018 with emails to perioperative nursing staff and anesthesia providers.
5. Post-roll out blue smock usage at 6 gowns/day and bunny suits at 5 gowns/day, likely due to inadequate dissemination of roll-out information and concerns raised from intraoperative OR nursing regarding inadequate posterior coverage of blue smocks. See Figure 1 for projected cost savings (28% annual savings).

Figure 1. Projected Annual Costs of Parental Presence Induction Gowns

Next Steps, Dissemination & Lessons Learned

Next Steps:
- Develop new proposal for gowns given OR nursing concerns regarding inadequate posterior coverage of smocks.
- Discuss roll-out of newly proposed gowns with OR nursing staff to ensure agreement.
- Roll out newly proposed gown with emails and flyers in the preoperative areas.

Dissemination:
- This improvement is unique to pediatric anesthesiology where parental presence on induction of anesthesia is desired.

Lessons Learned:
- We learned the importance of getting "buy-in" from OR nursing staff at the ground level for the proposed changes, despite having received approval from the OR nursing staff leadership.

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Improving Detection & Treatment Of Post-Cardiac Catheterization Vascular Occlusion Complications

Fatemat Hassan, MD, Anyir Hsieh, MD, Christiana Tai, MD, Diwakar Turaga, MD, PhD, Samuel Keller, MD, Phillip Moore, MD

Pediatric Cardiology Fellowship Program

Background

True north Pillar:

Quality and Safety
(Achieve zero harm and continually improve patient care)

Femoral arterial and/or venous occlusion is a common complication following cardiac catheterization with incidence rates ranging from 1-9% (Glatz et al 2013). Risk factors include small patient size, large sheath size, history of repeated femoral access and duration of cardiac catheterization.

Patients with single ventricle physiology who require multiple cardiac catheterizations and surgeries are particularly at risk for development of occlusions. Furthermore, If they develop occlusions, they may be subjected to riskier future procedures, such as jugular venous access or transhepatic access. Maintenance of vessel patency is also needed for central access for future surgeries, ECLS, hemodialysis, and transplant, which they may require in the future. Even if future central access is not required, there may be long-term effects of femoral venous and arterial occlusion on limb growth and development of claudication and peripheral vascular disease.

If femoral venous or arterial occlusion is promptly diagnosed and treated, vessel patency may be salvaged and maintained. Currently at UCSF, vascular occlusions are not consistently documented, imaged or treated. We hope to implement a protocol which streamlines and standardizes our approach to post-cardiac catheterization femoral vessel occlusion in order to maintain vessel patency for our patients.

Current Conditions

Although post-catheterization occlusion is common, it is poorly documented with only one case recorded in 2016 and four in 2015. We know of 3 patients who required Broviac line placement in the CICU due to lack of femoral venous access following cardiac catheterization or prior femoral line placement. There is little data about the patients who are discharged home following cardiac catheterization.

Project Goals

- **Identifying and initiating treatment of vascular complications post-cardiac catheterization within 12 hours of the procedure in 75% of the cases.**
- Fellows will promptly identify and treat patients with absent/decreased pulses or venous congestion after cardiac catheterization based on clinical exam +/- vascular ultrasound and initiating anti-coagulation therapy within 12 hours after the cardiac catheterization.
- Management will be based on a protocol designed and proposed jointly by cardiology and hematology.

Project Plan and Intervention(s)

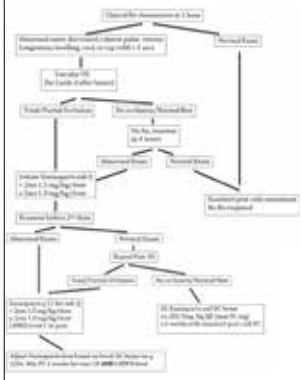
Lower limb pulses, perfusion and congestion are examined immediately following cardiac catheterization and again in 4-6 hours by a physician. In addition, bedside nurses perform neurovascular checks at standardized intervals. If there is a concern for weak/absent pulse or venous congestion, the patient is usually treated with heparin or Lovenox. Some patients may also undergo vascular ultrasound to confirm occlusion prior to starting anticoagulation. The duration of treatment is variable from a few hours to a few months and usually dictated by clinical symptoms. There is inconsistency in obtaining follow-up vascular ultrasound to demonstrate complete resolution of occlusion.

Gap Analysis/Barriers:

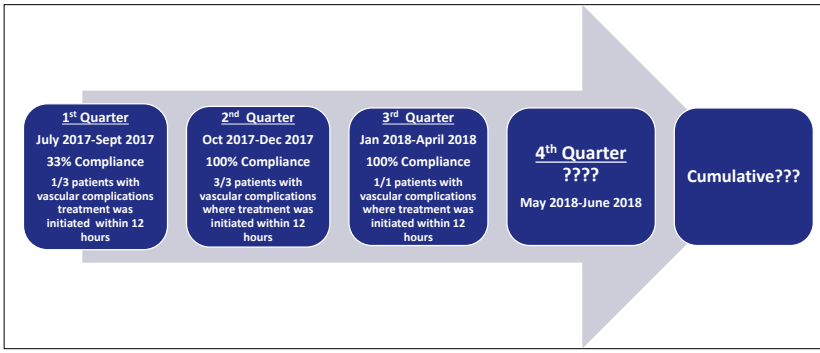
- Difficulty of ordering vascular ultrasounds at the Mission Bay campus especially during weekends and after hours.
- Vascular occlusion is generally diagnosed following completion and documentation of the cardiac catheterization. Attendings need to take an extra step to addend already completed notes if occlusion develops.
- There is significant treatment variation between providers in terms of threshold to treat, duration of treatment, and follow-up.
- Follow-up vascular ultrasounds cannot be obtained as an outpatient at the Mission Bay Campus, requiring patients to go to Parnassus. (may be especially difficult to obtain for those who live far from San Francisco and do not have local access to vascular ultrasounds).
- There is lack of follow-up with patients who are referred to our institution from outside providers with regard to duration treatment and resolution of occlusion.

Interventions:

- Initiated pulse checks one hour after sheath pull by the cardiology fellow, attending or NP and initiating work-up at that point.
- New protocol for vascular occlusion management was distributed to the various units involved in the management of these patients (PACU, ICN, CTCU, PCICU, PICU)



Project Evaluation & Impact



Next Steps, Dissemination & Lessons Learned

Next Steps:

Lower limb vascular imaging on all patients after cardiac catheterization
1- To identify the true incidence of vascular complications.
2- Treat more patients in an attempt to decrease the number of cardiac patients that struggle due to lack of central access for monitoring or medications. Especially during major cardiac procedures.

Dissemination:

Hoping to disseminate the protocol to other services at Benioff Children's Hospital that use frequent femoral access like the PICU and PCICI.

Lessons Learned:

We were able to employ the one hour post-cath vascular exam.
It would be interesting to know the long-term manifestations of these vascular occlusions (treated and untreated)

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Improving Procedural Sedation Documentation in the Pediatric ICU

Helayne Feferman MD, Jenifer Twiford RN, Brandie Hollinger RN, Mary Nottingham RN, Peter Oishi MD, Deborah Franzon MD

UCSF Department of Pediatrics, Division of Critical Care

Background

Procedural sedation is a frequent practice in the ICU. Because sedation is now commonly administered by non-anesthesiologists and not in the OR, the Joint Commission (JCAHO) has set forth a procedural sedation checklist that should be complied with prior to, during, and after all procedural sedation administrations.

Sedation documentation does not occur reliably in the PICU but is a required element of procedural sedation in order to comply with quality & safety standards set forth by the Joint Commission (JCAHO). The UCSF sedation committee conducts audits on the following components monthly to ensure compliance:

1. H&P/Interval history on record
2. NPO status
3. Pre-procedure equipment checklist
4. ASA Classification
5. Immediate pre-sedation assessment
6. Mallampati classification
7. Timeout completed
8. Discharge criteria met

Project Goals

Out of 54 procedural sedation logs initiated in the Pediatric ICU in 2016-2017 CY, only 3 (5.5%) logs were complete and adherent to JCAHO regulations.

We aim to increase total procedural sedation log completion from 5.5% to 75% completion in the PICU 2017-2018 CY. A secondary goal will be to increase documentation of pre-procedural MD/NP assessment from 52% to 90%.

Project Plan and Intervention(s)

We began initially conducting a pre-assessment to examine the barriers related to poor documentation in the Pediatric ICU. Providers & RNs were asked to complete a short quiz assessing the use of the sedation navigator, as well as the appropriate patient population for the navigator. We found a general lack of education about standard use of the navigator and the qualified patient population.

To improve this process, we prepared two educational presentations: one aimed towards the MD/NP patient providers, explaining the standards expected, how this will improve patient care, and education on how to complete the sedation log. The second presentation was aimed towards the patient RN, who plays a large role in completion and can be a significant patient advocate for completing procedural sedation navigator/checklist.

Project Evaluation & Impact

Outcome Measured	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18
Total Log Completion	0/6 (0%)	0/4 (0%)	0/1 (0%)	0/6 (0%)	1/9 (11%)	2/10 (20%)	3/6 (50%)	0/6 (0%)	1/4 (25%)
MD/NP Completion	3/6 (50%)	4/4 (100%)	0/1 (0%)	2/6 (33%)	4/9 (44%)	7/10 (70%)	4/6 (67%)	2/6 (33%)	3/4 (75%)
Component Completion	22/48 (46%)	25/32 (78%)	4/8 (50%)	21/48 (44%)	35/72 (49%)	55/80 (69%)	38/48 (79%)	18/48 (38%)	20/28 (71%)

Next Steps, Dissemination & Lessons Learned

Next Steps:
1) Continued education on the importance and appropriate usage of the sedation navigator
2) Cooperative work with the established UCSF Sedation committee
3) Continued assessment and analysis on success of completion of the navigator
4) Implementation of 'sedation navigator checklist' as part of the routine time-out proceedings

Dissemination:
1) Education of what qualifies as procedural sedation as part of orientation to employees in affected hospital areas
2) Inclusion of procedural sedation navigator training modules in routine EPIC training that occurs for new employees

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Improving Early Discharge from the Pediatric Acute Care Floor

David Chen, MD MPH*, Matthew Nordstrom, MD*

Faculty Sponsors: Glenn Rosenbluth, MD, Arpi Bekmezian, MD, Darren Fiore, MD

Department of Pediatrics

*Indicates co-authorship

Background

- Discharge before noon (DBN) rates are an increasingly used hospital metric
- DBN can improve throughput of patients from high-cost/resource areas such as the ED and ICU to the floor via the following, though the effects are controversial[1]:
  - Decreased ratio of expected to actual LOS and reduced readmission rate[2].
  - Move median time of emergency department admissions and transfers from 5pm to 4pm[3].
- In recent years, numerous changes have been implemented such as a daily "Tee Time" meeting for discharge planning and incentives for each patient discharged before noon.
- Residents are crucial to the discharge process, including writing the discharge order itself, yet prior initiatives have only had limited resident involvement in planning and design
- At the time of project development, C5 Med Surg unit at Benioff Children's Hospital was meeting the DBN unit goal of 20% for 6 out of the prior 10 months.

Project Goals

- In this context, we decided to develop our QI project as an initiative to improve DBN, focusing on areas residents have control
- We aimed to improve on the prior year's discharge before noon rate. At the time of project development, the DBN rate from last year was 20.9%.

- In consultation with pediatric faculty, we decided that aiming for an approximate 15% relative increase was a target that was substantial and achievable. Thus, our formal QI project goal was:

"The percentage of patients discharged before noon from the pediatric hospital medicine (purple, orange, and green services) will exceed 24% from July 1st, 2017 to June 30th, 2018 at UCSF Benioff Children's Hospital"

Plan and Intervention

- We developed "Early Discharge Best Practices" (see right panel) and disseminated them to all residents, with routine reminders at each rotation change. These items were focused on those items with resident control.
- At the beginning of January, we implemented a discharge orders in before 8 AM initiative, incorporating the day and night shift teams. The day team would relay anticipated discharges and the night team would prepare them for discharge. If the night team indicated in the morning that the patient met discharge criteria, a conditional discharge order would be written prior to 8 AM and the attending notified
- Regular updates were emailed out to residents on the acute care floor

Best Practices for Discharge Planning

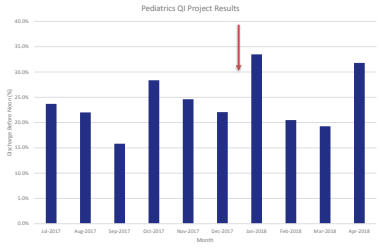
As discharge approaches (2-3 days before):
(1) Discuss discharge planning on rounds and at Tee Time (R3)
(2) Discuss follow-up plans with consultants and communicate with Case Management (R1 & R3)
(3) Set expectations with families about the discharge time (i.e. in the morning if possible) (R1 & R3)

Day before discharge:
(4) Pharmacy - settle discharge prescriptions if possible (R3)
(5) Check with consultants if they need to see the patient prior to discharge (R1)
(6) Finalize f/u needs with subspecialists and inform Case Management (R1 & R3)
(7) Complete DC instructions (R1)

Once you know if the patient can be discharged before noon, make sure R1/R3/Attending are all aware.

Evaluation & Impact

- DBN rates were lower at the beginning of the year, potentially due to new interns and senior residents
- Barriers to DBN were assessed with on service residents on a month to month basis:
  - Many residents identified primary barriers as ones perceived to be out of their control: meds-to-beds/pharmacy, subspecialist discretion, nursing, and transportation.
- Residents provided feedback that pre-rounding and other morning activities made it frequently difficult to assess patients for discharge readiness in the morning
  - Above feedback led to the early discharge order initiative outlined above
- Average discharge rates appeared to increase following the roll-out of the discharge order before 8 AM initiative (red arrow), from 23.0% prior to 26.1% after
- As of April 30th, we are above our goal of 24%, with our current YTD DBN rate at 24.3%



Next Steps, Dissemination & Lessons Learned

Next Steps:
-The main next steps for this project will be maintaining the interventions for future year as well as joining efforts between nursing, pharmacy, case management, and physicians for discharge planning
-Analysis of balancing measures, such as length of stay, to evaluate for unintended effects

Dissemination:
None of the practices used in our project were specific to pediatrics and could be adopted to other inpatient acute care floors. Inter-specialty forums such as GME symposia or chief resident meetings could be used to disseminate best practices across the hospital

Lessons Learned:
-Support for a project from multiple levels is crucial - alignment of this goal with pre-existing goals for faculty, nursing, and other staff

1. Shine, D. Discharge Before Noon: An Urban Legend. The American Journal of Medicine, Volume 128 , Issue 5 , 445 - 446
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Increasing Completed PHQ-9 Questionnaires for Ambulatory Adult Psychiatry Follow-up Visits

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UCSF Adult Psychiatry Residency Training Program

Background

Patients' complaints in psychiatry are inherently subjective. As a result, it can be difficult to track patients' progress overtime when relying on their subjective report. Questionnaires such as the Patient Health Quesitonnaire-9 (PHQ-9) provide a quantified measurement of a patient's depressive symptoms, which can be used for screening as well as tracking symptom change over time. These questionnaires are brief, easily administered, and can be completed electronically. Moreover, insurance companies are increasingly requiring objective measures of patient improvement in order to reimburse for services.

In June of 2015, Langley Porter Psychiatric Institute transitioned to an electronic medical record system, APeX. This created an opportunity to electronically send out questionnaires through MyChart, an online patient portal, and store the results in the patient's medical record. The adult outpatient psychiatry clinics at UCSF are currently automatically sending PHQ-9's to almost all patients electronically through MyChart. However, completion rates of these questionnaires are low.

This is a problem because:
1. It becomes difficult to track how patient's symptoms change over time
2. Insurance companies may not reimburse for visits without more objective data on patient improvement
3. Providers are less accountable for the care they provide
4. Patients are not actively participating in their care

The PHQ-9 completion rates from April 1, 2016 to April 1, 2017 for adult patients were:
- 15.1% of 20,232 **follow-up** encounters
- 35.7% of 789 **new patient intake** encounters

Project Goal

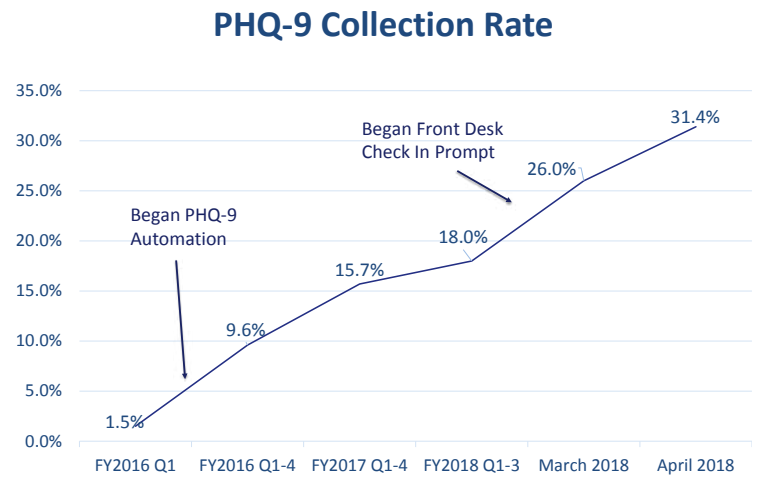
*Increase monthly completion rate of PHQ-9 for all adult psychiatry follow-up encounters to greater than **25%**, cumulative over the 2017-2018 year.*

Project Plan and Intervention(s)

Root causes for why patients do not complete PHQ-9's
- Patients are not on MyChart and thus not receiving questionnaires electronically (about 50%)
- Patients find the questionnaires not important / annoying / too frequent
- Patients did not receive a reminder to complete the questionnaire at the front desk
- Patients have issues with health literacy

Interventions
- Increase provider communication/education to patients about importance of questionnaires, discuss and review data during appointment: emailed all ambulatory providers, presented at Residents' Association meetings, discussed at daily interdisciplinary QI huddles
- Give questionnaires at front desk: worked with Chief Operations Officer and Practice Manager to build workflow for front desk staff to check to see if patients had completed questionnaires at time of check in. Worked with IT to build alert notifying staff when there were incomplete questionnaires. Gave staff individual label-makers to improve work flow
- Allow providers to enter PHQ-9 scores by hand in APeX: Worked with IT to develop functionality for providers to enter paper PHQ-9 results electronically into computer. However, this data showed up in a separate section from patient-entered scores, so worked with IT to develop functionality for providers to answer unanswered questionnaires on patients' behalf which allowed scores to show up in same section
- Reports showing individual provider's numbers: Publically acknowledged top 3 providers with highest PHQ-9 completion rates while publically posting everyone's completion rates for additional motivation

Project Evaluation & Impact



Next Steps, Dissemination & Lessons Learned

Next Steps:
- Continue building PHQ-9 into default clinic flow, e.g. tablet computer available in waiting area
- Hire staff such as medical assistants to complete screening questionnaires directly with patients and enter data into APeX
- Direct messaging to clinicians with low completion rates

Dissemination:
- Reinforce front desk work flow incorporating distribution of unanswered questionnaires.
- Easily adaptable FAQ teaching clinicians how to input PHQ-9 scores into APeX
- Increasing use of ancillary support staff to collect and enter the PHQ-9 scores.

Lessons Learned:
- Even when individuals change quickly, averaged measures respond slowly
- Provider-education yielded very modest improvements in results (3%)
- Systemic change involving adapting front desk work flow brought about the most dramatic improvements (almost 20%) though required buy-in from multiple stakeholders and senior leadership

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Improving Communication Between Inpatient & Outpatient Pulmonologists at the Time of Discharge

Pulmonary & Critical Care Medicine Fellowship Incentive Program

Lekshmi Santhosh, M.D. Janice Hull R.N., M.S. & Lorriana Leard, M.D.

Background

- Unclear **communication** b/w inpatient Pulmonary C/S team & outpatient Pulmonary clinic
- Tackling this problem could address:
  - Follow-up scheduled at an **improper time** frame (i.e. too early or too late)
  - **Inadequate** treatment (if patients are not seen soon enough)
  - **Excessive** treatment (if patients are not tapered off of toxic medications quickly enough)
  - Both patient and physician **satisfaction**
- Currently **23%** pts able to book new patient visits in **<14 days**
- Baseline **cancellation** rate is **28%**
- Only **51%** of patients say they get an appointment as soon as needed.

Project Goals

Project Goals:
To improve **communication** b/w outpatient pulmonologists & inpatient pulmonary consult team by implementing a **discharge template** that summarizes the hospitalization and clearly specifies the time-frame needed and prerequisites before follow-up.

Aim Statement:
Pulmonary/Critical Care fellows rotating on the UCSF Pulmonary Consult service in the year 2017-2018 will reach a goal rate of **75% discharge template completion.**

How to Measure Success:
We tracked discharge **template completion** on the inpatient Pulmonary consult service.

Project Plan and Intervention(s)

Project Plan/Intervention:

- **Step 1: Soliciting Feedback:** Collected feedback from fellows and faculty on ideal template via a variety of mechanisms:
  - Discussions with key outpatient clinical faculty
  - Discussions with Program Evaluation Committee/Curriculum Committee
  - Discussions with fellows on consult service
- **Step 2: Apex Template Design:** Worked with Apex to design template as "Significant Event" note with .pulmdischarge
  - Fellows using this Apex SmartPhrase would pull in the note
  - Revisions of Apex template with outpatient clinic director & Program Evaluation Committee & inpatient consult rotation director
- **Step 3: Data Collection:** Worked w/ Apex to generate report to pull all inpatient pulmonary consults & check for discharge template. Verified with manual Apex chart review.

Project Evaluation & Impact

Template Was Iteratively Revised – Latest Version (May 2018)

Pulmonary Sign-Off Note/Discharge Plan
Date of Consult: [AUTO-POPULATE]
Date of Signoff: [AUTO-POPULATE]
Primary Outpatient PulmonQ1 Q2 Q3 Y 68 **53%** Y 79 **54%** Y 49 **40%** N 60 47% N 66 46% N 75 60% TOTAL 128 TOTAL 145 TOTAL 124 **TOTAL = 397 CONSULTS, 49.37% YES (196) ologist, if any:** ***
PCP: [AUTO-POPULATE]
Pulmonary Diagnoses This Admission: ***
Pending Data: ***
Treatment Plan of care: ***
Recommended treatment(s) ***
Follow-up in * Clinic with *** in *** weeks.**
Follow-Up Testing before or at time of appointment: [Dropdown with CXR, Chest CT, HRCT, Labs, PFTs, sleep study and Free Text *]**
[ ] Accountable Provider[s] Notified? Y/N
[ ] Tests Already Ordered? Y/N
Brief HPI & Pertinent Hospital Course (Narrative Form): ***

Physical Exam on day of Sign-Off:
[AUTO-POPULATE VITAL SIGNS]
***

Any Other Notes:
***

Table 1: Table of Data Collection and Percentage of Discharge Templates Used

TOTAL = 397 INPATIENT CONSULTS, 49.37% USED DISCHARGE TEMPLATE (196) VS. 201 WHO DID NOT										
Q 1				Q 2				Q 3		
Y	68	53%		Y	79	54%		Y	49	40%
N	60	47%		N	66	46%		N	75	60%
TOTAL	128			TOTAL	145			TOTAL	124	

Next Steps, Dissemination & Lessons Learned

Next Steps:
- Reconvene with **stakeholders** (fellows, outpatient faculty & inpatient faculty) to discuss in detail whether different templates might serve different purposes
  - For example, different note template for same-day consult & sign-off?

Dissemination:
- Ultimate goal to work **across GME** to get **standardized "Signoff Note"** for all consulting services

Lessons Learned:
- Faculty & fellow **buy-in** are equally important – projects truly need both to succeed
- Trainees more receptive to QI projects that they **self-identify** rather than those perceived to be required
- Technical barriers re: extraction of data frm Apex – better **QI data analysis/research infrastructure** needed

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A prospective, interventional study evaluating the use of a prompt to improve compliance with documentation of a plan of care for pain in patients with bone metastases seen for palliative radiation therapy

Lauren Boreta
Christopher Chapman
Jason Chan
Resident QI Initiative Leaders
UCSF Department of Radiation Oncology

Background

Management of cancer-related pain is an essential component of comprehensive oncologic care. Undertreated pain results in adverse clinical outcomes, undue suffering, decreased quality of life, and threatens the UCSF true north pillars of patient experience, quality and safety. Furthermore, there are significant disparities in pain management as racial/ethnic minorities and underserved populations are at higher risk for undertreated cancer-related pain.

A recent intradepartmental analysis discovered frequent inadequate pain assessments in patients evaluated for palliative radiation for bone metastases. While 90% of patients had a documented pain scale (1-10/10), only 50% had other components of pain assessed (i.e. location, quality, aggravating factor, alleviating factors, interference with activity). Of those with documented pain (on 1-10 scale) median score was 5, and 51% had scores >4. Among these symptomatic patients, analgesic regimen was assessed in 28%, and a pain intervention was documented in just 17%.

Project Goals

The goal was to achieve documentation of a "plan of care for pain" in >50%of new patient consultations seen by residents for bone metastases in the department of Radiation Oncology for 3 out of 4 best performing quarters in the 2017-2018 academic year. Satisfactory plan of care will include appropriate pain intervention, such as adjustment in analgesic regimen, referral to SMS/palliative care, communication with primary oncologist/PMD, and radiation therapy.

Project Plan and Intervention

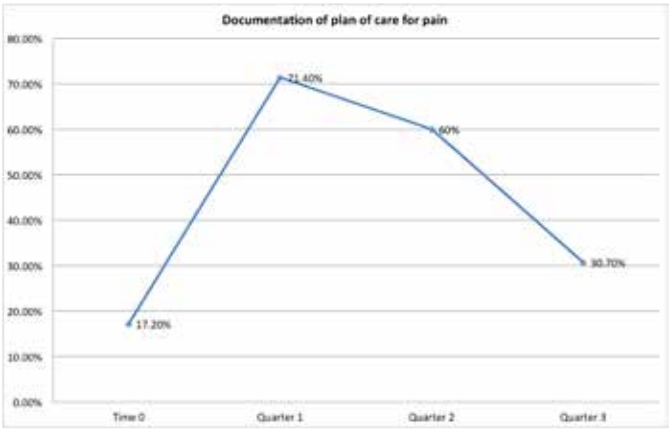
Current practice documenting pain intervention in Radiation Oncology is dependent on physician preference. In a previous departmental analysis, we found that we were documenting pain in patients seen in consultation for bone metastases, but we were not explicitly addressing this pain in our assessments and plans. The Centers for Medicare and Medicaid have identified documentation of a 'plan of care for pain" as an important quality measure in Radiation Oncology, which will be assessed in the Merit-based Incentive Payment System.

In this intervention, we focused specifically on patients seen in consultation for bone metastases. Many patients with bone metastases have pain and radiation therapy is often an important palliative treatment modality.

We created a smart phrase in the electronic medical record, to be populated into consult note templates. The phrase is ***"I have assessed the patient's pain today, which is ***/10. The plan of care for pain is *** ."*** Email reminders were sent to physicians 2 times per quarter**.** Charts were subsequently audited on a quarterly basis, and percent compliance was recorded per quarter.

Project Evaluation & Impact

We have achieved our goal of documenting a plan of care for pain in >50% of patients seen in consultation for bone metastases in 2 of 3 quarters thus far, with 4th quarter data pending. In particular, we found that the analgesic regimen was assessed or modified in 35% of consultations, urgent radiation therapy undertaken in 26%, communication with primary provider or oncologist in 10%, and referral to the Palliative Care service in just 4%.



Next Steps, Dissemination & Lessons Learned

Next Steps:
Our next steps will be to collect data for the 4th quarter, as well as report our outcomes to the department QI leads. Pending our outcomes, this could be implemented throughout the department in accordance with Merit-based Incentive Payment System (MIPS) quality objectives.
Dissemination:
This simple "plan of care for pain" could readily be adapted throughout the cancer center.
Lessons Learned:
There were unexpected challenges in designing and implementing this project. We had initially wanted a drop down smart phrase, but due to limitations with EPIC programmers, we instead utilized a wild card (***) format. We also discovered that email reminders can be easily overlooked, leading to our third quarter decline in compliance. We will utilize in person reminders at our morning conferences to ensure compliance in the 4th quarter.

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STANDARDIZED DOCUMENTATION OF ADVERSE CONTRAST EVENTS (ACE)

Molly Chapman, MD, MA
K. Pallav Kolli, MD
Christopher Hess, MD, PhD

Department of Radiology & Biomedical Imaging

Background

Adverse contrast events (ACEs) in CT examinations requiring intravenous (IV) contrast administration are an important cause of morbidity and even mortality in radiology. Severe allergic reactions and extravasation are uncommon with modern iodinated contrast media, but occur with relatively high frequency when accounting for the large volume of CT studies obtained in current medical practice. When ACEs occur, it is important that they be carefully documented in the electronic health record (EHR), both to effectively communicate events with ordering providers so that they can monitor for late complications and to avoid future events when patients undergo repeat imaging.

Within the UCSF Department of Radiology & Biomedical Imaging, the radiologist is responsible for supervising the safe use of contrast. CT technologists document ACEs using both Apex and the Incident Reporting (IR) system. However, these records are not readily accessible in the EHR for other providers. To align with the UCSF Health "True North" Quality and Safety pillar and the department goal to achieving zero patient harm, we aimed to improve the visibility of these events to all providers.

Project Goals

From 1/1/2016-3/22/2017, approximately 60% of ACEs involving IV iodinated CT contrast were documented in the EHR. Only 39% were documented by a radiologist; others were documented by a radiology nurse. For the 2017-18 academic year, **our departmental goal was for ≥75% of significant CT ACEs to be documented as either a note in Apex or in the radiology imaging report**, cumulative over the 2017-2018 academic year:

X = # of ACEs documented by IRs (all allergy and extravasation events)

Y = # of ACEs documented in Apex

PRIMARY GOAL: Y/X * 100% >= 75%

SECONDARY GOAL: document all allergic reactions to iodinated IV contrast in the Apex allergy banner.

- All allergies were included
- Only extravasation events with >10 cc of infiltrated IV iodinated contrast were included
- Apex documentation included new allergy records, notes written by radiologists and/or RNs, or documentation in radiology reports

Project Plan and Interventions

Multiple factors contributing to low MD documentation of ACEs were identified:

1. Lack of a standardized reporting mechanism to allow for convenient documentation.
2. While most patients who experience an ACE are evaluated by the radiologist, in the busy work flow of the reading room the task of documentation was occasionally forgotten.
3. Diffusion of responsibility, wherein the radiologist who evaluated a patient for an ACE was working at a different hospital site from the dictating radiologist for that imaging study. Poor communication resulted in no documentation by either party.
4. Radiologist inexperience with writing notes in Apex.

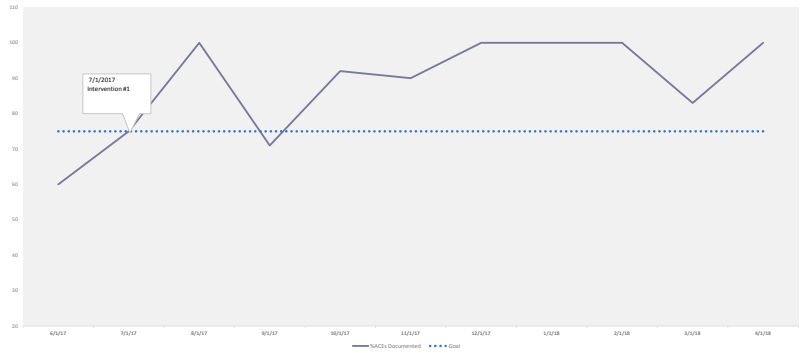
We developed two countermeasures at the outset of the project.

1. A standard reporting template to document ACEs for the radiology imaging report (implemented as a Powerscribe 360 autotext ["Macro"] to be used in dictations).
2. A standard template for complete documentation of ACEs as a Significant Event note in Apex (implemented as a dotphrase ".ACE"). The Powerscribe macro was circulated in sections where iodinated contrast is commonly used, and approved by each Radiology section QI champion. Once approved, a similar format was adapted for the Apex dotphrase. Both were made publicly available for use.

Measures to ensure adoption of the templates included announcements made at faculty meetings by Dr. Hess. Dr. Chapman made e-mail and personal announcements with expectations for management at resident town hall meetings, as well as the July fellows orientation. It was emphasized that documenting any new allergy to imaging contrast in the Apex allergy banner was an additional required step. Short explanations were provided for using the Apex dotphrases, given the infrequency in which Radiology trainees complete Apex notes.

Our technologists are the front line responders to these events. Dr. Chapman met with the lead UCSF technologists for both CT and MRI. The importance of communication with the radiologist were announced by the lead technologists in technologist meetings prior to the start of the academic year. Dr. Chapman also met with Charlene Fong RN, the department's nurse in charge of patient safety, to discuss root causes of the problem and provide support for the project.

Project Evaluation & Impact



Cumulatively at the time of the creation of this poster, there were a total of 82 ACEs, of which 76 were appropriately documented, for a **cumulative 93% rate of documentation**. Of these events, 24 were contrast allergies. In 100% of these cases, the allergy was added to the allergy banner in the patient's chart.

Next Steps, Dissemination & Lessons Learned

Next Steps: The success of the intervention arises in part from the convenience of a pre-populated template that was easy to generate in radiology report or Apex. We plan to continue to reinforce the importance of communicating and documenting ACEs at faculty and trainee meetings for the remainder of the academic year and beyond.

Dissemination: This project could be adapted for use in any MRI contrast-related ACE, as well as at our other sites a the San Francisco VA Medical Center and the San Francisco General Hospital.

Lessons Learned: Members of the radiology team including MDs, RNs, and technologists work together to create a safe environment for our patients. While each counterpart in this effort has role-specific goals, focusing on patient safety as a common goal was key to the project's success. Improving intra- and inter-departmental MD-to-MD communication, as well as MD-to-technologist and MD-to-RN communication were critical. Moving forward, an unexpected problem included gaps in trainee knowledge of appropriate management of the ACE, such as what threshold of allergy severity indicates need for future contrast pre-medication. Continued educational efforts, including the possibility of hands-on simulation training for residents, will be needed.

Acknowledgements: We thank the Radiology housestaff, fellows and faculty for their enthusiastic participation. Charlene Fong RN, our safety nurse provided invaluable input. Many thanks to Corey Fuller for helping create our ACE dotphrase. Dr. Emily Edwards, our former resident QI Champion, provided indispensable advice in the early stages of the project. Thanks to GME for providing financial and educational support for resident QI projects. Lastly, special thanks to our CT and MRI technologists, the front line of our care, and lead technologists Jessica Pfannensteil and Benjamin Mow.

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Reducing Incomplete History and Physicals In an Infertility Practice

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Background

Patients undergoing controlled ovarian stimulation prior to oocyte retrieval do not consistently obtain a preoperative history and physical (H&P) at the beginning of their cycle. This is an issue because when completed at the last visit prior to oocyte retrieval, the visit may take twice as long delaying the patient and those that follow her. Further, if a patient has a medical condition that may alter anesthesia plans during retrieval, there is limited time to adjust plans. Improving the timeliness and completeness of preoperative history and physical seeks to address the UCSF true north pillars of Quality and Safety and the Patient Experience.

Each cycle start involves a baseline ultrasound, preoperative H&P and confirmation that patients have all medications needed for their cycle.

In a sample of four weeks from the 2016-2017 year, the rate of incomplete H&P's amongst patients who went to retrieval was 17%.

Project Goals

The objective of this Quality improvement project was to reduce the incidence of incomplete H&Ps for patients that are in-cycle for ovarian stimulation.

A 50% reduction in delayed preoperative H&P completion, would save up to 30 minutes per week, and improve work flow for nursing staff who are left with the responsibility of ensuring the completeness of this task.

The goal of this Quality improvement project was to decrease the rate of incomplete H&Ps by 50%. In a successful endeavor, the incomplete H&P rate should be less than 8.5% per quarter for at least three quarters in the 2017—2018 academic year.

Project Plan and Intervention(s)

Hypothesis: increased awareness about the rate of missed H&Ps amongst the staff that preform H&Ps would improve the completion rate.

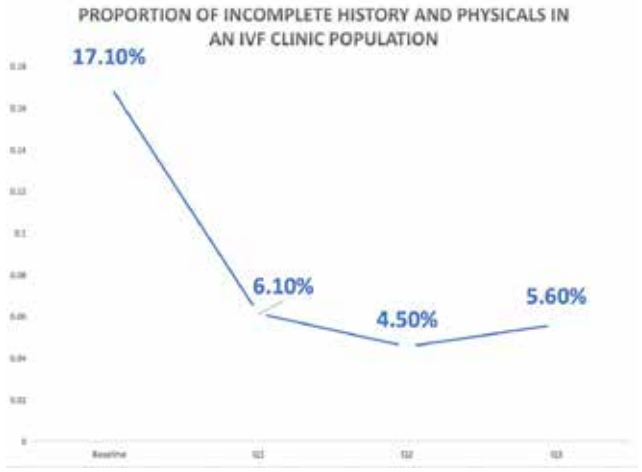
Intervention: In quarter 1, we notified the primary providers that complete H&Ps for patients including clinical fellows, nurse practitioner and physicians.

Interventions were determined on a quarterly basis after reviewing trends in missed H&Ps.

Though we saw an improvement in quarter 1, there was a trend towards fertility preservation patients representing a disproportionate amount of incomplete H&Ps. We proposed that focusing on the patients in the fertility preservation program would be helpful. These patients may start their treatment shortly after consultation may not have had time to receive a proper H&P.

Project Evaluation & Impact

There was a decrease in the incomplete H&P rate in quarters 1-3 after an intervention of educating clinicians and staff about the importance of completing H&Ps. The mean incomplete H&P rate in quarters 1-3 was 5.4%. The mean incomplete H&P rate constitutes a 68.4% decrease in the incomplete H&P rate.



Next Steps, Dissemination & Lessons Learned

Next Steps:
We had an increase in the rate of incomplete H&Ps in Q3. We are currently analyzing the potential causes- the leading cause is double booking H&P patients. Furthermore, on an annual basis at the start of each academic year we will remind staff about the importance of completing H&Ps

Dissemination:
Encouraging development of plans with multiple stake holders, in our case, nurses, physicians and the medical assistant director, helped to implement a plan in which everyone was invested. Also, simple reminder emails proved to be useful.

Lessons Learned:
During this process, we were notified that for patients pursing fertility preservation, a consultation performed within 30 days of the oocyte retrieval qualifies as a history and physical. Nursing staff were notified.

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Delirium Reduction in Urologic Patients

B. Schmidt, I. Metzler, A. Gadzinski, B. Holt, K. Greene, M. Meng

UCSF Departments of Urology and Quality*

Background

Delirium is serious and affects 30-60% of hospitalized patients.

Delirium results in increased mortality, increased length of stay, increased falls, and increased cognitive deterioration in patients with dementia.

Delirium is under-recognized, with 50-70% cases missed and up to 30% of hospital acquired delirium can be prevented.

Reducing hospital delirium is important to providing quality patient care.

Project Goals

Our overarching goal is to reduce hospital delirium using am evidence-based, nonpharmacologic method of early detection and prevention.

Our measurable goal was whether a delirium prevention orderset was placed at any time during the hospitalization for patients who had a positive AWOL or NuDESC screening, with target 50% resident compliance in ordering the delirium order set, cumulative Jan 1-June 30, 2018.

Project Plan and Intervention(s)

INCLUSION CRITERIA:
-Patients with an AWOL score of 2 or greater
-Age >80
-Can't spell WORLD backwards
-Not oriented to city, state, county, hospital name and floor
-Nursing illness severity assessment of moderately ill or greater
-Patients aged 70 years or older AND after a high risk operation
-Patients you are concerned might develop delirium

EXCLUSION CRITERIA: ICU patients

WORK FLOW:
- Nurses screen patients and assess for delirium by reporting a risk score.
- Inpatient pharmacy performs medication reconciliations aimed at eliminating medication-related risks for delirium.
- Urology residents would get paged to place specific delirium reducing protocol orders and change medications based on their findings.
- Given difficulties with implementation and inconsistent paging of residents regarding AWOL/Nu-DESC scores, residents were instructed to use the orderset for appropriate patients without awaiting nursing communication.

Project Evaluation & Impact

Next Steps, Dissemination & Lessons Learned

Next Steps:
We will continue this intervention to decrease delirium in our patient population. With improved implementation and dissemination of protocols, we are confident we will provide a benefit to our patients. Our overall numbers of patients diagnosed with delirium are quite small, thus we will continue to accumulate data and calculate the impact of this project in our patient population.

Dissemination:
This hospital-wide initiative can be adapted by other services by incorporating delirium assessment tools in their daily practice, using the coded lists and appropriately applying the orderset.

Lessons Learned:
We learned that implementing a multidisciplinary project is challenging, as there are many competing priorities in delivering excellent patient care and new tasks are difficult to adopt in a timely manner.

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Inpatient Wound Care eConsult Workflow: Efficient, Timely, and Secure

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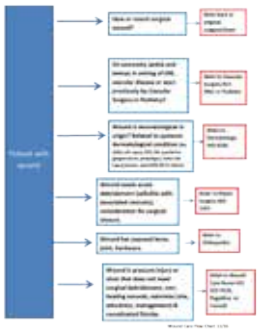
Division of Plastic and Reconstructive Surgery

Background

The wound care clinical nurse specialist (CNS) team currently serves as the gateway for triage of inpatient wounds. Most of these wounds have potential to heal with dressings alone. Not infrequently, UCSF inpatients have wounds that require procedures beyond the scope of the wound CNS team, such as sharp debridement or reconstruction. The Division of Plastic and Reconstructive surgery inpatient consult service currently works alongside the wound CNS team to provide bedside or surgical debridement for wounds initially seen by the wound CNS team. However, until now, the traditional workflow for referring a chronic wound to the inpatient Plastic Surgery consult service requires multiple steps involving additional providers. This can result in delays in seeing patients and therefore scheduling procedures, task duplication, and occasional confusion regarding the specific consultant roles. Additionally, when the wound CNS team is temporarily unavailable; assessment can be delayed. In these urgent circumstances our inpatient consult service can also provide wound care recommendations, but this service is rarely utilized. Restructuring the integration and workflow for plastic surgery in evaluating inpatient chronic wounds will offer the following True North benefits:
Lowering Cost: Wound care is labor and resource intensive for inpatients, timely referral and appropriate treatment could reduce time to healing. Improving communication and standardizing documentation could improve efficiency and further reduce costs.
Learning Health System: Most primary inpatient medical providers do not have formal training in wound assessment and their energies are focused on acute medical illness rather than chronic wounds; Implementation of a decision making tool and standardized workflow as part of this QI initiative could improve communication and efficiency
Strategic Growth: An increase in billable procedural wound care, especially sharp or surgical debridement, could increase reimbursement for the medical center and faculty practices.

Existing Workflow:



The current workflow for plastic surgery to become involved in chronic wound consults introduces delay, potential errors in communication, and is highly dependent on the availability of the wound CNS.

Project Goals

1. Improve two-way dialogue between wound CNS and plastic surgery team and plastic surgery team responsiveness, as measured by plastic surgery inpatient team completion of APEX wound workflow checklist and action plan within 72 hours of wound CNS recommendation for plastic surgery evaluation at 75% compliance; 3 out of 4 quarters for next academic year.
2. Increase identification of appropriate surgical candidates and direct consultation from primary admitting team.
3. Increase plastic surgery consultation for wound evaluation when wound CNS team is unavailable.

Project Plan and Intervention(s)

Implement APEX checklist for inpatient wound consults – with assessment, action plan, and followup plan. Checklist will track specific time points and outcomes and will be filled out by plastic surgery inpatient team.
Develop educational and interactive wound assessment aid with decision tree logic and pictures to guide primary providers. Recommendations for consult and pre-consult data to gather provided in checklist form. Will not require provider to expend time to review slides/modules with largely irrelevant data, and saves time with unnecessary pages to multiple consultants. Available even when wound care RN is off duty or unavailable. Integrated feedback system, allowing for suggestions and referring provider satisfaction to be tracked.
Provide standards for wound documentation and APEX-linked wound photography using smartphones running Haiku. Improves communication between providers and fidelity of clinical documentation. Increases efficiency, avoids unnecessary dressing changes causing patient discomfort and allows consultants and team members to confer using similar information. Allows provider seeing patient to assemble supplies for wound care or bedside procedures.
Measure number of operative cases and patients referred for followup with UCSF plastic surgery through this channel.

Discuss with stakeholders: Parnassus wound CNS team, Medicine/Hospitalist leadership, Podiatry, Dermatology, Plastic Surgery attendings, residents, PA's.
Chart review of upcoming (May-June 2017 wound consults) for baseline data. (QI team)
Create APEX wounds workflow template for inpatient plastic surgery providers to complete. (QI team)
Create plastic surgery wounds workflow with guides for:
- Wound triage and assessment, including contingency plan for who to contact if wound CNS is unavailable
- Wound photography and documentation using APEX

Project Evaluation & Impact

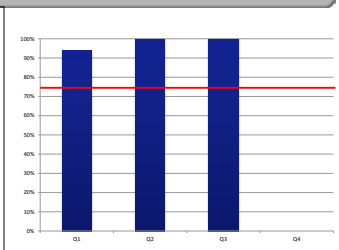
Quarterly evaluation and results, AY2017-2018:

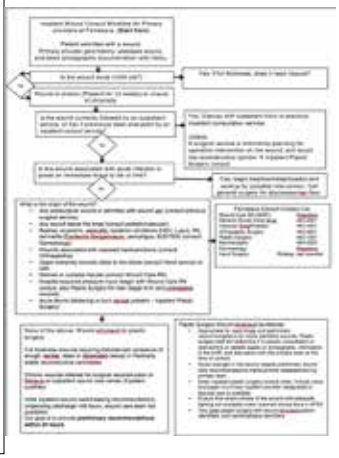
Goal: 75% of nonsurgical wound consults triaged and preliminary recommendations documented in chart using wounds workflow within 24 hours (based on APEX audit)

Q1: 32/34 = 94%
Q2: 14/14 = 100%
Q3: 9/9 = 100%
Q4: pending

Qualitative Assessment: **Success!**

Because of the ongoing QI initiative, we have been extremely diligent and well-informed and thus proactive about seeing and staffing wound consults, whether operative or nonoperative.
We have collaborated with Bobby Robertson, RN who was recently hired as the WOCN at Parnassus. He works 5 days a week and brings vast experience working in conjunction with plastic surgeons. His knowledge and efficiency in seeing wound consults has already reduced the burden of consults significantly and for many patients we have been able to discuss a multidisciplinary plan. We have coordinated our services so we are aware of staffing shortages and scheduled absences and are prepared to fill in when these occur.
Due to publicity and awareness at all levels - housestaff/trainees and surgical attending, the plastic surgery team proactively took steps to address nonsurgical wound consults in a timely fashion.
Also - improved communication with the parnassus WOCN improved screening and has improved the quality of referrals to plastic surgery. We are seeing more operative consults!





Next Steps, Dissemination & Lessons Learned

Next Steps:
1. Elicit feedback from stakeholders. (Hospitalists/Internal Medicine, consulting teams, Beside RNs, Wound CNS, Derm, Podiatry, Vascular, Orthopaedics)
2. Await optimized APEX inpatient consult order to facilitate entry of needed data and to facilitate chart audits
3. Determine electronic consultation Billing/E&M criteria and optimize for correctly documenting evaluation, management, and supervision for eConsultation.

Dissemination:
Could this be used at Mission bay in a pediatric setting? Could this be used by outpatient providers?

Lessons Learned:
Cooperation with a skilled, invested WOCN is invaluable.
Electronic and Telephone consultation with a knowledgeable wound care RN and/or MD is highly sought-after.
The pace of progress exceeds the pace of EHR modifications.

UCSF Resident and Clinical Fellow Quality Improvement Incentive Program
in partnership with the 2018 UCSF Health Improvement Symposium