



**Weill Cornell  
Medicine**

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**Quality Improvement Academy  
and  
Division of Quality and Patient Safety**

# **Quality Improvement Poster Session**

**Abstracts and Posters**

Wednesday, May 22, 2019  
Griffis Faculty Club

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# Adding Human Factors Engineering to CLABSI Prevention for Pediatric Patients With Intestinal Failure

Naomi B. Bishop MD; Sophia Brown, FNP; Elizabeth Capezuti, PhD, RN, FAAN; Brianne Genow, RN,MS; Shari Jean-Marie, MSN, AGPCNP, DNP-S; Jessie Lee, MD; Mary Mahoney, BSN, RN, CCRN; Joanne Mathieu, MSN, RN-BC; Courtney Mensing Nataraj; Ranah Zadeh, PhD, M.Arch; Snezana Nena Osorio, MD MS

Quality Improvement Academy 2019

### Background:

In 2017, an unexpected spike in Central Line Associated Bloodstream Infections (CLABSIs) occurred in patients with intestinal failure in the Pediatric Intensive Care Unit (PICU). Variable nursing practice associated with high nursing turnover was identified as a cause. Despite good maintenance (MTN) bundle compliance, as measured by nursing peer-to-peer audits, CLABSI rates did not improve and staff morale was low.

Human Factors Engineering (HFE) science (how physical, social and psychological environment impacts human performance, health, and safety) in the ICU has been associated with CLABSI reduction.<sup>1,2</sup>

### Objectives:

Primary: To decrease CLABSI rates in high-risk PICU patients from 3.6 to 1.4/1000 line days by July, 2019.

Secondary: To improve PICU safety culture in the same time period

### Design/Methods:

- Two-phase collaboration between PICU staff, Cornell Ithaca & Hunter School of Nursing graduate students

Phase 1 (P1): Observation based, qualitative approach to identify environmental, staff communication & team dynamics factors contributing to increased CLABSI rates

Phase 2 (P2): Baseline CLABSI MTN bundle compliance data collection via direct observation by objective auditors (process measure) followed by sequential testing of interventions, alternating with compliance auditing & safety culture survey distribution

- Outcome (CLABSI rate) & balancing measures (CAUTI rate) collected via electronic health record review. Safety culture in 6 domains assessed via 37-item survey.<sup>3</sup>
- Data Analysis used statistical process control (SPC) charts and descriptive statistics

1. Holder RJ, Carayon P, Gurses AP, et al. SEIPS 2.0: A human factors framework for studying and improving the work of health care professionals and patients. Ergonomics 2013;56(11):1669-86 2.Drews FA, Bakdash JZ, Glead JR. Improving central line maintenance to reduce central line-associated bloodstream infections. American Journal of Infection Control 45(2017): 1224-30 3. Sexton JB, Helmreich RL, Nellands TB, et al. The Safety Attitudes Questionnaire: psychometric properties, benchmarking data, and emerging research. BMC Health Services Research 2006;6:44

Figure 1: 2017 and 2018 CLABSI and Maintenance Bundle Compliance Rates

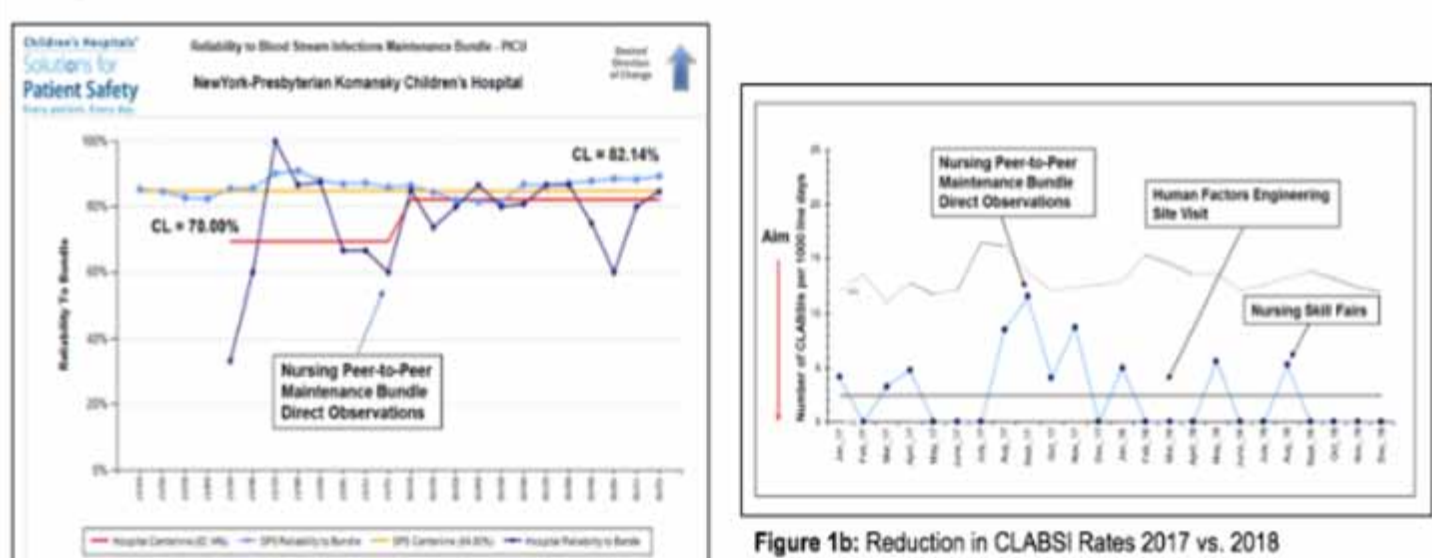
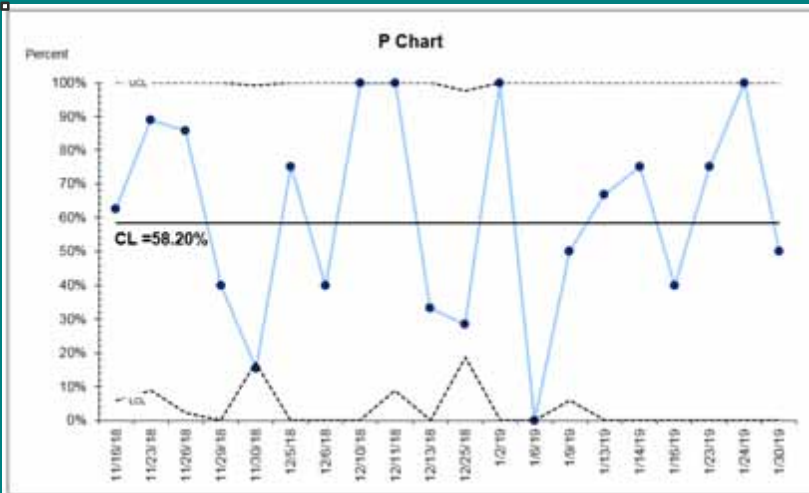
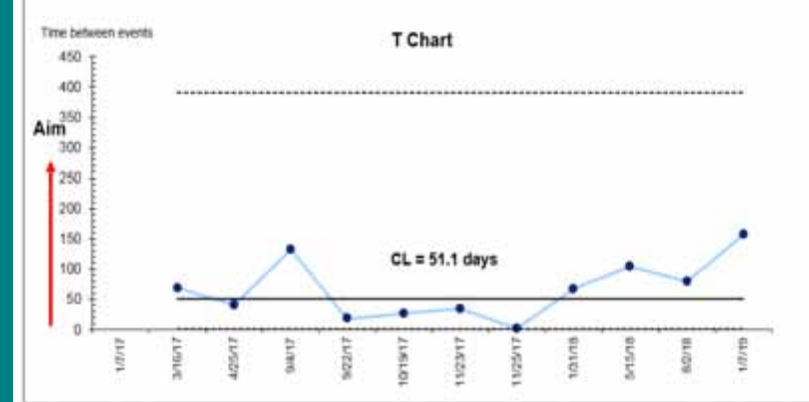


Figure 1a: Hospital Maintenance Bundle Compliance Rates in 2017 and 2018

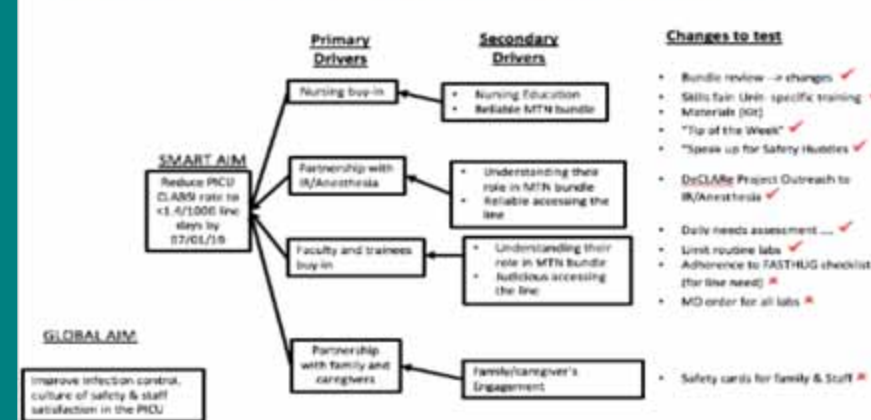
Top L: 2017 and 2018 results from nursing peer-to-peer direct observations showing decrease in CLABSI rate and increase in compliance to 82.14%  
 Middle Top: Mean compliance as observed by our objective auditors was only 58.2%  
 Middle bottom: T chart showing increase in time between CLABSI events  
 Far Right Top: Project Driver Diagram. Red checks indicate completed activities  
 Far Right Bottom: Safety Culture Survey highlights



Time Between CLABSI Events (in Days)



DeCLARe Project Driver Diagram



Domains and Sample Questions	Agree/Disagree/Agree/Strongly (%) (n=22)
<b>Domain 1: Teamwork Climate</b>	
1. Communication breakdowns that lead to delays in care are common	43.70
2. The doctors and nurses here work together as a well-coordinated team	65.60
<b>Domain 2: Job Satisfaction</b>	
1. I like my job	65.60
2. Morale in this unit is high	15.60
<b>Domain 3: Perception of Management</b>	
1. My suggestions about safety would be acted upon if I expressed them to management	25.00
2. Unit management supports my daily efforts	15.60
<b>Domain 4: Safety Climate</b>	
1. It is difficult to speak up if I perceive a problem with care	15.60
2. I would feel safe being treated here as a patient	56.30
<b>Domain 5: Working Conditions</b>	
1. Treaties in my discipline are well supported	50.00
2. The levels of staffing are sufficient to handle the number of patients	18.75
<b>Domain 6: Stress Recognition</b>	
1. I am often tired at work	53.10

### Results:

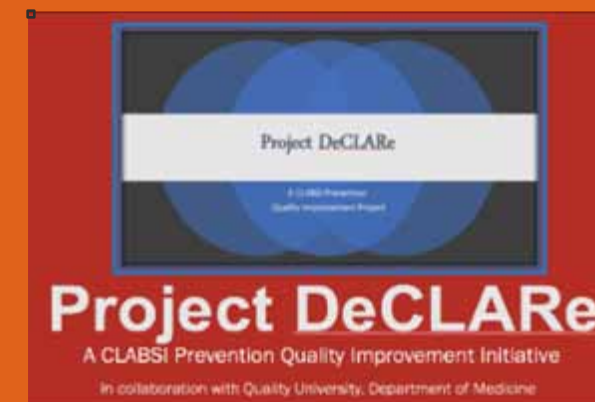
- During the study period, CLABSI rate decreased from 3.6 (2017) to 1.3 per 1000 line days (2018). MTN bundle compliance observed via nursing peer-to-peer audits improved to 82%.
- An increase in time between CLABSI events was noted.
- Compliance measured by objective auditors was 58% vs. the 82% measured by peer-to-peer audits.
- There was no increase in CAUTI rates (balancing measure).

### Conclusions:

- HFE-based interventions coupled with peer-to-peer direct observation were associated with decreased CLABSI rates in patients with intestinal failure.
- Additional interventions are needed to foster a safety culture in which nurses can openly share insights regarding practice improvement.

### Future Directions:

- Interventions will focus on stakeholders outside the PICU (Interventional Radiology, Anesthesia and families).
- Applying HFE approaches to CLABSI prevention on a broader scale through collaboration with partners in regional pediatric patient safety networks.







## Addressing Barriers to Team Escalation in Response to Patient Deterioration Using the TeamSTEPPS® Approach

Quality University – Department of Medicine Grand Rounds

Inez Brandon, MSN RN OCN CHPN CNL and Timothy C. Clapper, PhD  
May 22, 2019

### Problem Statement

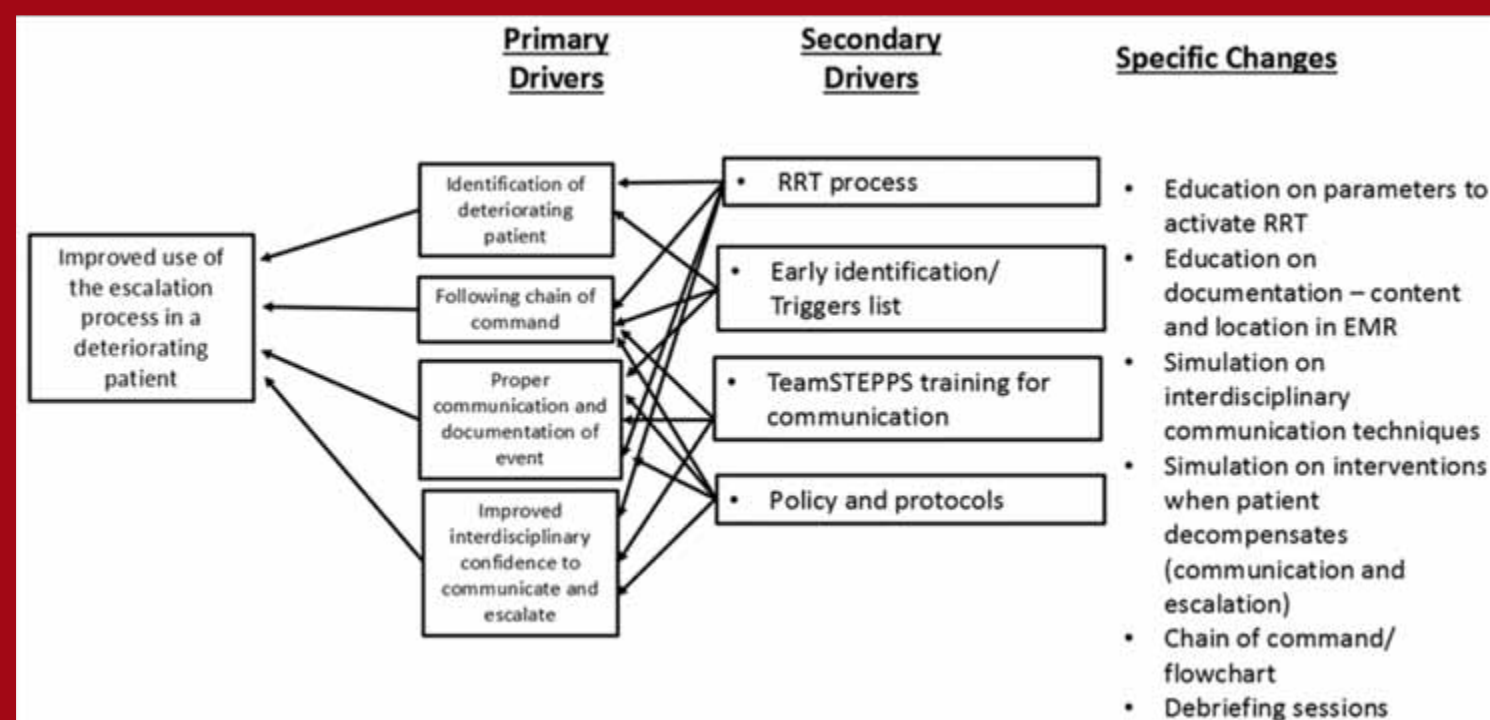
- Failure to respond to signs of patient deterioration and to escalate care in a timely manner leads to an increase in adverse events (Massey, Chaboyer, & Anderson, 2016).
- Anecdotal reports by nurses and physician assistants indicated discomfort and a lack of confidence escalating patient deterioration concerns. Attendings reported concerns that there is a lack of understanding by the nurses regarding whom to call during an event.
- Two events occurred on the tenth floor where care of a deteriorating patient was not escalated in a timely manner leading to a poor patient outcome.

### Objective/Aim Statement

- Improve team confidence and communication in response to patient deterioration events through the use of a modified TeamSTEPPS and simulation training sessions.

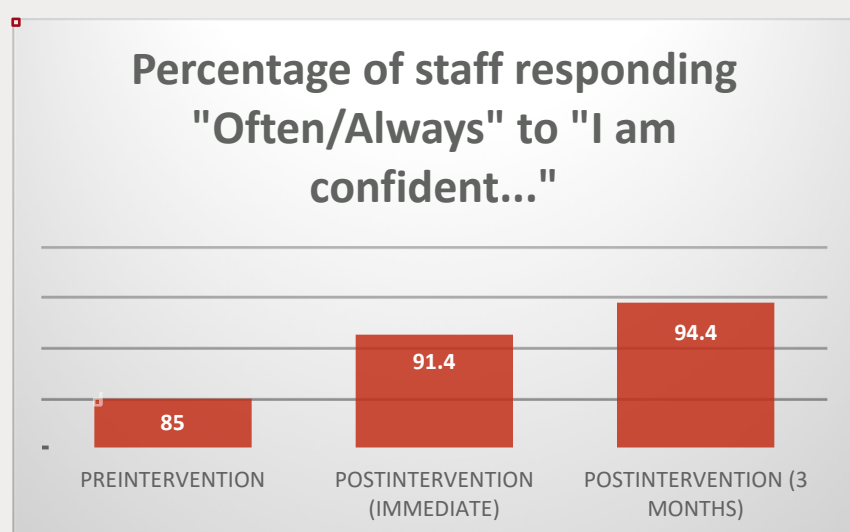
### Design/Methods

Project design utilizing a three-hour multidisciplinary simulation education intervention (Titled the “RAID Program” for Rescue Alert & Intervene for Deteriorating patients) based on TeamSTEPPS with a pre- and post-intervention confidence survey and escalation survey to determine effectiveness.

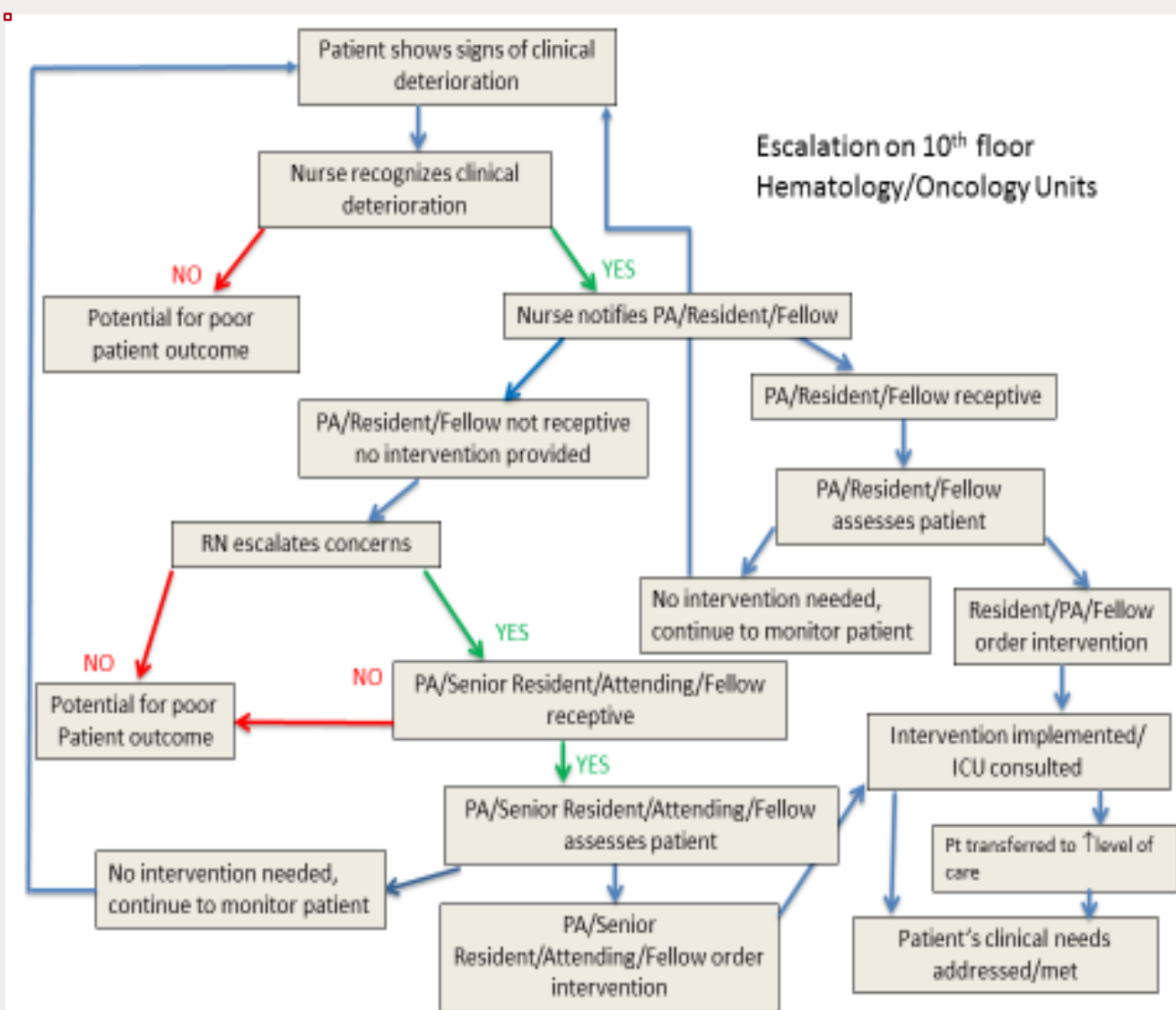


### Results:

- Eight Sessions were held
- 50 Night RNs and PAs participated
- 89% of staff felt the program was valuable
- There was no statistical significance between the Intervention and the Escalation Simulation Survey results pre and post.



- The post-intervention group was significantly more confident than the pre-intervention group at the  $\alpha=0.05$  significance level.



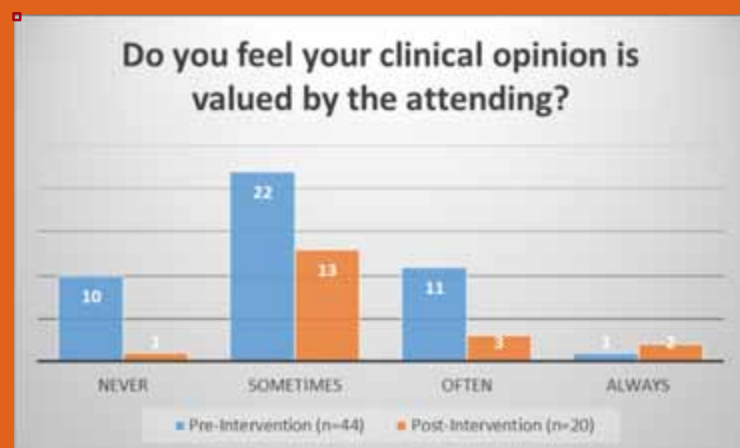
There was no improvement in RN to MD communication scores, before the intervention and at 3 month following the intervention.

### Conclusions/Lessons Learned:

- Nurses and physician assistants have a good understanding of when to escalate their concerns.
- Opportunities exist for improved RN-to-MD communication.
- Nurses and physicians often communicate differently, using different terminology (plain language versus medical terms) which may lead to misunderstandings regarding the urgency of a situation.
- Limitations: Lack of physician participation, small convenience sample size, and survey response.
- Communication around escalation is key to improved patient outcomes.
- Recognition of a deteriorating patient is also key to improved patient outcomes.

### Next Steps:

Create an interdisciplinary work group to further develop the SBAR format (Situation, Background, Assessment, Recommendations) to help improve RN to MD Communication.







## Safety and Efficacy of a Post-Operative Pathway for Weaning from Mechanical Ventilation After Cardiac Surgery

Quality University – Department of Medicine Grand Rounds

Diana Brickman, RN, CCRN-K

### Background:

- Protection of a patient's airway is a nursing responsibility.
- Each day on mechanical ventilation increases the risk for unplanned extubations by 3% (Silva et al., 2012). Implementing a communication and extubation pathway must be in place to see an impact on self extubations.

### Study Population:

- 358 post-operative Cardiothoracic surgery patients on the Green Fast Track.

### Problem Statement:

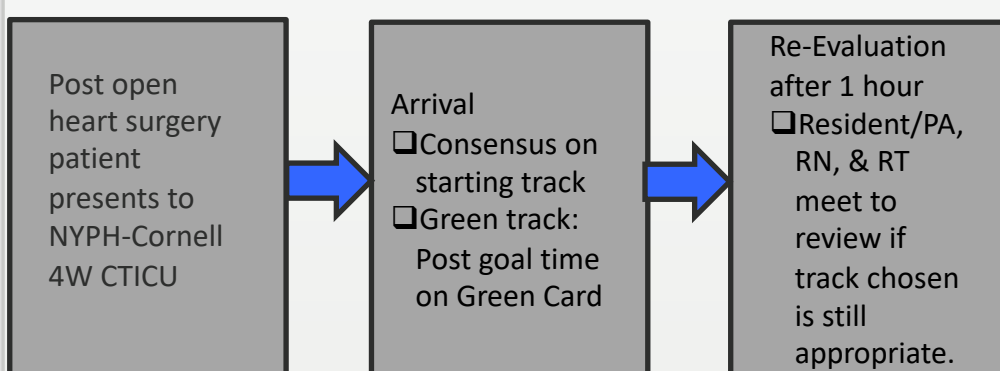
- For intubated adult post-operative cardiac surgery patients, does compliance with a sedation extubation communication pathway decrease intubation time from April 2018-January 2019?



### Methods:

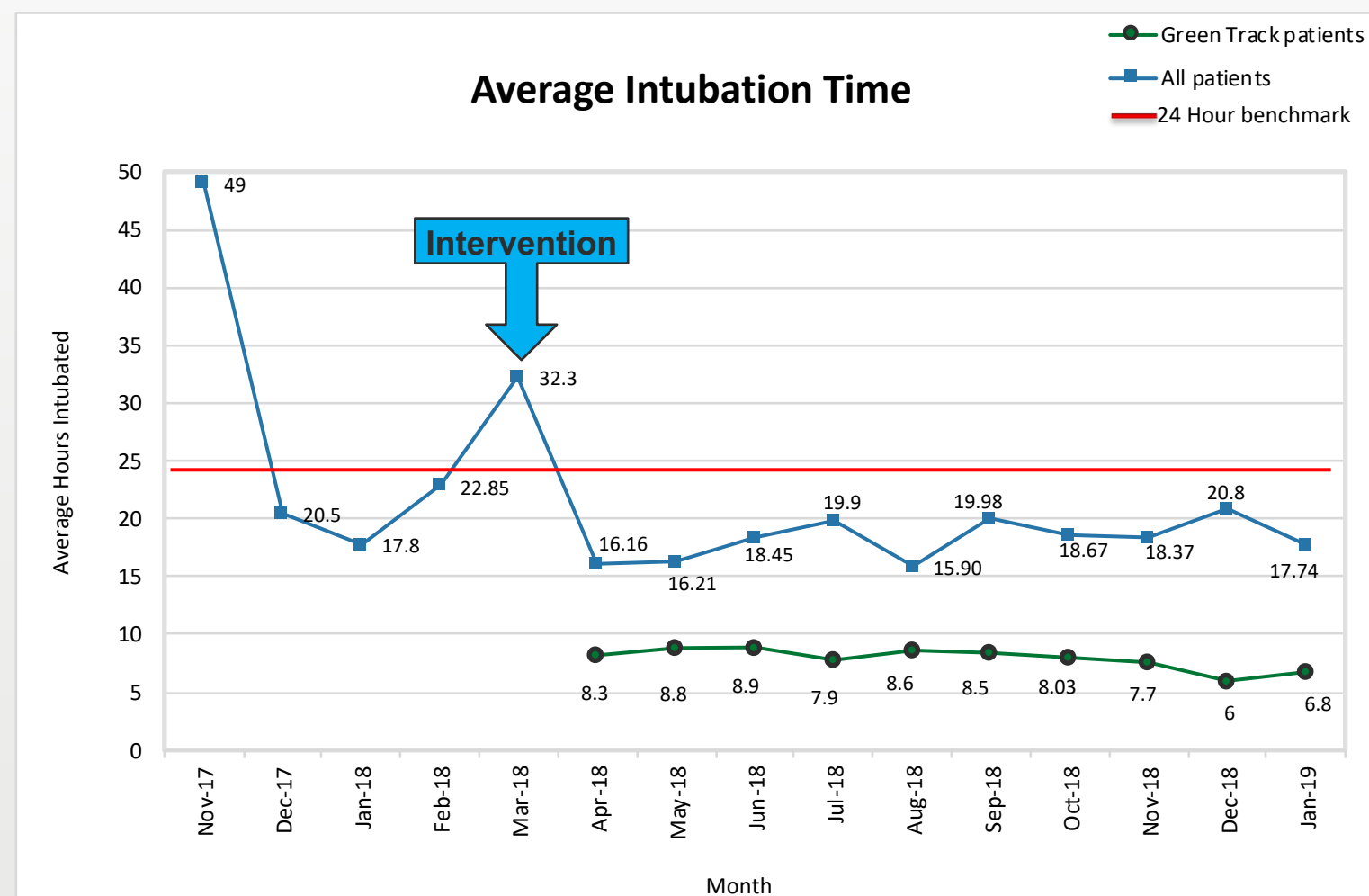
- For this quality improvement project a quantitative research model was followed.
- A Surgical Pre Assessment (SPA) score was given to patients pre-operatively to use as a guide to which pathway would be most appropriate post surgery.
- An extubation pathway for patients on arrival to CTICU.
- Patients who were not extubated after surgery (i.e. trached, expired) were excluded from this study.
- This study was deemed exempt by the Weill Cornell IRB.

### Process Map



- White Ultra Fast Track**
- Robotic patients only.
  - Extubate within 2 hours from out of OR time.
- Green Fast Track**
- Weaning protocol started.
  - Administer non-opioid medication
  - Wean off sedation.
  - Consult ICU attending if not on track to meet time goal
  - Extubation parameters met → extubation order placed → extubate.
- Yellow Conditional Track**
- Consult ICU attending & continue post-operative resuscitation until resolved.
  - If condition worsening the patient will continue to have a "yellow" condition and will not be weaned until resolved.
  - Start weaning at 5am unless downgraded to red track by team.
- Red Limited Track**
- Patient should NOT be weaned from controlled ventilatory mode without Attending approval.
  - Propofol most likely used to achieve deeper RASS goal.
  - Extubate when ICU attending present.

### Results



\*Pre-data includes ALL post-operative patients who were extubated, as there was no classification for Fast Track.

### Green Track Patients:

#### Population, Process Measure and Outcomes

		Green Track Patients	
Gender	Male	69%	
	Female	31%	
Median Age		64	
Sedation	Propofol	76%	
	Dexmedetomidine	6%	
	Propofol & Dexmedetomidine	17%	
	No Sedation	1%	
Oxygen Support 24 hours post extubation	Nasal Cannula 2-6 L	75%	
	Facemask	1%	
	BiPAP	1%	
	Optiflow	7%	
	Room Air	16%	
Self Extubations		0%	
Reintubation		0.02% (6 patients total)	
RN:PATIENT ration at extubation	1:1	82%	
	1:2	18%	

### Conclusion

- Since the roll out of this intervention, there have been **0 self extubations on the green track.**
- Clear communication about sedation/pain interventions and Timing of extubation amongst the *entire team* are vital in keeping patients safe while intubated.
- The less time patients were mechanically ventilated, decreased the chances of an adverse airway event.

### Next Steps

- Maintain compliance with the pathway even after audits are completed.
- Post adverse airway event debrief with entire ICU team.
- Further assess the impact of pathway adherence on total ventilator support time on the other tracks.
- Consistently offering education for each group of new residents and new nurses on the sedation extubation pathway.

### Acknowledgements:

Dr. Ivascu, Dr. Kim, Dr. Lee, Dr. Jannat-Khah, Rosanne Raso MS, RN, NEA-BC, FAAN, Christa Kleinschmidt MS, RN, NEA-BC, FNP-BC, and Rhoda Redulla DNP, RN-BC DNP, RN-BC





# Improving Rates of Appropriate ICD Deactivation Discussions in Admitted Patients made DNR and/or Comfort Care

Daniel Y. Choi, Michael P. Wagner, Brian K. Yum, Deanna P. Jannat-Khah, Derek C. Mazique, Daniel J. Crossman, Jennifer I. Lee

## Problem Statement:

- Implantable cardioverter defibrillator (ICD) shocks can be traumatic for patients and families, particularly at the end of life.
- Between 51-65% of ICDs remain active at the time of death leading to undesired shocks.
- Heart Rhythm Society recommends physicians discuss whether device therapy is in line with goals of care, particularly when changes in code status or shocks occur.
- From Dec 1, 2017 to May 30, 2018, our institution documented discussion and/or deactivated ICDs in 10/20 (50%) comfort care and in 14/41 (32%) DNR patients.

## Primary Objective:

- Increase the frequency of documented discussions around ICD therapy by 10% in patients admitted to medicine services at the time of either DNR and/or comfort care decisions. Study period was August 1, 2018 to January 31, 2019.

## Design/Methods:

- PDSA: We completed one-week PDSA cycles with adaptive changes to complete 28 weeks of data collection.
- Interventions: We designed a standardized education session aimed at residents, fellows, and mid level providers, administered with pre-, post-, and mid-study retention knowledge surveys. Alerts and decision supports were integrated into the electronic medical record (EMR) for the comfort care order set and DNR documentation. Posters were hung around medicine floors as reminders.
- Outcome measures: [1] Percent of admitted ICD recipients made comfort care or DNR with documented discussion of patient's wishes surrounding ICD deactivation. [2] Percent of admitted ICD recipients made comfort care or DNR with documented ICD deactivation.
- Process measures: [1] Pre, post, and retention knowledge surveys. [2] Correct use of AICD deactivation decision tool in EMR. [3] Provider awareness of ICD status at time of DNR or comfort care order via weekly emails.
- Balancing measures: Undesired deactivations.

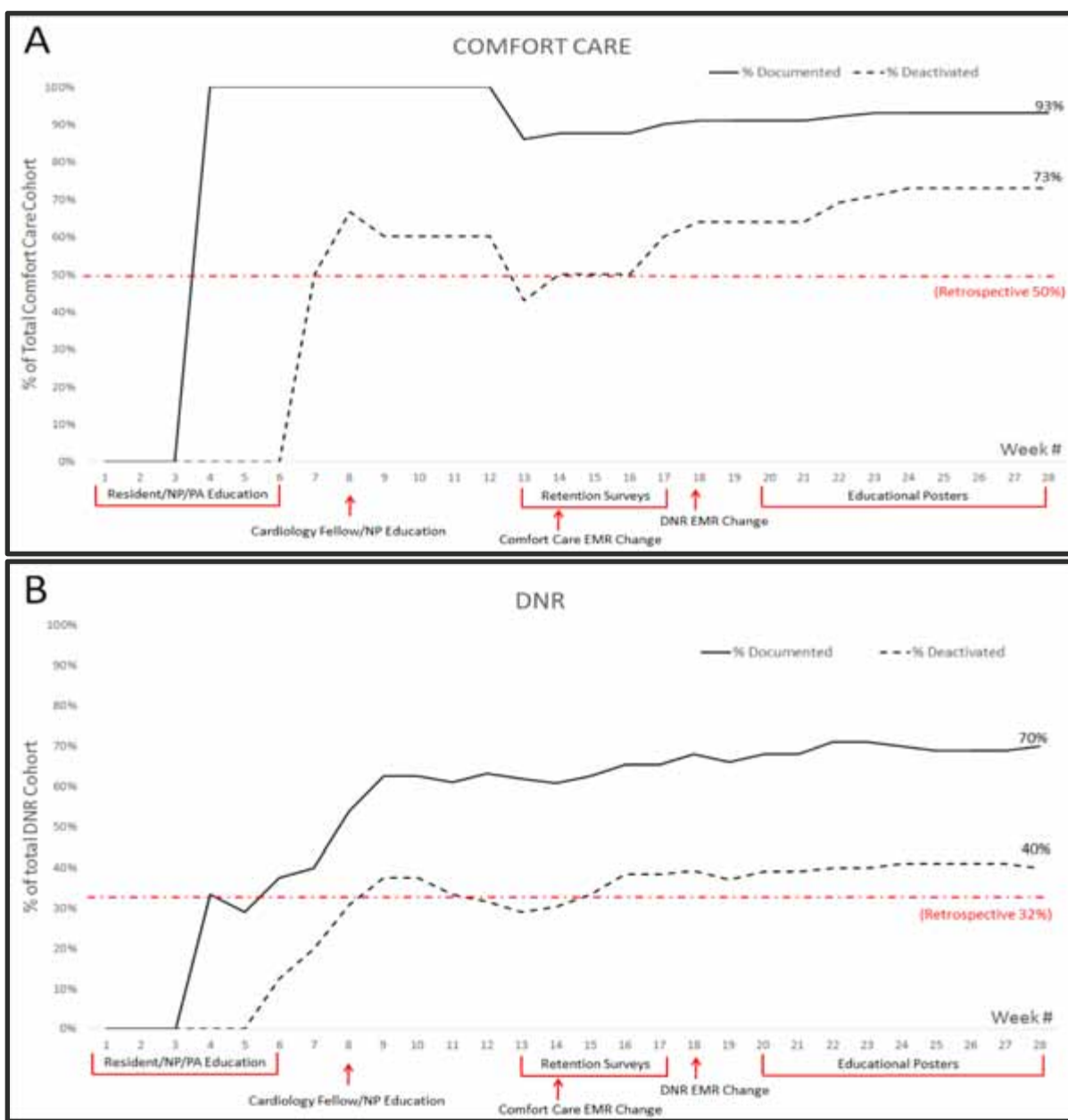


Figure 1. Run charts over 28-week study period for (A) comfort care cohort and (B) DNR cohort showing the documented discussion rate (solid line) and the ICD deactivation rate (dotted line). The horizontal red dotted line is to compare with the rate of documented discussions or ICD deactivations in the retrospective data prior to interventions. Study interventions are listed along the x-axis.

Table 1. Educational intervention assessment showing statistically significant improvement in correct responses immediately after the initial session (post-education) and effective retention of knowledge at 13-17 weeks (retention).

\*\*P-values are in comparison to pre-education correct response rate.

Question	Pre-Education (n=119)	Post-Education (n=118)	p-value**	Retention (n=114)	p-value**
1	117 (98.3%)	118 (100%)	0.16	113 (99.1%)	0.59
2	35 (29.4%)	96 (81.4%)	<0.001	97 (85.1%)	<0.001
3	35 (29.4%)	106 (89.8%)	<0.001	89 (78.1%)	<0.001
4	61 (51.3%)	98 (83.1%)	<0.001	85 (74.6%)	<0.001

- Questions:**
- For patients with ICDs, it should be a routine part of your DNR/DNI or comfort care discussions to discuss and offer ICD deactivation. **True / False**
  - Which can PERMANENTLY deactivate an ICD? (a) Magnet deactivation (b) EP deactivation adjustments at bedside (c) External defibrillation of patient (d) All of the above
  - Which of the following is considered withdrawal of care? (a) ICD deactivation (b) Pacemaker deactivation (c) All of the above
  - Please order the steps (1-5) to deactivate an ICD for a DNR patient LACKING capacity: Identify HCP or surrogate decision maker; Obtain consent for ICD deactivation; Place documentation for ICD deactivation, co-signed by attending; Place deactivation order; Page EP or cardiology for deactivation

## Results:

- Primary Outcome: The rates of documented discussions regarding ICD deactivation improved from 50% to 93% (14 of 15 patients) in the comfort care cohort and from 32% to 70% (28 of 40 patients) in the DNR cohort.
- Secondary Outcome: The rates of ICD deactivation improved from 45% to 73% (11 of 15 patients) in the comfort care cohort and from 29% to 40% (16 of 40 patients) in the DNR cohort. No patients received undesired shocks through our study period.
- Process Measures: [1] The educational sessions proved effective with statistically significant improvement in knowledge both after the initial session and retention 13-17 weeks after receiving the session. [2] Once implemented, our EMR changes were properly used 87% (39 of 45 instances) of the time in all comfort care patients. [3] Our EMR changes were the most effective intervention in increasing provider awareness of ICD status at the time of DNR and comfort care order placement (figure not displayed due to space).

## Conclusions:

- In this project, we were able to show significant improvement in the frequency of discussions around the desire for ongoing ICD therapy in both comfort care and DNR patients in accordance with expert guidelines. This also resulted in an increased number of ICDs being deactivated.
- Our educational intervention was effective, showing a significant increase in correct responses post-education and effective retention of knowledge halfway through.
- EMR changes show a durable effect on provider recognition of ICDs (data not pictured here).
- We are currently looking to spread the interventions to departments outside of internal medicine and to the other hospital campuses

## References:

- Lampert R, et al. 2010 HRS Expert Consensus Statement on the Management of Cardiovascular Implantable Electronic Devices (CIEDs) in Patients Nearing End of Life or Requesting Withdrawal of Therapy. *Heart Rhythm*, Vol 7, No 7, July 2010.
- Westerdahl AK, Sutton R, Frykman V. Defibrillator patients should not be denied a peaceful death. *International Journal of Cardiology*. 182 (2015) 440-446.
- Westerdahl AK, Sjoblom J, Mattiasson AC, Rosenqvist M, Frykman V. Implantable Cardioverter-Defibrillator Therapy Before Death High Risk for Painful Shocks at End of Life. *Circulation*. 2014;129:422-429.





# Reducing Endoscopic Delays Utilizing Cost-Effective Interventions (REDUCE IT) QIPS Poster Session/Graduation

Anthony Choi, MD, Patricia Boland, RN, Nina Sinha, Deanna Jannat-Khah, DrPH, MSPH & Carl Crawford, MD | May 22, 2019

## Problem Statement

11,154 procedures were performed at NYP's endoscopy suite in 2016, averaging about 30 procedures per day. A delicate balance exists between prescheduled outpatient and urgent inpatient add-on procedures in order to ensure timely patient care while operating at maximum efficiency/capacity in the endoscopy suite. Inpatient endoscopies are often delayed for multiple reasons that lead to prolonged hospital stays, increased resource utilization, and poorer satisfaction.

The first step to getting a procedure completed is to have a patient "ready" for the exam. Identifying barriers to "readiness" and addressing them will ensure a successful inpatient flow for the completion of a procedure.

## Objective/Aim Statement

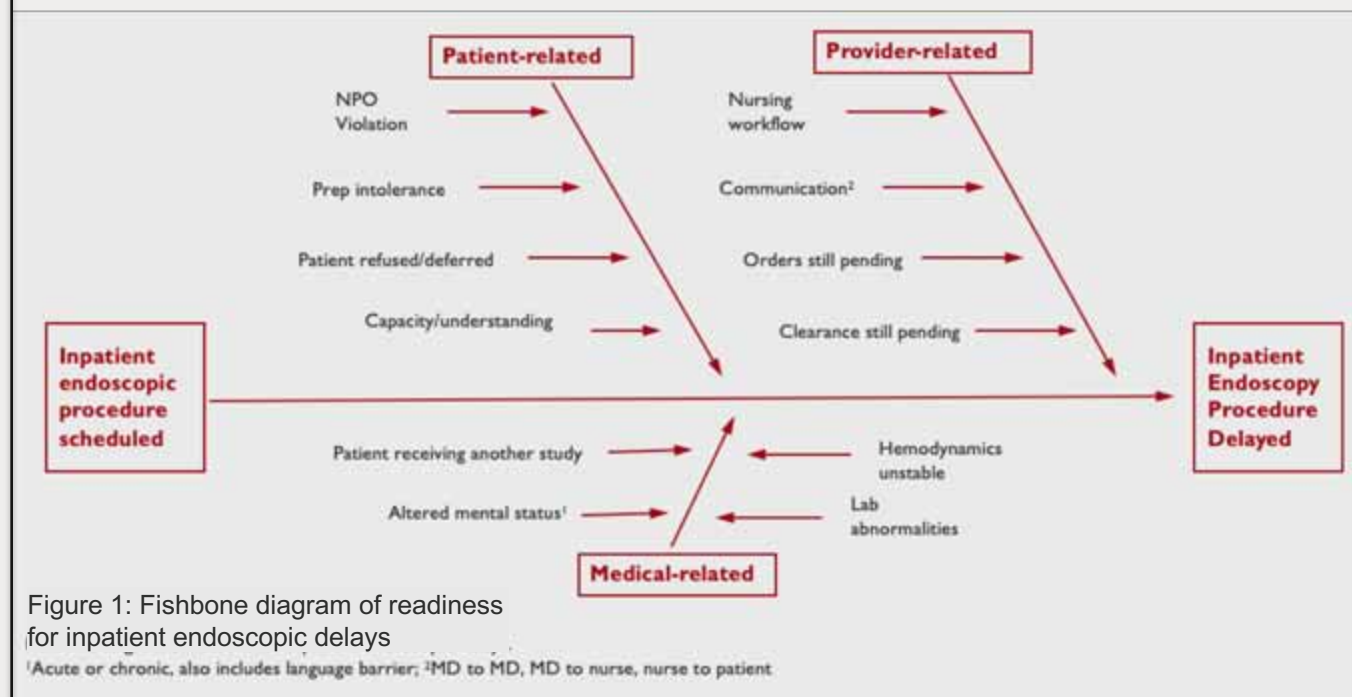
To reduce the number of inpatient procedures (EGD/colonoscopy/PEG) that are delayed/cancelled that results in an unutilized room (critical delay) due to incomplete "readiness" by 50% over 6 months through the use of simple cost-effective interventions.

## Design/Methods

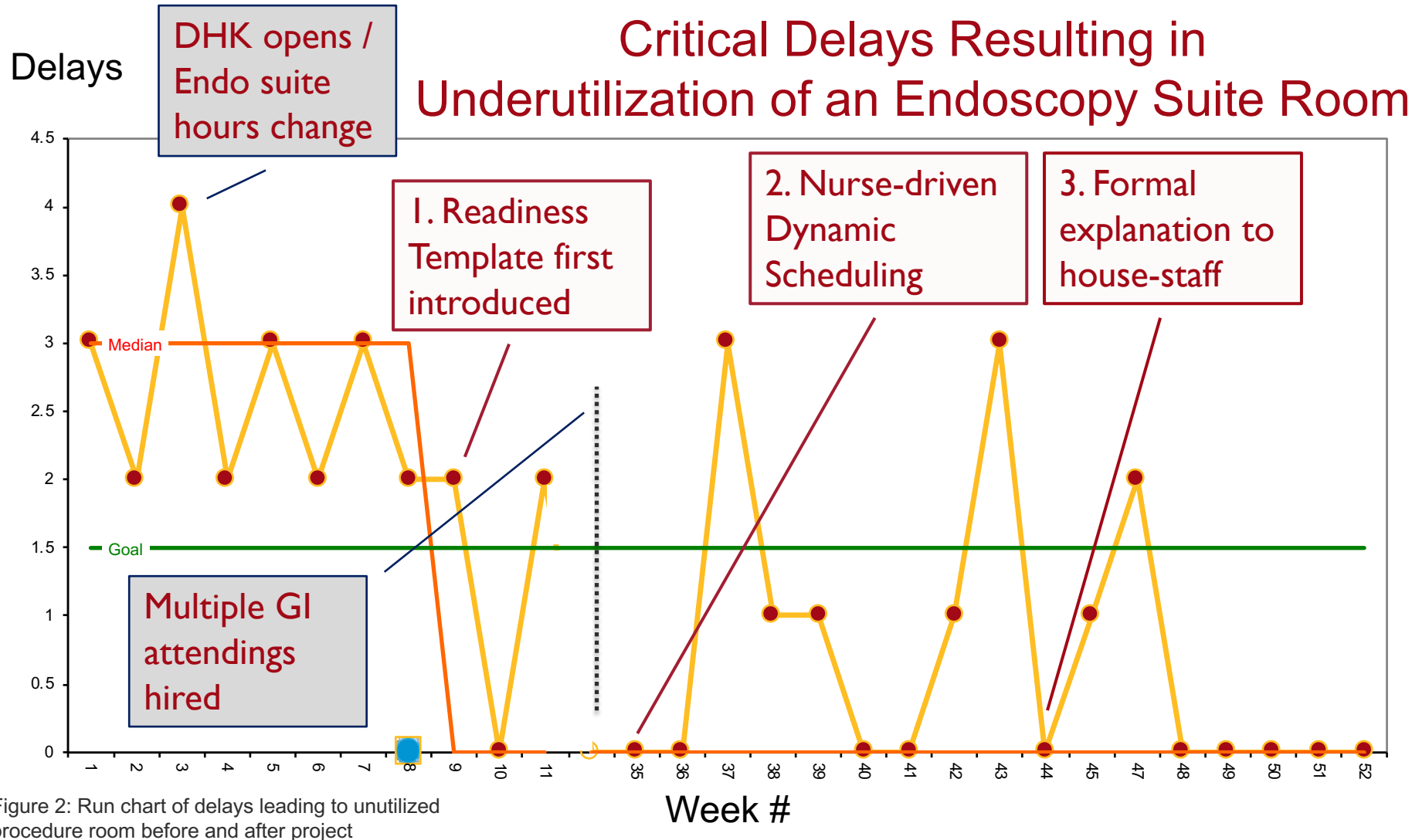
This is an interventional, prospective study divided into 2 phases. In Phase I, we identified subjects prospectively who experienced a delay in an endoscopic procedure. Chart review identified common causes for delays that were divided into "themes." In Phase II, we sequentially employed: 1) A formal electronic Readiness Template used in consult notes that addresses → lab thresholds, anti-coagulation, transfusions, need for clearance notes, NPO status, prep instructions and 2) A house-staff meeting regarding the importance of this project. A concurrent nurse-driven change in scheduling procedures was adapted into our study. We prospectively collected data to track the number of and causes for delays resulting in an unutilized room during the sequential roll-outs.

## Results

### Inpatient Readiness Factors Leading to Procedure Delays



Note: Estimated procedure room usage fee: ~\$5,000



## Discussion and Conclusions

-The median number of delays resulting in underutilized rooms before our interventions was 3 per week. After our interventions, the new median fell to below our goal of 1.5 as hoped.

-The potential usage fee loss before our study: \$5,000/case x 3 missed cases/week x 52 weeks/year = \$780,000/year in just 1 room.

The most common types of delays prior to the intervention were medical-related (lab abnormalities) and provider-related (communication issues). Our 1<sup>st</sup> intervention introduced clear, consistent, and detailed instructions from our consultant fellows written in the EMR. Delays due to inpatient factors seems to have decreased by the end of the study. Although endoscopy suite-related issues were not within the scope of this study, active nursing assessment of the schedule also played a role in preventing critical delays. Knowledge of this Quality Improvement project by house-staff may help sustain some of the improvements we have achieved.

Several limitations may have affected our study: 1) Mid-year roll out affecting consistency of robust data collection 2) Systems changes - Opening of DHK, change in endoscopy suite's hours, new training and faculty hires, and new scheduling methods.

Furthermore, simply alerting involved parties about a quality initiative alone may promote thoughtful anticipatory behavior. Overall, our data suggest cost-effective interventions can be effective in providing timely patient care and can have tremendous cost-savings.

## Next Steps

Other cost-effective interventions are in the pipeline, including: 1) Better communication - utilization of the mobile heartbeat application with the suite and consult service, and 2) Educational sessions on "readiness" for MD/PA/NP/assistants.

Finally, this project only evaluated inpatient readiness factors that led to delayed inpatient endoscopy procedures; other areas of research include contributing factors from inside the endoscopy suite.

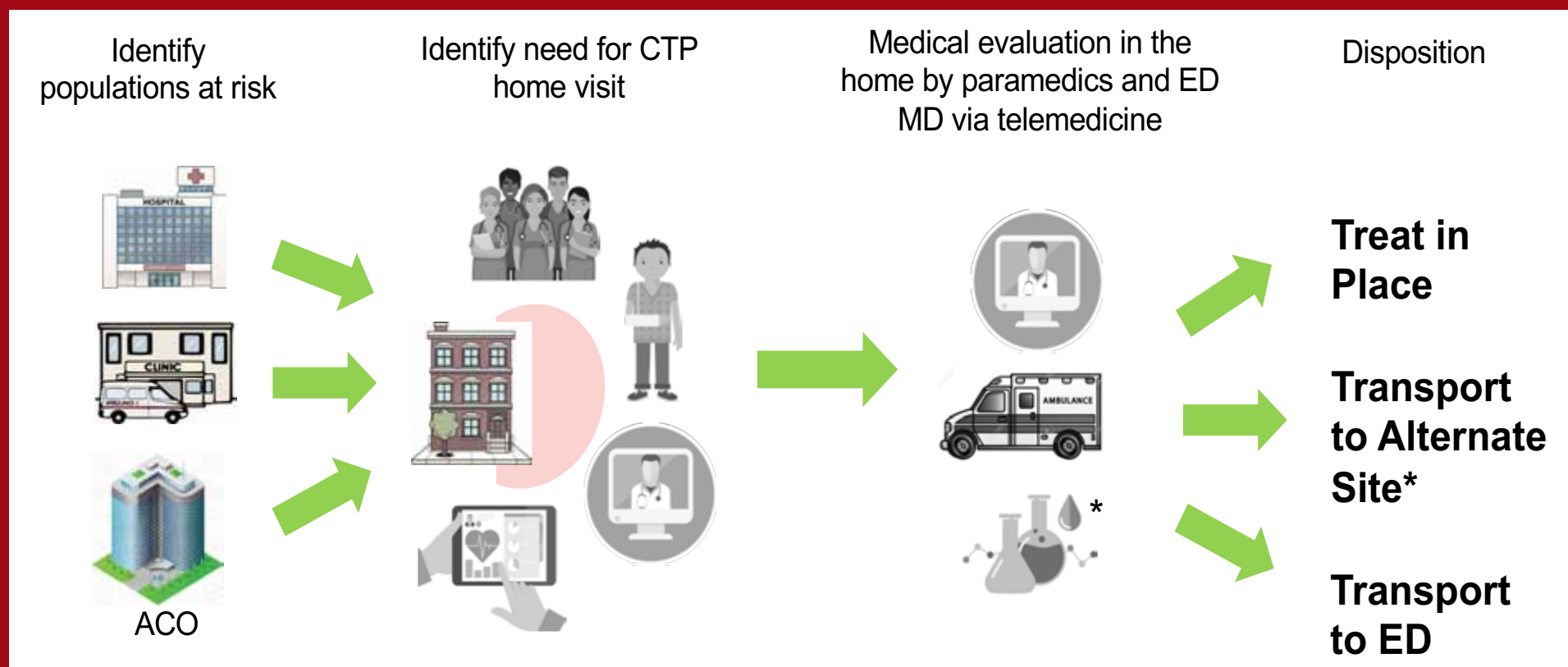




## Can Community Tele-Paramedicine at New York-Presbyterian Hospital (CTP@NYP) reduce unnecessary emergency department visits and unplanned 30-day hospital readmissions?

Brock Daniels, Peter Greenwald, Hanson Hsu, Peter Steel, Baria Hafeez, Brady Watts, Dan Ribaud, Mike Koppel, Alex Massac, Derrick Bheer Parag Goyal, Evelyn Horn, Rahul Sharma

### How does CTP@NYP work?



### Who is CTP@NYP?



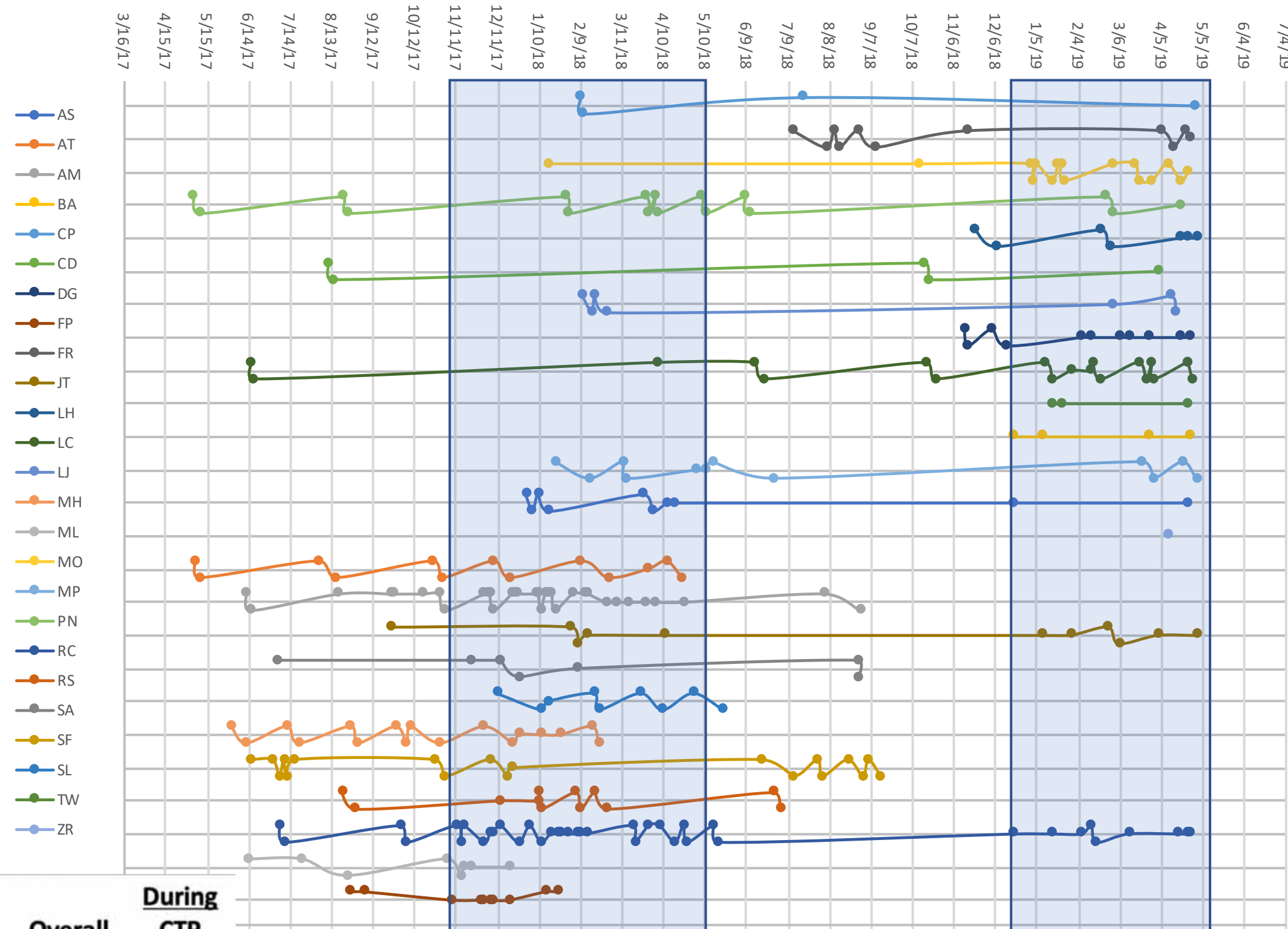
- Emergency Physicians
- Community Paramedics
- Care Manager
- Heart Failure Cardiologists

### What is the aim of CTP?

To bring high-quality, timely, patient-centered, comprehensive emergency triage and treatment to the homes of NYP patients.

### Natural history of 25 high-risk patients with heart failure followed during CTP pilot studies

- ❖ Each series of connected dots represents one patient over time
- ❖ Dots on the grey lines = CTP visits
- ❖ Dots above the grey lines = ED visit and/or hospital admission
- ❖ Dots below the grey lines = hospital discharge
- ❖ Each grey box represents 30 days



### Results:

#### Healthcare utilization of enrolled patients

		Overall	During CTP
Follow-up	Avg days of follow-up	364.72	40.60
	Avg admissions per patient	3.92	0.16
Admissions	Admit per 30 patient-days	0.32	0.12
	Avg 30-day readmit per patient	1.28	0.04
Readmissions	% 30-day readmit among discharges	32.65	8.33
	30-day readmit per 30 patient-days	0.11	0.03
ED visits	Avg ED visits per patient	5.32	0.20
	ED visits per 30 patient-days	0.44	0.15

### Conclusions

- ❖ SW/CM issues are common
- ❖ May require multiple CTP visits to stabilize
- ❖ Better to enroll early after discharge
- ❖ Better suited for patients with compliance, transport access or coordination barriers

Pilot #1 (19 pts)

Pilot #2 (16 pts)

### Next Steps

- Expand hours
- Enroll new disease-specific cohorts
- Integrate Remote Patient Monitoring
- Regionalization
- Randomized controlled trial

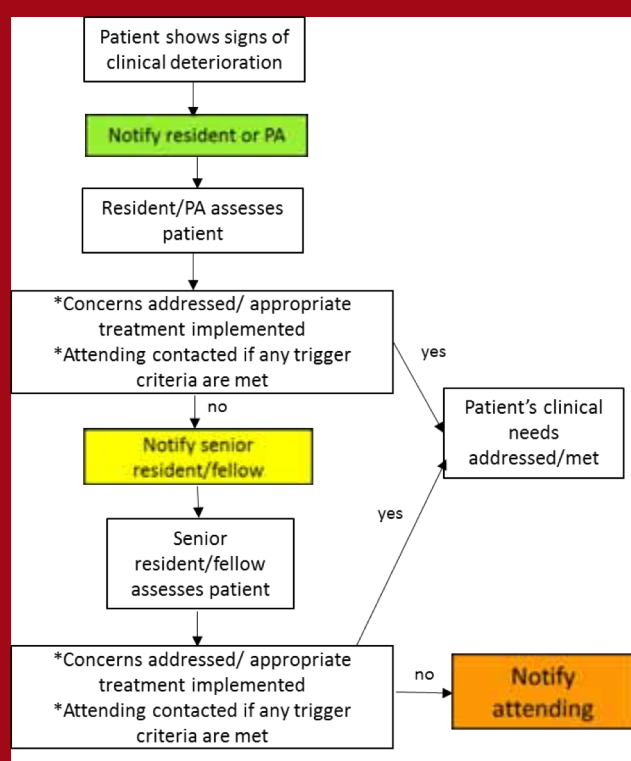


## Problem Statement

Over the past year, there have been 4 incidences of patient harm in the Surgical Intensive Care Unit (SICU) related to failure to escalate concerns about patient deterioration.

## Objective/Aim Statement

Improve communication between nurses and providers in the SICU so that concerns about clinical deterioration are addressed in a timely manner and appropriate interventions are implemented in order to prevent significant patient harm or death.

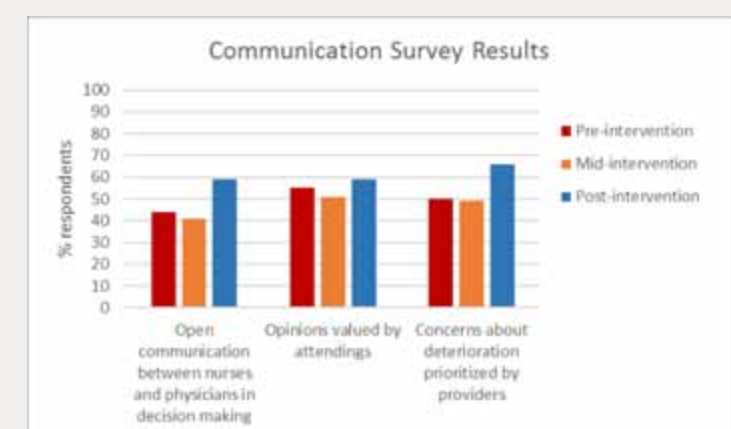
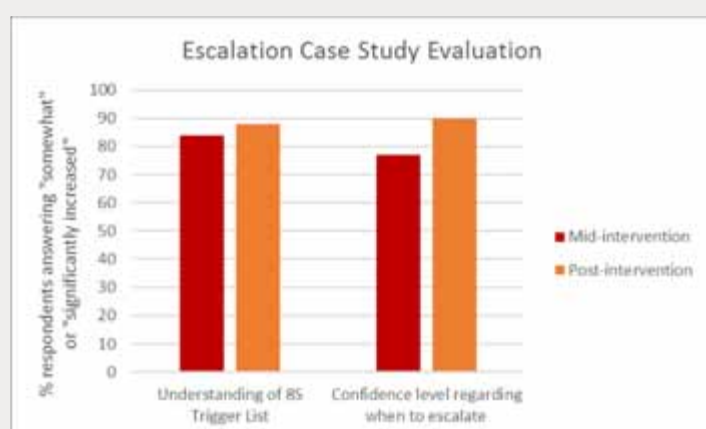


## Design/Methods

- SICU nurses surveyed to identify areas for improvement in team dynamics, communication between providers and nurses, and comfort with escalating patient care concerns to senior physicians
- Escalation note template integrated into Allscripts
- Case study of RCA event presented to all SICU RNs
- Escalation flow diagram and trigger list diagram created and posted around the unit
- Night shift multi-disciplinary rounds with the SICU attending were initiated to engage night shift nursing staff and include them in decision making

## Results

- Since the beginning of this project, there have been NO incidences of patient harm or events requiring root cause analysis related to failure to escalate.
- The escalation case study resulted in increased familiarity with the SICU Trigger List and confidence knowing when to escalate patient deterioration concerns.
- 13 escalation notes were completed in Allscripts.



## Conclusions/Lessons Learned

- Communication between nurses and physicians in the SICU presents an opportunity for improvement to optimize patient safety.
- Escalation note template provides a standardized documentation system for the details of escalation events including clinical condition and provider that the condition was escalated to.
- Discussion about specific events and the opportunities for escalation helps nurses to understand the escalation process and the resulting benefit to patient safety.
- Education about escalation can contribute to prevention of patient harm and death.

## Next Steps

- Create case studies addressing a variety of patient conditions/situations
- Escalation education is now part of new SICU nurse training
- Continue night shift attending rounds
- Weekly multidisciplinary SICU morbidity and mortality conferences
- Create structure for post-event debriefing

Special thanks to the Quality University - Dept. of Med. Team, especially Dr. Deanna Jannat-Khah, and Dr. Jennifer Inhae Lee, Dr. Robert Winchell, Dr. Patty Prufeta, Morgan Shikar and Emily Byrne.



**Problem Statement:**

- Acute exacerbations of chronic obstructive pulmonary disease (AECOPD) are associated with increased mortality, reduced quality of life, lung function decline, and increased resource utilization
- Patients hospitalized with AECOPD inconsistently receive interventions to reduce recurrent exacerbations and improve quality of life.

**Objective/Aim Statement:** Over a 12 month period, 85% of patients admitted with AECOPD:

- Will be discharged on guideline recommended pharmacologic therapy.
- Will receive best-practice care including medication use education, referral for pulmonary rehabilitation, and short term follow up with para-telemedicine for high risk patients.

**Design/Methods:**

- Retrospective chart review assessed care patterns for patients admitted with AECOPD from June 2017 – June 2018. Residents and PA education (pocket cards and didactic teaching) piloted with pre and post surveys to assess impact.
- Prospective data collection on intervention involving pharmacy, PT, PA/MDs and paratelemedicine to be completed

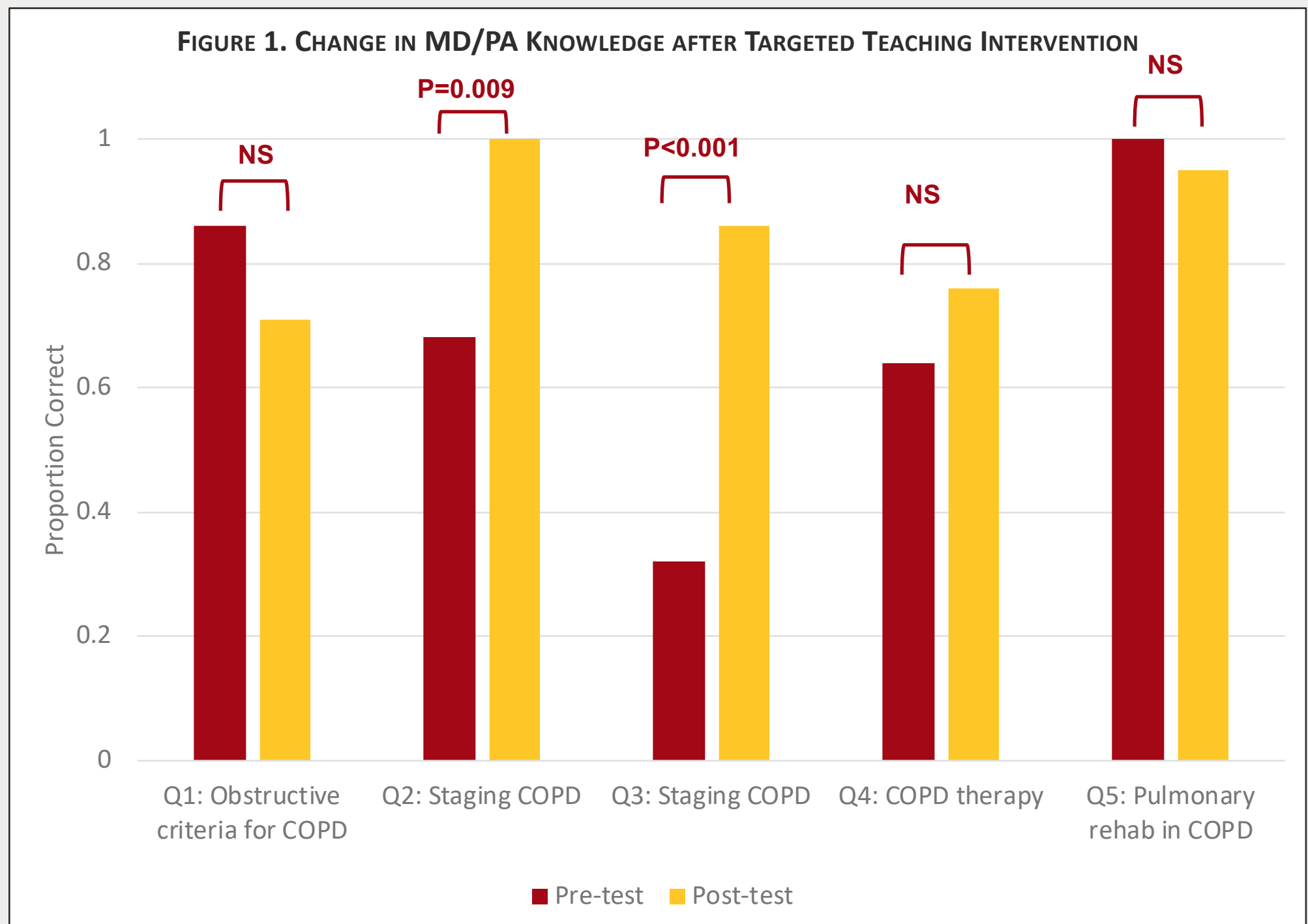
**RESULTS:**

**Table 1. Patient Demographics**

Variable	n = 50
Age, yrs (mean ± SD)	74.3 ± 10.6
Post bronchodilator FEV1% of predicted (mean ± SD)	50% ± 17.1%
Length of stay, days (mean ± SD)	6.7 ± 9.4
Number of hospitalizations in the prior year (mean ± SD)	2.04 ± 2.24
Comorbid CHF (%)	42
Comorbid Depression (%)	32
Smoking Status	
Current (%)	24
Former (%)	76
Pack years (mean ± SD)	49.8 ± 25.7
Outpatient Care at WCMC (%)	86

**Table 2. Historical Performance on Outcomes of Interest (n = 50)**

Outcome Description	N (%)
Discharged on guideline directed pharmacologic therapy	45 (90)
Referred to pulmonary rehabilitation	3 (6)
Received inhaler teaching	1 (2)
Follow up recommended with pulmonary	29 (58%)
Follow up recommended with primary care	32 (64%)



**Next Steps: Prospective Identification of AECOPD hospitalizations:**

- Targeted teaching to care providers on best practices for prevention of readmissions
- Coordinated PharmD intervention providing: inhaler training, medication reconciliation, insurance availability, and print resources
- Initiate referral process for pulmonary rehabilitation
- Enrollment of high risk patients in paratelemedicine program for expedited follow up

**Lessons Learned:**

- Adherence to guideline-directed therapy for AECOPD is an area for improvement in our hospital.
- Educational intervention improves resident and PA knowledge of AECOPD management and prevention.





# Opioid Stewardship in the Hospital

Alexis Vien MD, Grace Shyh PharmD | May 22, 2019

## Background

- Opioids are commonly prescribed to treat acute pain in the hospital with adverse effects including the transition to chronic opioid use and opioid use disorder.
- Multi-modal therapy for acute pain is an evidence-based strategy to effectively treat acute pain while decreasing opioid exposure and thus decreasing harm to patients.

- Multi-modal therapy included patient education, standing non-opioid analgesics, physical therapy as well as hot/cold packs (Fig 2).

The opioid stewardship program entailed daily pharmacy stewardship rounds, monthly educational conferences for providers, distribution of pocket cards (Fig 2), and in-services for nurses and physical therapists.

## Objective/Aim Statement

- This study aimed to implement an opioid stewardship program for medicine patients in the acute setting.

## Design

- This was a prospective, single-center, cohort study of medicine patients with acute pain treated with opioids from July 1st, 2018 to February 28th, 2019 at NYP-Lower Manhattan Hospital.

## Methods

- Medicine patients treated with opioids for acute pain diagnoses were included in daily opioid stewardship rounds (Fig 1).

Figure 1. Opioid stewardship process map

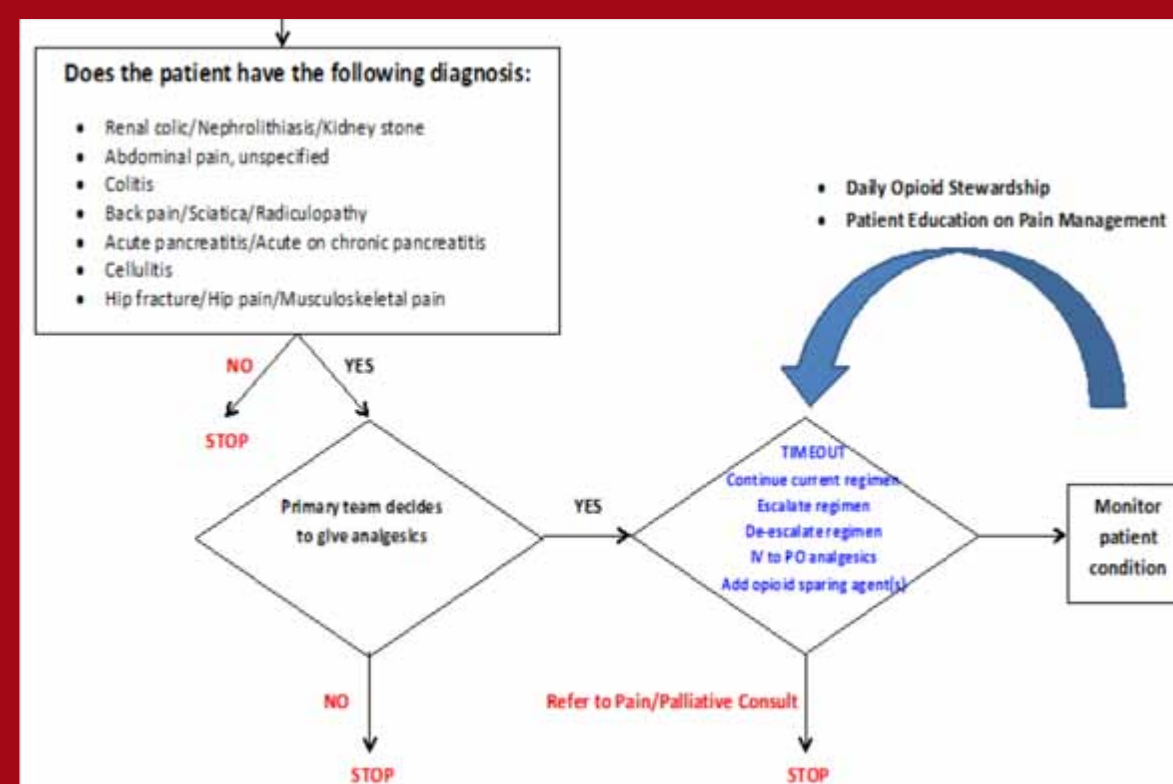


Figure 2. Multi-modal pain management

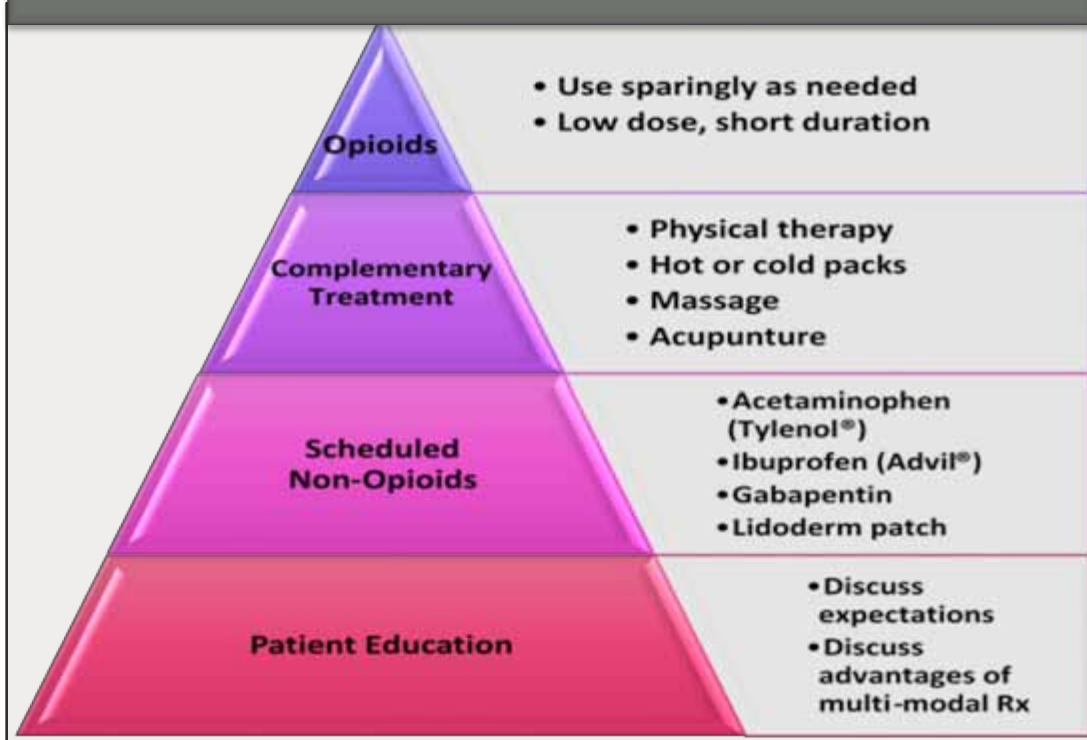


Figure 4. Adherence to multi-modal therapy over time

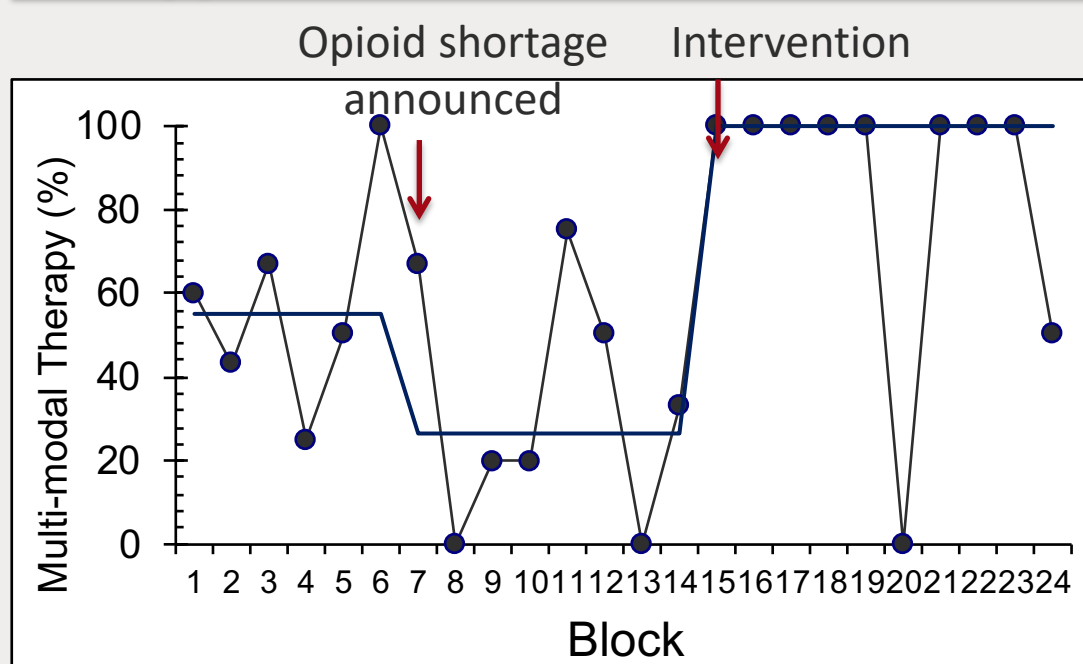


Figure 6. Overall opioid utilization

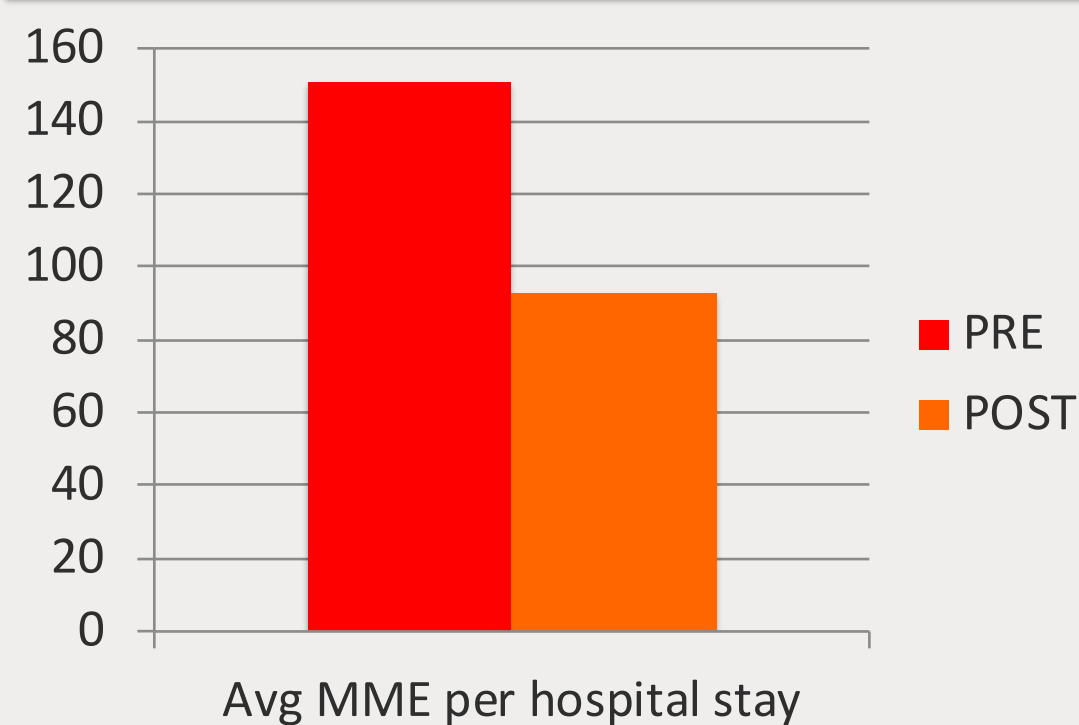


Figure 3. Provider knowledge survey

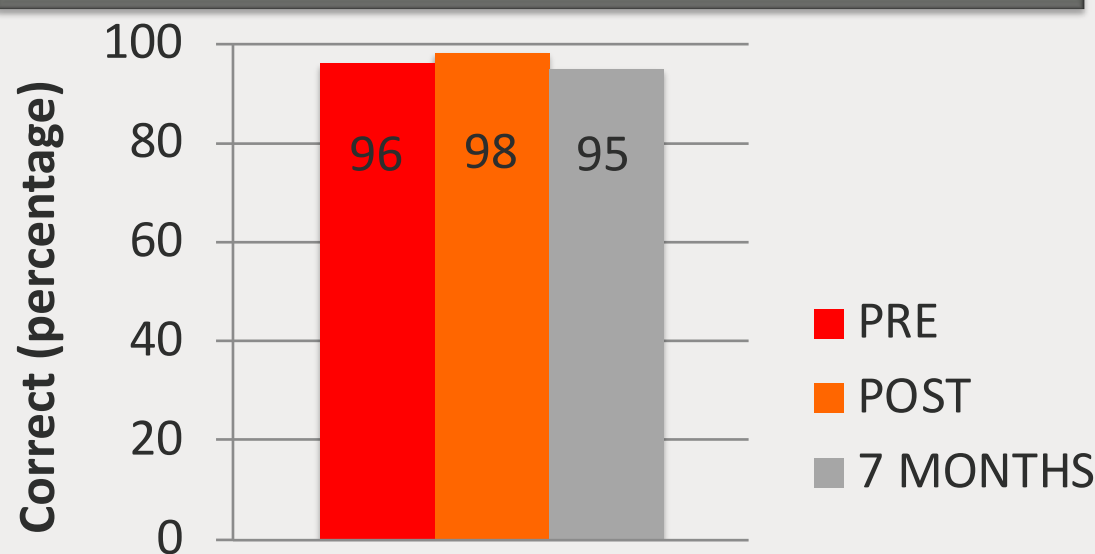
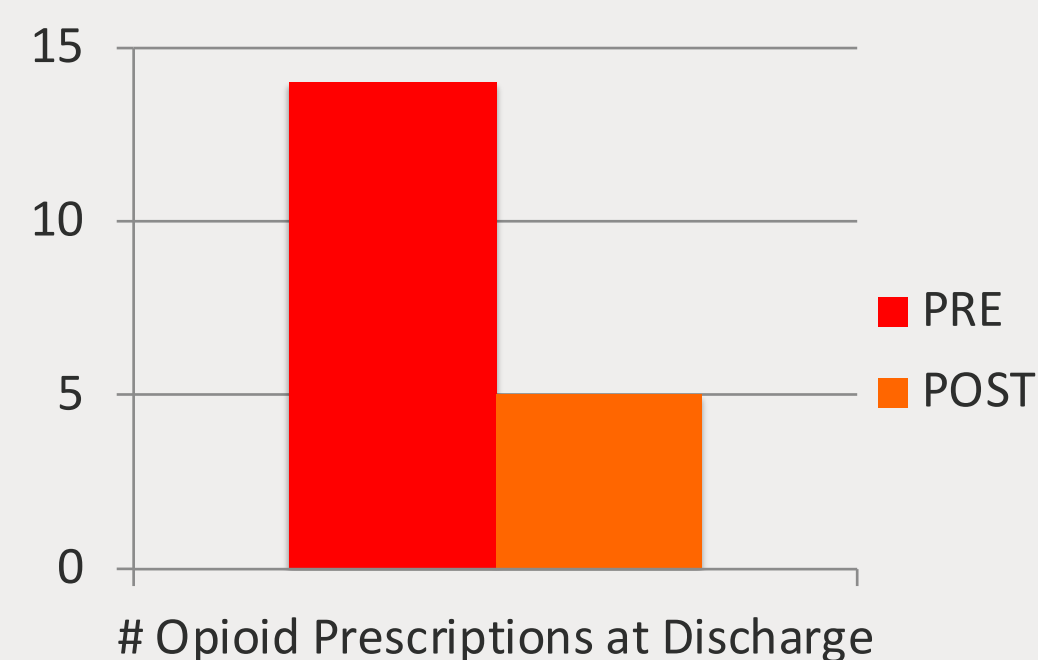
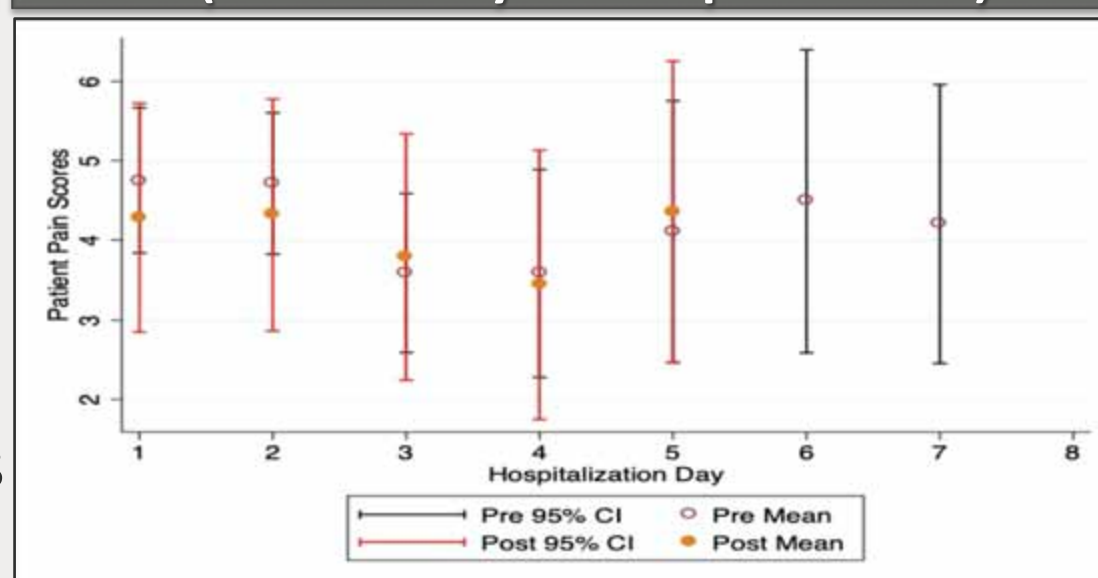


Figure 5. Opioid patients' mean daily pain scores (first five days of hospitalization)



## Results

- Provider knowledge of multi-modal therapy was excellent pre- and post-intervention (Fig 3).
- Adherence to multi-modal therapy increased from an average of 44% (N=50) pre-intervention to 76% (N=17) post-intervention (Fig 4).
- Opioid utilization in average MME per hospital stay decreased from 151 MME to 91 MME. Opioid prescriptions at discharge decreased from 14 to 5 (Fig 6).
- There was no difference in the mean pain scores pre- and post-intervention (Fig 5).

- Opioid stewardship emphasizing multi-modal therapy effectively treats acute pain in the hospital with no difference in the pain scores between pre- and post-intervention while reducing opioid exposure.
- Providers are knowledgeable about multi-modal therapy; providing them added support with stewardship rounds and educational conferences improves their implementation of best practices.

## Next Steps

- Expand opioid stewardship to non-medicine or ED patients
- Standardize opioid stewardship practice using ordersets

# Telepathology & ROSE (Rapid On-Site Evaluation) of Fine Needle Aspirations: A Successful Diagnostic Quality Improvement Initiative

## Abstract

### Background / Problem Statement

ROSE (Rapid onsite evaluation) for Fine needle aspiration cytology plays a critical role in procurement of adequate lesional material, specimen triage, and reduction of secondary procedures. A decrease in pathologist attendance on ROSE procedures due to multiple procedures occurring simultaneously and poor time efficiency due to lengthy procedures are challenging issues in large institutions. Cytotechnologists assist on procedures single handedly when pathologists are assisting on a different procedure or engaged in other activity. Length of time spent on ROSE can be as long as two hours of time for procedure completion.

### Goal / Target Condition

Goal is to include the pathologists in the majority of procedures as an integral part of the clinical team during ROSE procedures and specimen triage, collection for molecular testing, improve time efficiency, revenue, and potentially reduce need of patient to return and thus improving patient outcome.

### Problem / Root Cause Analysis

Telepathology System was not available. Multiple procedures were occurring simultaneously in varied locations and pathologists were unable to assist with these procedures.

### Interventions / Implementations

Telepathology remote systems for ROSE procedures to include pathologists as part of the clinical team were validated and implemented to allow pathologist involvement remotely for all procedures. Mobile heart beat telecommunications were implemented to assist with communication. Improved pathologist participation for ROSE procedures.

### Results

Comparison of 6 month periods of 2017 (698) and 2018 (1164) periods demonstrated an increase of 67% participation of pathologists on ROSE procedures. Improved performance (1%) of onsite assessment when compared to final diagnosis.

### Follow Up Actions / Standardization

Weekly review and focused QA of discordant cases at quality conference for improved diagnostic outcome. Continued improvement of telecommunications system improvement particularly with Mobile Heart Beat connectivity issues. Continued compliance with regulatory standards of CAP and NYS DOH.





# Telepathology & ROSE (Rapid On-Site Evaluation) of Fine Needle Aspirations: A Successful Diagnostic Quality Improvement Initiative

Susan Alperstein CT(ASCP), Joby Zachariah CT(ASCP), Momin T. Siddiqui MD  
Papanicolaou Cytology Laboratory, Department of Pathology and Laboratory Medicine

## Background:

- ❖ ROSE plays a role in aspiration of adequate lesional material, specimen triage, and reduction of secondary procedures.
- ❖ Decrease in pathologist attendance on multiple simultaneous ongoing ROSE's in different locations is a logistical challenge.
- ❖ Cytotechnologists often assist on procedures solo. Length of time spent on-site can be as long as two hours.

## Objective/Aim:

- ❖ To include the pathologists during ROSE of fine needle aspirations and specimen triage for improving diagnosis and optimizing specimens for molecular testing.
- ❖ Improve time efficiency, revenue, and patient outcome.

## Design/Methods:

- ❖ Telepathology remote systems for ROSE procedures to include pathologists as part of the clinical team.
- ❖ Mobile Heart Beat telecommunications were implemented to assist with communication.

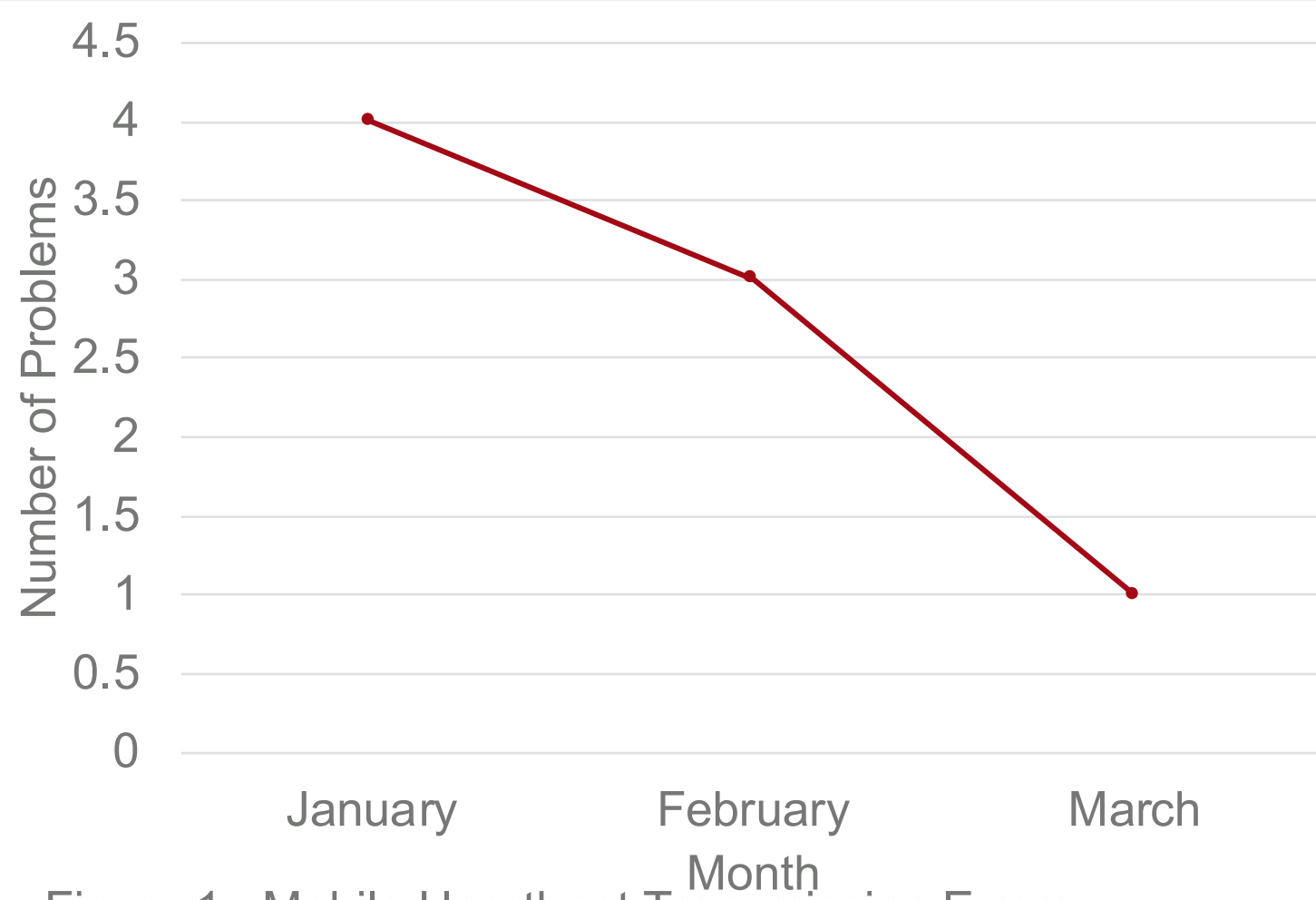
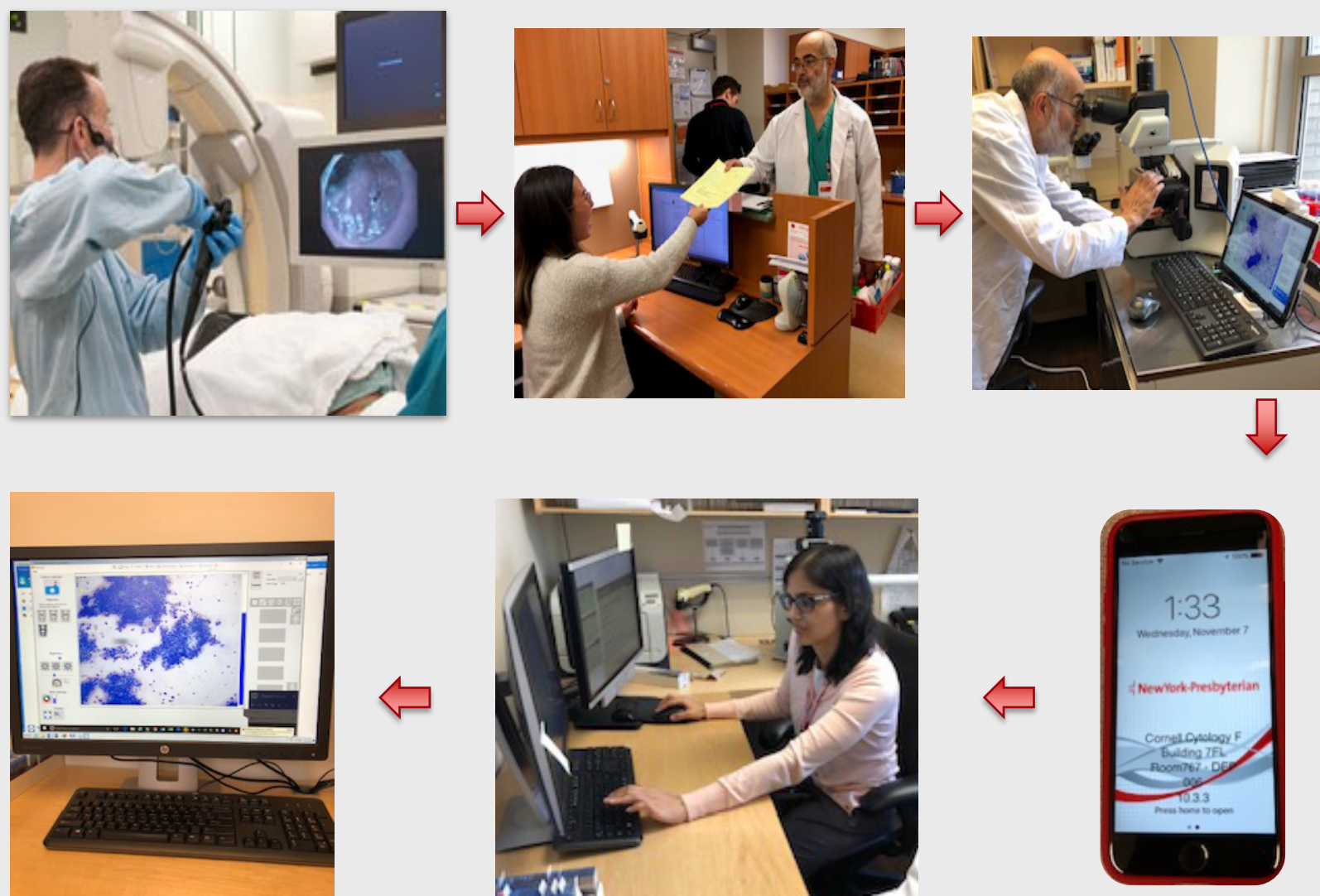


Figure 1. Mobile Heartbeat Transmission Errors.

## Results:

- ❖ 67% increase in participation of pathologists on ROSE procedures with Telepathology.
- ❖ Improved performance (1%) of on-site evaluation when compared to final diagnosis.

## Discussion/Conclusions:

- ❖ Weekly review and focused QA of discordant cases at quality conference for improved diagnostic outcome.
- ❖ Continued improvement of telecommunications system improvement.
  - Mobile Heart Beat connectivity issues were improved
- ❖ Continued compliance with regulatory standards of CAP and NYS DOH.

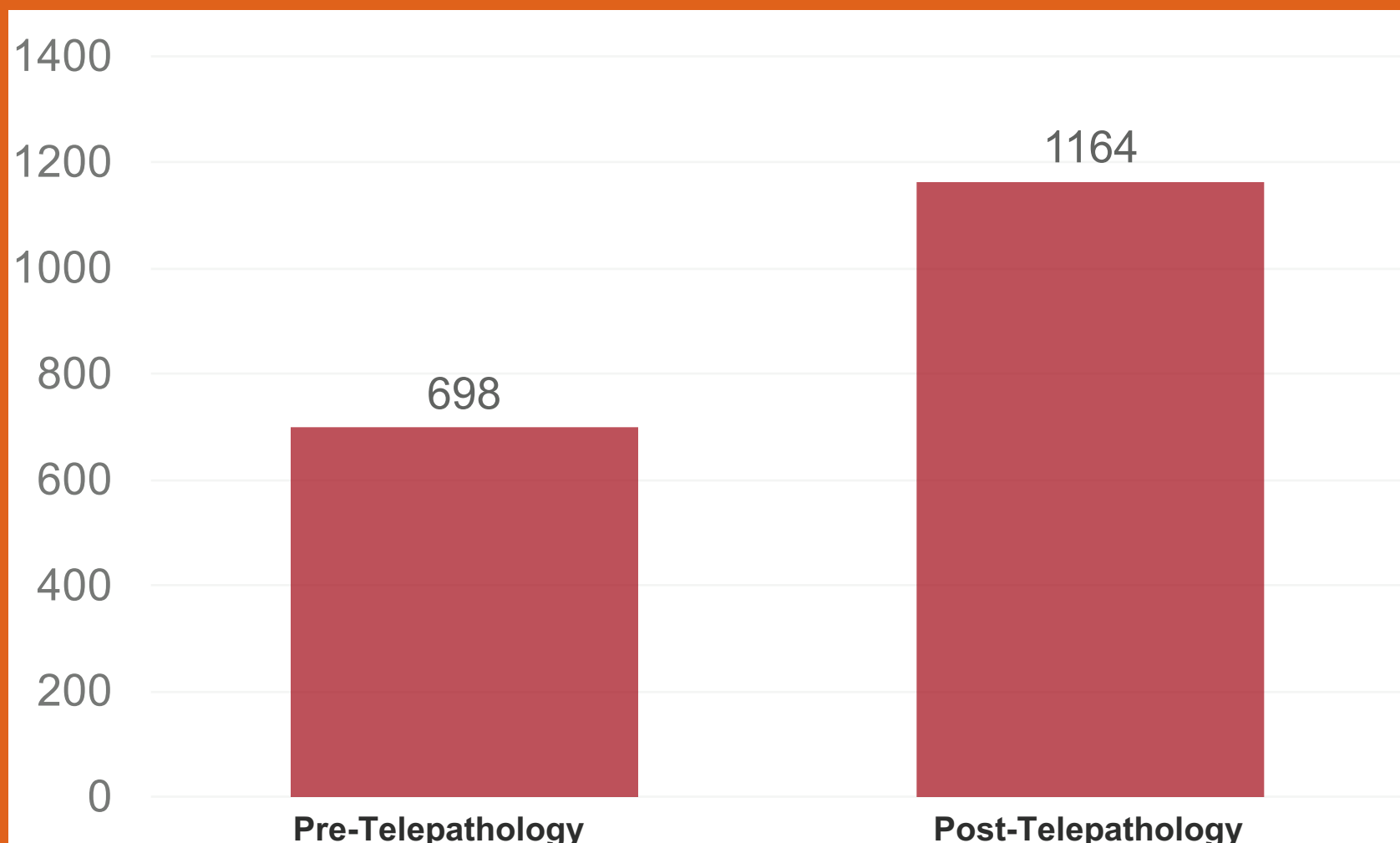


Figure 2. 6 Month Comparison Review of Pathologist assisted FNAs.

## **Eliminating CK-MB in Acute Coronary Syndrome Management: A Value Based Quality Improvement**

Fawzi Ameer, MD, Xuming Dai, MD PhD

**Introduction:** With the availability of cardiac troponin assays, CK/CK-MB does not provide value to clinical decision making in chest pain/acute coronary syndrome management and adds additional costs. Despite this, CK/CK-MB was routinely ordered in our institution (New York Presbyterian Queens) for chest pain admissions. We recommended eliminating the use of CK-MB and using troponin as the sole biomarker of choice in management of patients with chest pain and concern for acute coronary syndrome (ACS). We asked if this initiative would reduce the amount of inappropriately ordered CK/CK-MB, reduce associated cost, and whether it would negatively impact ACS mortality.

**Methods:** 1) Preparation including literature review, interdisciplinary discussion, educational campaign. 2) Implementation starting in April 2018, by distributing a memorandum to the NYPQ emergency department, and all medicine divisions announcing the elimination of CK/CK-MB in chest pain/ACS evaluations, activating an Allscript alert upon entering CK/CK-MB orders and removing CK/CK-MB from order sets. Data of CK/CK-MB orders were then collected and compared between before and after the implementation of the initiative, as well as its impact on cost and clinical mortality in patients admitted for ACS.

**Results:** From the implementation of our initiative there was a significant decrease in total CK-MB ordered. From April 1<sup>st</sup> 2018-March 31<sup>st</sup> 2019 in the NYPQ emergency department there were 208 total orders of CK-MB at a total cost of \$ 264.16. Over the same time period, there were 957 total inpatient CK-MB orders at a cost of \$1,215.39. Reviewed lab data from 2016 and 2017 showed that in the inpatient setting in 2016 there were a total of 5020 total CK-MB orders at a cost of \$ 6,387.95 and in 2017 a total of 5,596 CK-MB orders at a cost of 7,120. Over the same time period in the ED there were in 2016 6,696 CK-MB orders at a cost of \$8,520.66 and in 2017 a total of 3860 orders at a cost of \$4,911.85. Since CK-MB is always ordered with total CK, the cost burden of CK-MB would be doubled to include the associated CK.

**Conclusions:** We found that our value-based quality improvement initiative aiming to eliminate CK/CK-MB in managing chest pain/ACS significantly reduced the hospital wide utilization of CK/CK-MB. This corresponded with a robust decrease in lab cost. Yearly lab cost in regards to CK/CK-MB dropped nearly 90% without evidence of negative impact on hospital chest pain/ACS quality of care and mortality rates.





# Eliminating CK-MB in Acute Coronary Syndrome Management: A Value Based Quality Improvement

Weill Cornell Medicine Quality Improvement Poster Session

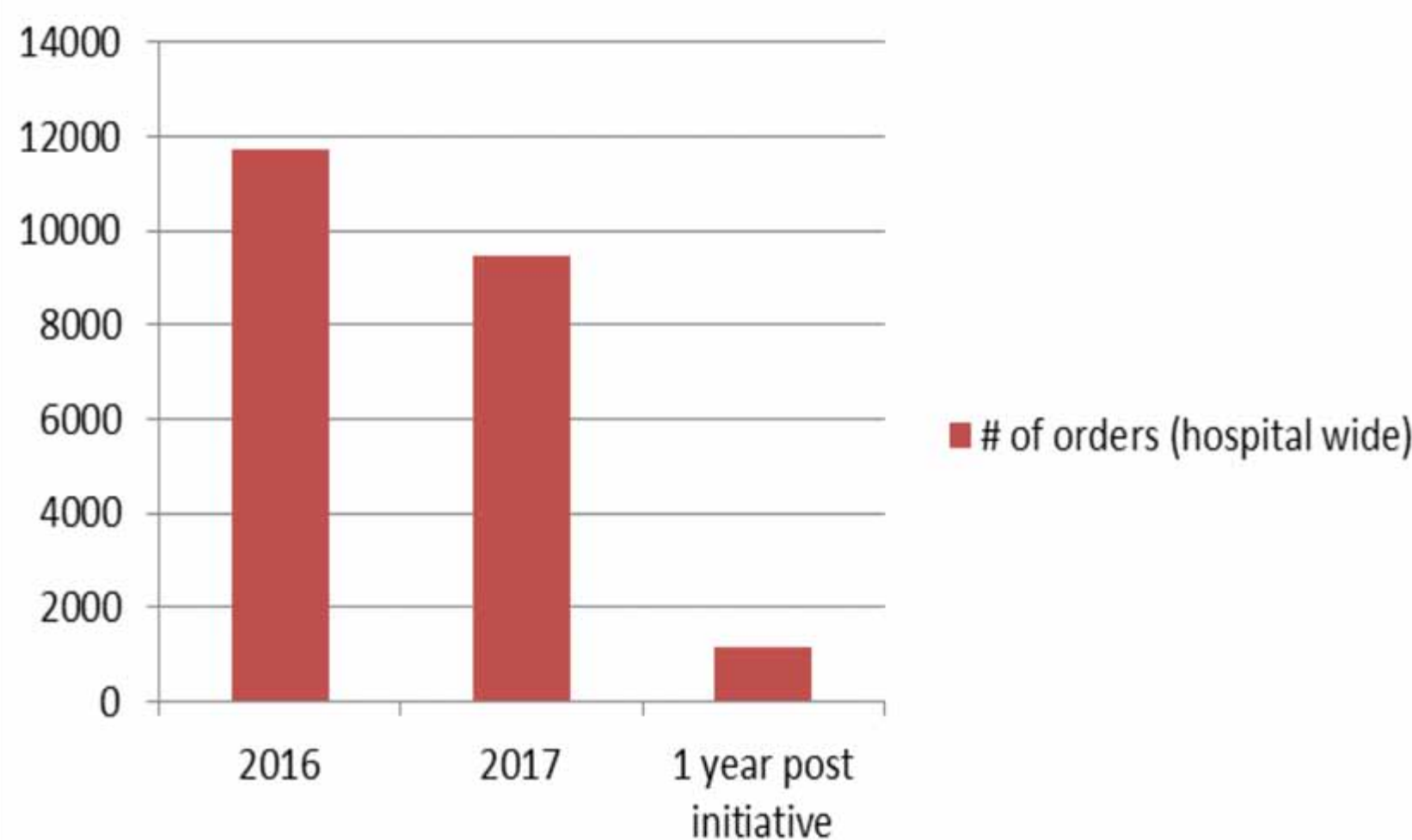
Fawzi Ameer, MD, Xuming Dai, MD PhD | 5/22/2019

**Problem Statement:** With the availability of cardiac troponin assays, CK/CK-MB does not provide value to clinical decision making in chest pain/acute coronary syndrome management and adds additional costs. Despite this, CK/CK-MB was routinely ordered in our institution (New York Presbyterian Queens) for chest pain admissions.

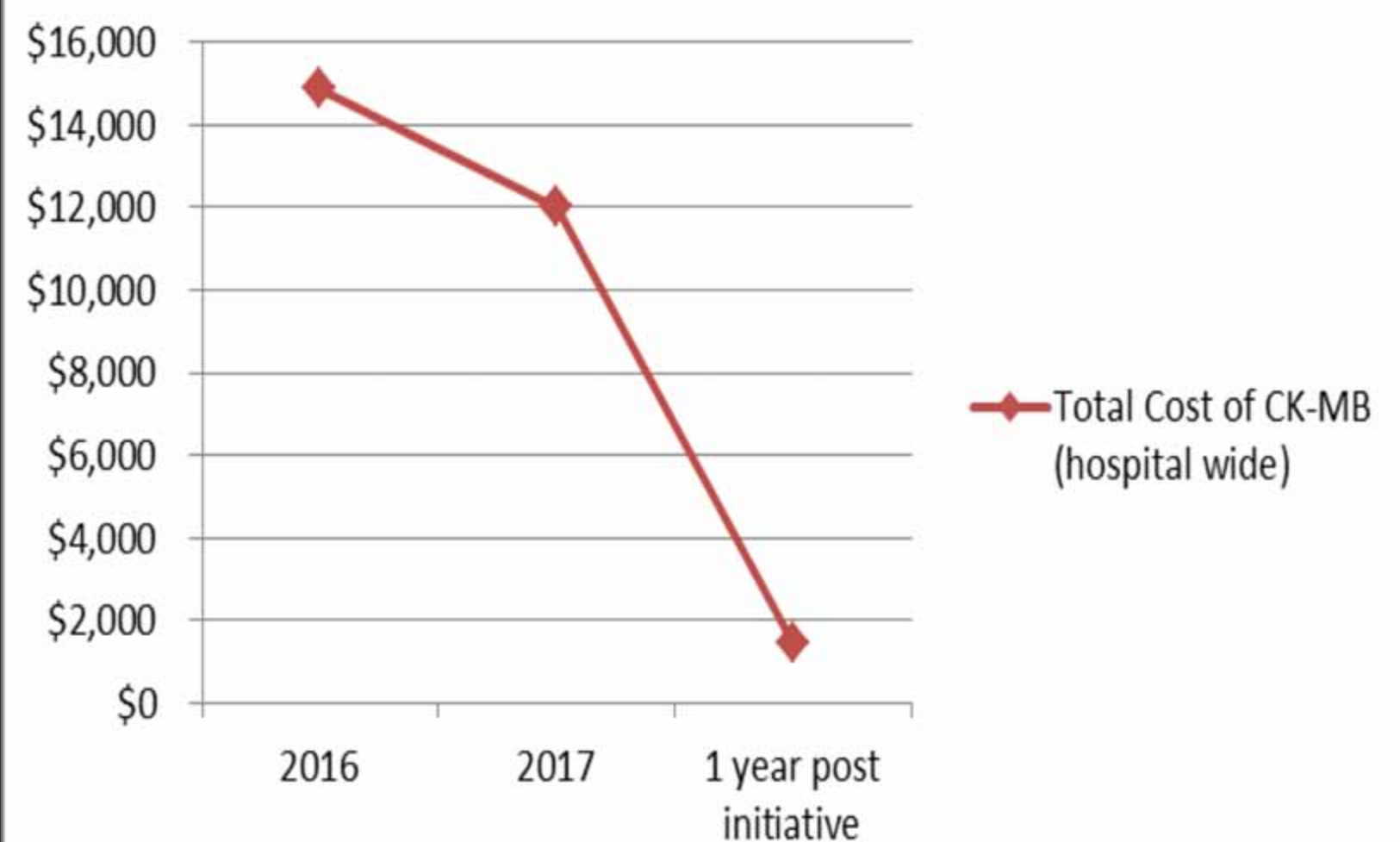
**Objective/Aim Statement:** Recommended to eliminating the use of CK-MB and using troponin as the sole biomarker of choice in management of patients with chest pain and concern for acute coronary syndrome (ACS). We asked if this initiative would reduce the amount of inappropriately ordered CK/CK-MB, reduce associated cost, and whether it would negatively impact ACS mortality.

**Design/Methods:** 1) Preparation including literature review, interdisciplinary discussion, educational campaign. 2) Implementation starting in April 2018, by distributing a memorandum to the NYPQ emergency department, and all medicine divisions announcing the elimination of CK/CK-MB in chest pain/ACS evaluations, activating an Allscript alert upon entering CK/CK-MB orders and removing CK/CK-MB from order sets. Data of CK/CK-MB orders were then collected and compared between before and after the implementation of the initiative, as well as its impact on cost and clinical mortality in patients admitted for ACS.

### CK MB orders (hospital wide)



### Total Cost of CK-MB (hospital wide)



**Results:** From the implementation of our initiative there was a significant decrease in total CK-MB ordered. From April 1<sup>st</sup> 2018-March 31<sup>st</sup> 2019 in the NYPQ emergency department there were 208 total orders of CK-MB at a total cost of \$ 264.16. Over the same time period, there were 957 total inpatient CK-MB orders at a cost of \$1,215.39. Reviewed lab data from 2016 and 2017 showed that in the inpatient setting in 2016 there were a total of 5020 total CK-MB orders at a cost of \$ 6,387.95 and in 2017 a total of 5,596 CK-MB orders at a cost of 7,120. Over the same time period in the ED there were in 2016 6,696 CK-MB orders at a cost of \$8,520.66 and in 2017 a total of 3860 orders at a cost of \$4,911.85. Since CK-MB is always ordered with total CK, the cost burden of CK-MB would be doubled to include the associated CK.

**Conclusions:** We found that our value-based quality improvement initiative aiming to eliminate CK/CK-MB in managing chest pain/ACS significantly reduced the hospital wide utilization of CK/CK-MB. This corresponded with a robust decrease in lab cost. Yearly lab cost in regards to CK/CK-MB dropped nearly 90% without evidence of negative impact on hospital chest pain/ACS quality of care and mortality rates.

**Next Steps:** Our next step is to quantify further the correlation between improvement in savings with the lack of change in regards to patient care and outcomes.

## **Abstract**

Weill Cornell Medicine sought to decrease high-risk opioid prescribing behaviors by collecting and sharing data on outpatient opioid prescribing with medical departments and providers. Working with our colleagues in Physician Organization Information Systems (POIS), we developed automated reports to pull opioid-related data from the electronic medical record. These reports were then shared with selected practices (those identified as having a higher percentage of high risk prescribing behaviors). We then developed resources (a comprehensive Opioid Prescribing Toolkit, a Top 10 Tenets of Opioid Prescribing campaign, and an Opioid Safety and Pain Management brochure) for both providers and patients and deployed to all departments, with focused teaching in those departments identified as the highest prescribing. Data collected from December of 2016 through March 2019 shows steady declines in all key metrics, including # of patients with opioid prescriptions (29% decrease), # of opioid prescriptions (25% decrease), and total # of morphine milligram equivalents (MME) prescribed (38% decrease). Initial interventions (electronic prescribing, development of policy and development of monthly reports) in conjunction with state-mandated initiatives (I-Stop, mandatory education, letters to high-risk prescribers) correlated with a downward trend in the high-risk prescribing behaviors across the Physician Organization. The development and rollout of the Opioid Prescribing Toolkit, The Top 10 Tenets of Opioid Prescribing flyer and the patient-focused brochure intended to augment ongoing efforts. Next steps will include one-on-one meetings with high prescribers to further support them in identifying and reducing their high-risk prescribing behavior. We will continue to monitor opioid prescribing data and report on prescribing trends every 6 months.



## Problem Statement

The opioid crisis has caused significant harm in New York State (NYS) and New York City (NYC), where the rate of all opioid overdose deaths per 100,000 NYS residents doubled between 2010 and 2015.

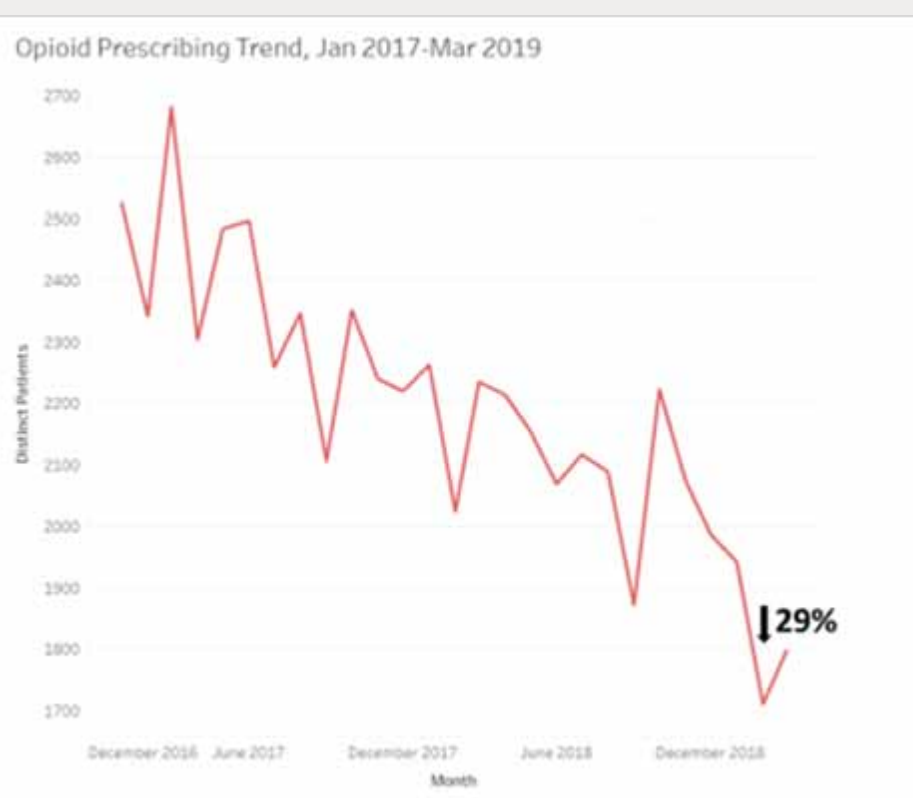
## Design/Methods

- Collect baseline data beginning in January 2017 and distribute through automated monthly reports for opioid prescribing by practice and physician
- Develop and implement a comprehensive opioid prescribing policy, which includes checking the state prescription monitoring program, performing urine toxicology screens, and signing an opioid contract
- Develop informative and accessible resources for providers and patients:
  - Opioid Prescribing Toolkit
  - Top 10 Tenets of Opioid Prescribing
  - Opioid Safety and Pain Management brochure
- Implement electronic prescription software defaults to 'nudge' providers to choose the minimum dose and duration for short-acting opioids per CDC guidelines
- Convene with physician leaders of departments with the highest opioid prescribing levels to discuss the opioid policy, share the educational resources, and develop plans to decrease high-risk prescribing

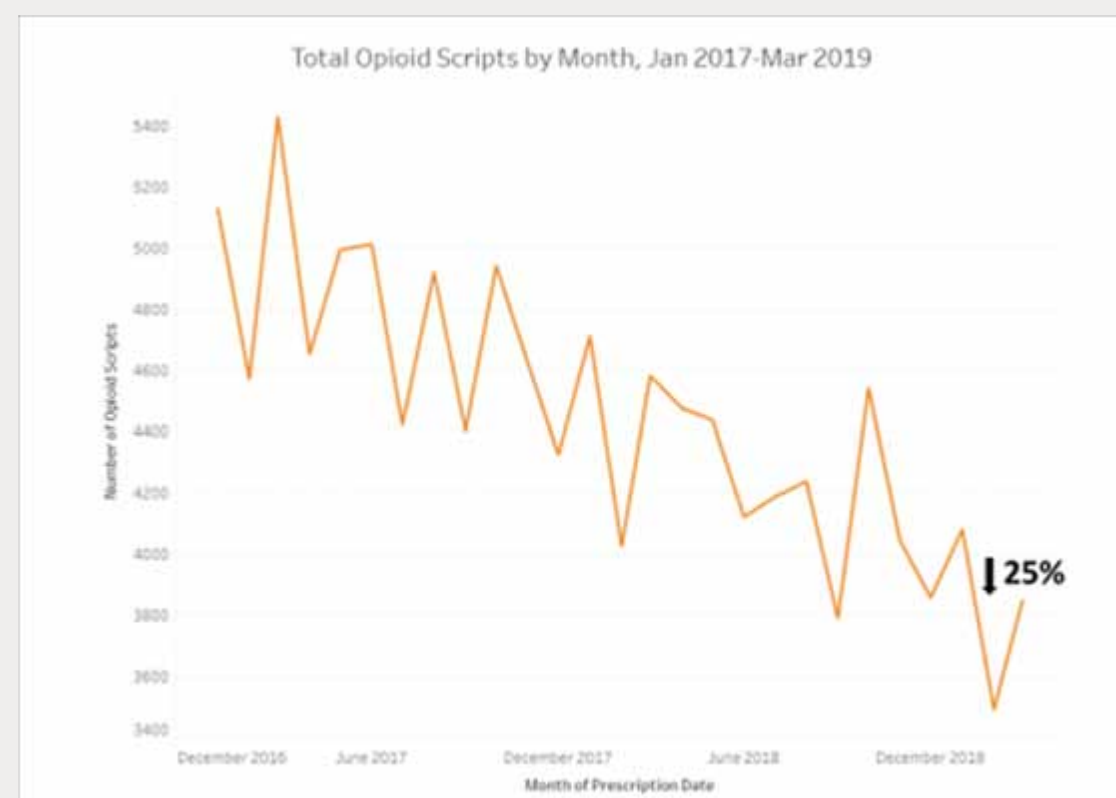
## Objective/Aim Statement

- To describe an initiative led by the Division of Quality & Patient Safety at Weill Cornell Medicine (WCM) to reduce high-risk opioid prescribing behaviors among its providers
- To report results showing the downward trends in opioid prescribing over the course of the interventions

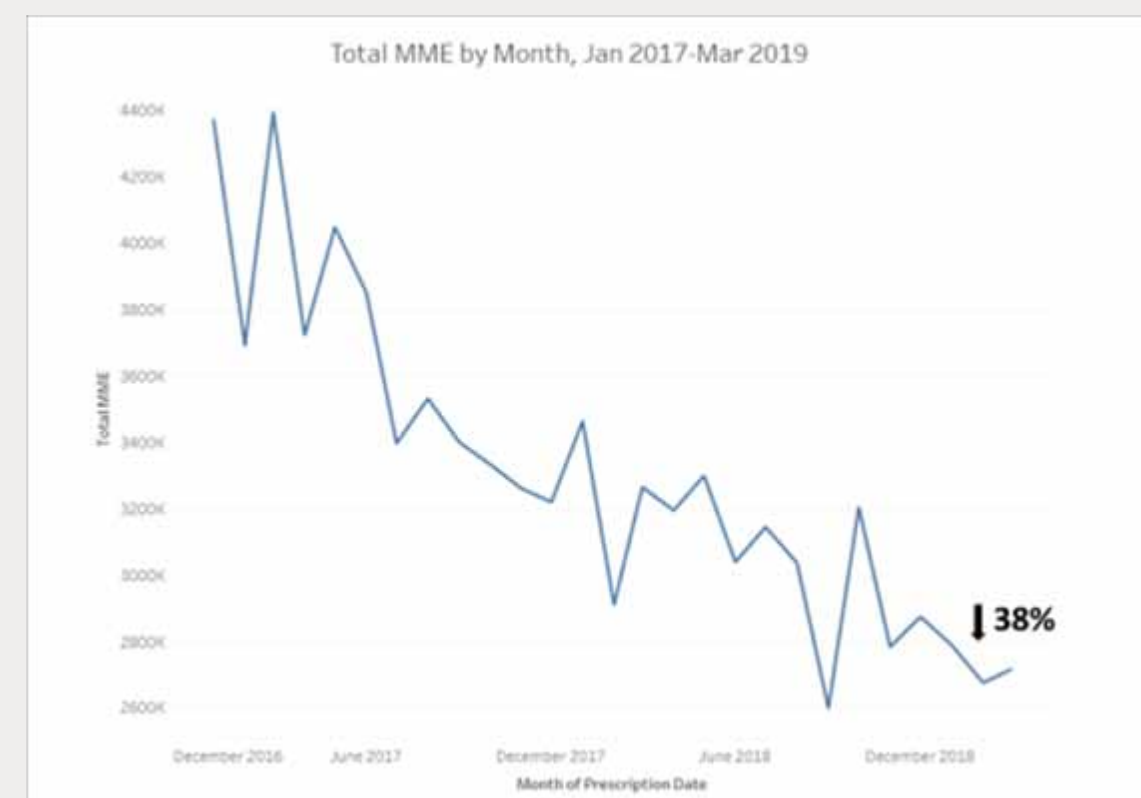
## Results



*The opioid prescribing trend shows a 29% decrease in distinct patients prescribed opioids from December 2016 to March 2019.*



*The number of opioid scripts prescribed declined 25% from December 2016 to March 2019.*



*The total morphine milligram equivalents (MME) prescribed decreased 38% during the same time period.*

## Conclusions/Lessons Learned/Next Steps

- Interventions corresponded with declines in high-risk prescribing behaviors, in particular patients with opioid prescriptions, opioid prescriptions written, and total morphine milligram equivalents (MME) prescribed
- Next steps include reviewing the prescribing data after additional months of measurement and targeting outlier prescribers with more focused interventions

## Multidisciplinary Team Members

J. Travis Gossey, MD, WCM Physician Organization; Jessica Ancker, MPH, PhD, WCM Dept. of Healthcare Policy and Research

Title: A Home Infusion Program for Pediatric Patients with Inflammatory Bowel Disease: Improving care coordination.

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Introduction:

Home infusion programs (HIP) for patients with inflammatory bowel disease (IBD) have emerged as an method to deliver high quality, safe patient care, and at the same time help to alleviate care burdens for patients related to the cost, the need to travel and take time from attending school, college and work.<sup>1</sup> The North American Society for Pediatric Gastroenterology, Hepatology and Nutrition (NASPGHAN) identified several criteria for establishing best practices around HIP including timely communication following infusion, sharing of lab results and regular in-clinic follow-up visits, as determined by the provider overseeing IBD care.<sup>2</sup>

Objective: To improve communication between providers, home infusion companies and laboratories for a HIP for pediatric IBD. Our secondary objective was to improve patient compliance with follow-up visits while receiving HIP services.

Methods: A single site observational time-series was conducted from June 2016 to December 2017 at a clinic affiliated with a large academic center using multiple planned sequential interventions by inter-professional teams to improve a HIP for pediatric IBD patients age 6-18 years. Timely and complete receipt of home infusion nursing notes and laboratory results (process measures) and adverse event documentation (balancing measures) were obtained via an electronic health record review. Outcome measures



were collected via surveys (QOL and disease activity scores). Statistical process control charts and established rules for detecting special cause variation applied.

#### Results:

48 total patients participated in the study which accounted for 253 home infusions and 100 clinic follow-up visits. Results demonstrated an improvement in receiving complete nursing documentation from 72% to 100% and a decrease in average time to upload of home infusion note from 35 to 27 days. Timely receipt of laboratory results improved from 61.32% to 82.99%. Average time between follow-up visits with providers was 103.8 days, close to our aim of 90 days. There were no significant changes in disease activity scores and QOL surveys and no adverse events were documented during the study period.

#### Discussion:

Our results demonstrated an improvement in communication (timely and complete) between care team members in our HIP. The home infusion program delivered quality, and safe care as evidenced by well-controlled disease activity, stable self-reported QOL and no reported adverse events.

# A Home Infusion Program for Pediatric Patients with Inflammatory Bowel Disease: Improving Care Coordination

Eric Dybbro MD, Elaine Barfield MD, Robbyn Sockolow MD, Jennifer Lentine MS, Erika Abramson, MD MS, Snezana Nena Osorio MD MS

## Background

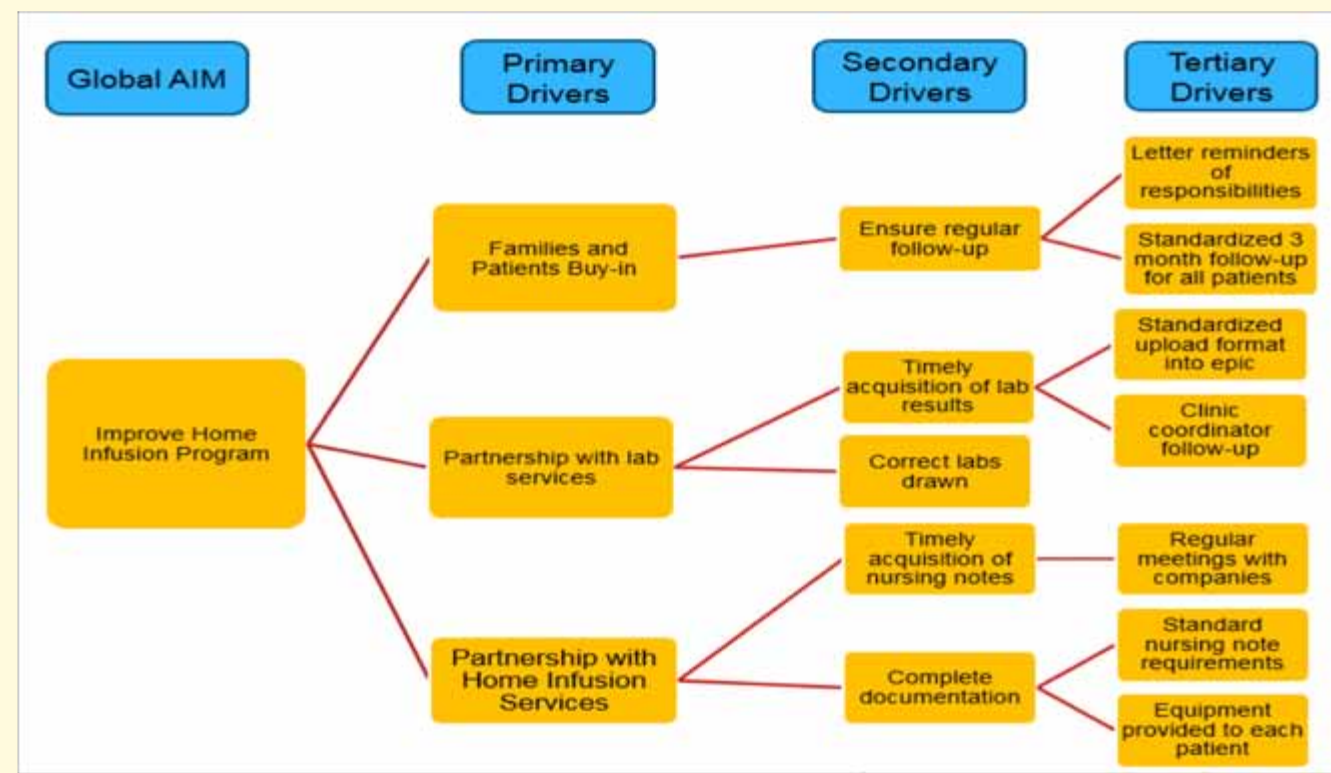
- While maintenance infusions for pediatric IBD have historically been administered in hospital infusion centers, home infusions are increasing due to insurance-driven pressure to decrease costs
- Home infusions at our center started in 2010 and currently serve over 80 patients
- A 2018 North American Society for Pediatric Gastroenterology, Hepatology and Nutrition (NASPGHAN) clinical report identified criteria for establishing best practices in home infusion programs (HIP) including: timely communication following infusions, sharing of lab results, and regular in-clinic follow-up.

## Objectives

- To improve communication between providers, home infusion companies, and laboratories for a HIPs in pediatric IBD.
- To improve patient compliance with follow-up visits while receiving HIP services.

## Methods

- Single site observational time series conducted from June 2016 to December 2017 at a clinic affiliated with a large academic center for patients 6-18 years.
- Timely and complete receipt of home infusion notes and laboratory results (process measures) and adverse event (AE) documentation (balancing measures) obtained via electronic health record review.
- Quality of life and disease activity scores (outcome measures) collected via surveys at patient clinic visits



## Results

- 48 patients enrolled in the study for total of 263 home infusion events and 100 follow up visits

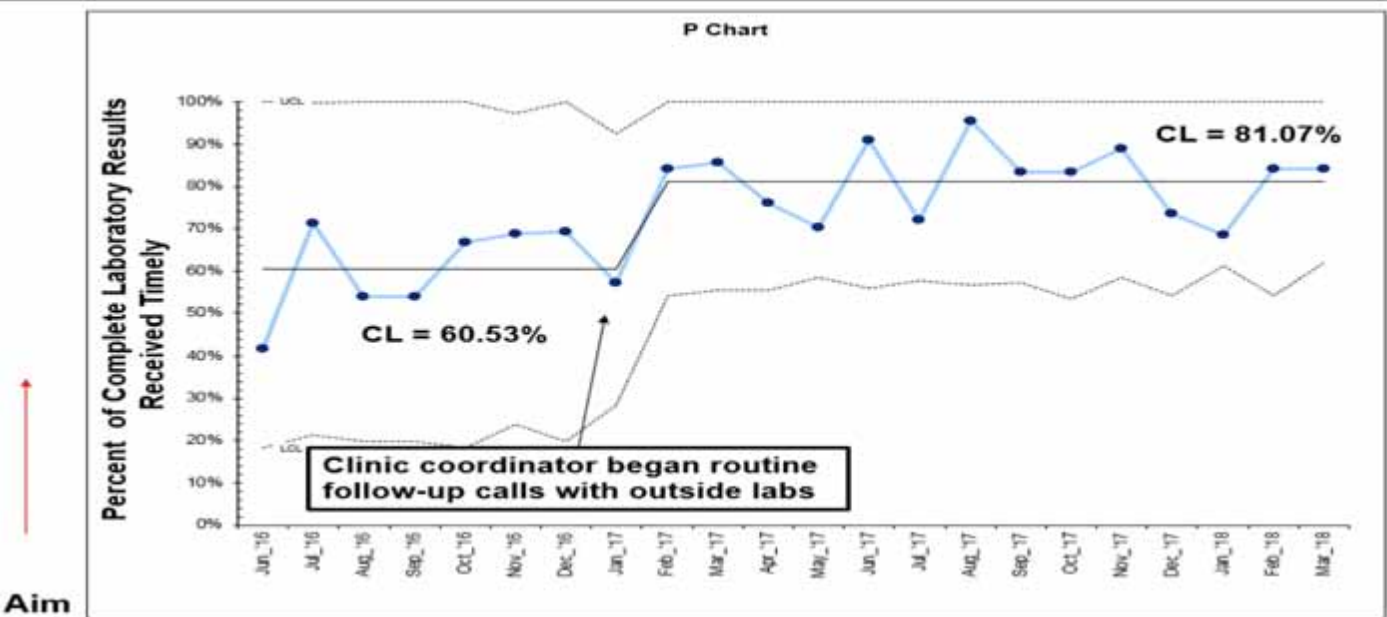


Figure 1. Laboratory Providers: Timely and complete receipt of lab results reached study aim of 80%

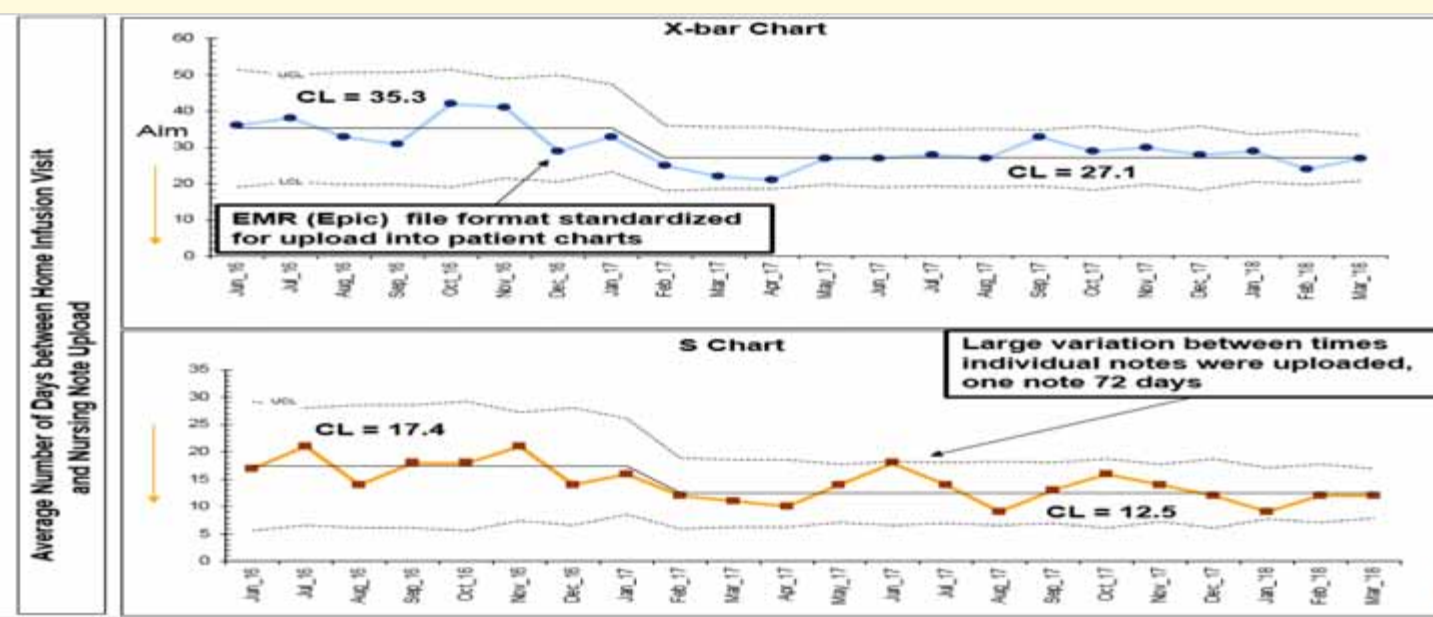


Figure 2. Home Infusion Note: Time (in days) to upload into the Electronic Medical Record decreased from 35 to 27 days

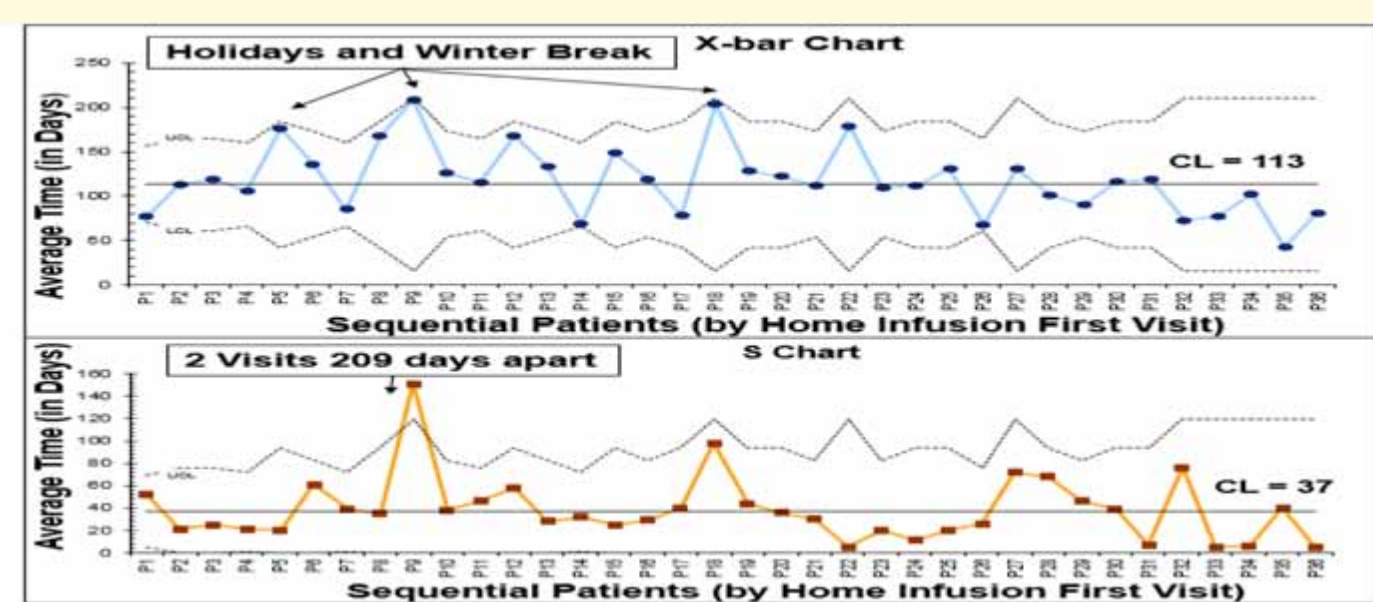


Figure 3. Patient Compliance with Follow-up: average time between clinic visits was 113 days during study period

- Quality of Life, Patient Disease Activity Scores were stable throughout the study period (data not shown)
- There were no adverse events during study period (data not shown)

## Conclusions

- This study demonstrated successful implementation of NASPGHAN clinical report recommendations for a HIP in Pediatric IBD
- HIPs in Pediatric IBD can provide safe and quality care

## Future Directions

- As the HIP enters sustainability phase, an active monitoring of above described communication gains will be instituted
- Continue to trend outcome and balancing measures over time
- Design interventions to further improve patient compliance with follow-up visits while receiving HIP services

Study references available on request



# **Making Glucose the Next Vital Sign: An Educational Intervention to Teach Clinicians How to Achieve Glycemic Targets on Medicine Units at NYP/WC Campus**

John Falcone MD<sup>1</sup>, Tiffany Yeh MD<sup>1</sup>, Michele Yeung MD<sup>1</sup>, Gulce Askin MPH<sup>2</sup>

Felicia A. Mendelsohn Curanaj MD<sup>2</sup>, Jane Jeffrie Seley DNP MPH<sup>1</sup>

*NewYork-Presbyterian Hospital, New York, NY<sup>1</sup>*

*Weill Cornell Medicine, New York, NY<sup>2</sup>*

## **Background**

As the prevalence of diabetes increases, so does the percentage of hospitalized patients with diabetes and/or hyperglycemia, estimated to be about 38% of patients. Recent studies have linked blood glucose variability with poor clinical outcomes and mortality in the acute care setting. The American Diabetes Association (2019) *Standards of Medical Care in Diabetes* recommends a target blood glucose range of 140 – 180 mg/dL for most hospitalized patients. There remains a lack of time devoted to comprehensive education for prescribers and nurses to learn the importance of and the steps needed to achieve the recommended inpatient glycemic targets. As a result, clinicians continue to hold the misconception that there is little detrimental effect of short-term malglycemia, resulting in clinical inertia and sub-optimal diabetes care.

## **Aim**

The aim of our study is to improve the percentage of in-target blood glucose results (70 – 180 mg/dL) on 5 medicine units (11SA/B, 5N, 5C, 5W, 4N) at NewYork-Presbyterian/ Weill Cornell Medical Center (NYP/WC) by 3% from September 2018 through February 2019 as compared to September 2017 through February 2018.

## **Methods**

The project was divided into three phases. In Phase I, the identification of pre-intervention rates of malglycemia and in-target blood glucose results were identified and educational interventions were developed for prescribers and nurses to address knowledge deficits. In Phase II, educational interventions were conducted along with prescriber pre- and post-intervention knowledge assessments. Unit by unit changes in monthly blood glucose levels were compared and breakfast was awarded each month to the unit with the greatest % improvement of in-target blood glucose results. In Phase III, overall rates of hypoglycemia, hyperglycemia, and in-target blood glucose ranges were calculated and analysed. In addition, pre- and post-test scores were compared to assess any change in knowledge.

## **Results**

We assessed the difference in the incidence of hypoglycemia, hyperglycemia and in-range blood glucose results between pre- and post- intervention groups using an incidence rate ratio (IRR).

4N had a significantly higher incidence of in-range blood glucose results post-intervention compared to pre-intervention [IRR = 1.05 (95% CI = 1.01, 1.10), p = 0.013] as well as a significantly lower incidence of hyperglycemia [IRR = 0.92 (95% CI = 0.88, 0.97), p = 0.001]. 5W had a post-intervention lower incidence of hypoglycemia [IRR = 0.79 (95% CI = 0.62, 1.01), p = 0.058], a significantly higher incidence of in-range blood glucose results [IRR = 1.06 (95% CI = 1.01, 1.10), p = 0.012] and a significantly lower incidence of hyperglycemia [IRR = 0.91 (95% CI = 0.86, 0.97), p = 0.003].

	IN TARGET BG (%)						MEAN
	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	IN TARGET BG (%)
	2017 2018	2017 2018	2017 2018	2017 2018	2018 2019	2018 2019	PRE – INTERVENTION** POST – INTERVENTION***
<b>4 NORTH</b>	57.64	61.05	57.08	54.40	57.30	57.15	57.437
	66.61	58.38	56.69	59.09	54.94	65.07	60.130
<b>5 NORTH</b>	67.77	63.01	68.05	61.38	67.37	68.63	66.035
	64.31	66.23	68.88	60.30	67.79	64.41	65.320
<b>5 CENTRAL</b>	64.79	67.51	60.49	63.36	65.53	60.34	63.670
	60.00	66.78	61.70	68.76	67.18	64.38	64.800
<b>5 WEST</b>	63.22	55.80	61.27	65.67	65.23	69.01	63.367
	68.63	69.06	65.83	67.95	68.89	56.92	66.213
<b>11 SOUTH A+B</b>	61.94	59.57	65.08	61.93	61.48	64.45	62.408
	64.01	64.14	65.88	52.75	63.67	63.24	62.281

\*In target BG 70-180 mg/dL  
 \*\*Pre-intervention period: September 2017-February 2018  
 \*\*\*Post-intervention period: September 2018-February 2019

**Figure 1: Comparison of In Target\* BG Pre- and Post- Intervention**

## Conclusion

Our results demonstrate a significant improvement in percentage of in-target blood glucose results in two out of five medicine units. There was also an increase in post-education knowledge assessment scores in all of the prescriber categories.

## Future Directions

In the next steps of the project we plan to initiate a new model of ongoing professional education with reinforcement of fundamentals of inpatient glycemic management with house staff on general medicine teams in order to provide opportunities for clinical applications of educational principles. We will revise the diabetes pocket card according to prescriber feedback to make it more concise and highlight high-yield information. We will then conduct follow-up six month data collection and analysis of blood glucose data to evaluate sustainability of educational intervention.



# Making Glucose the Next Vital Sign: An Educational Intervention to Teach Clinicians

## How to Achieve Glycemic Targets on Medicine Units at NYP/WC Campus

John Falcone MD<sup>1</sup>, Tiffany Yeh MD<sup>1</sup>, Michele Yeung MD<sup>1</sup>, Gulce Askin MPH<sup>2</sup>

Felicia A. Mendelsohn Curanaj MD<sup>2</sup>, Jane Jeffrie Seley DNP MPH<sup>1</sup>

NewYork-Presbyterian Hospital, New York, NY<sup>1</sup>

Weill Cornell Medicine, New York, NY<sup>2</sup>

NewYork-Presbyterian  
The University Hospital of Columbia and Cornell



Weill Cornell  
Medicine

### Background

- As the prevalence of diabetes increases, so does the percentage of hospitalized patients with diabetes and/or hyperglycemia, estimated to be about 38% of patients.
- Recent studies have linked blood glucose variability with poor clinical outcomes and mortality in the acute care setting. The American Diabetes Association (2019) *Standards of Medical Care in Diabetes* recommends a target blood glucose range of 140 – 180 mg/dL for most hospitalized patients.
- There remains a lack of time devoted to comprehensive education for prescribers and nurses to learn the importance of and the steps needed to achieve the recommended inpatient glycemic targets.
- As a result, clinicians continue to hold the misconception that there is little detrimental effect of short-term malglycemia, resulting in clinical inertia and sub-optimal diabetes care.

### Aim

To improve the percentage of in-target blood glucose results (70 – 180 mg/dL) on 5 medicine units (11SA/B, 5N, 5C, 5W, 4N) at NewYork-Presbyterian/ Weill Cornell Medical Center (NYP/WC) by 3% from September 2018 through February 2019 as compared to September 2017 through February 2018.

### Methods

The project was divided into three phases as detailed below:

- In Phase I, the identification of pre-intervention rates of malglycemia and in-target blood glucose results were identified and educational interventions were developed for prescribers and nurses to address knowledge deficits.
- In Phase II, educational interventions were conducted along with prescriber pre- and post-intervention knowledge assessments. Unit by unit changes in monthly blood glucose levels were compared and breakfast was awarded each month to the unit with the greatest % improvement of in-target blood glucose results.
- In Phase III, overall rates of hypoglycemia, hyperglycemia, and in-target blood glucose ranges were calculated and analysed. In addition, pre- and post-test scores were compared to assess any change in knowledge.

### Results

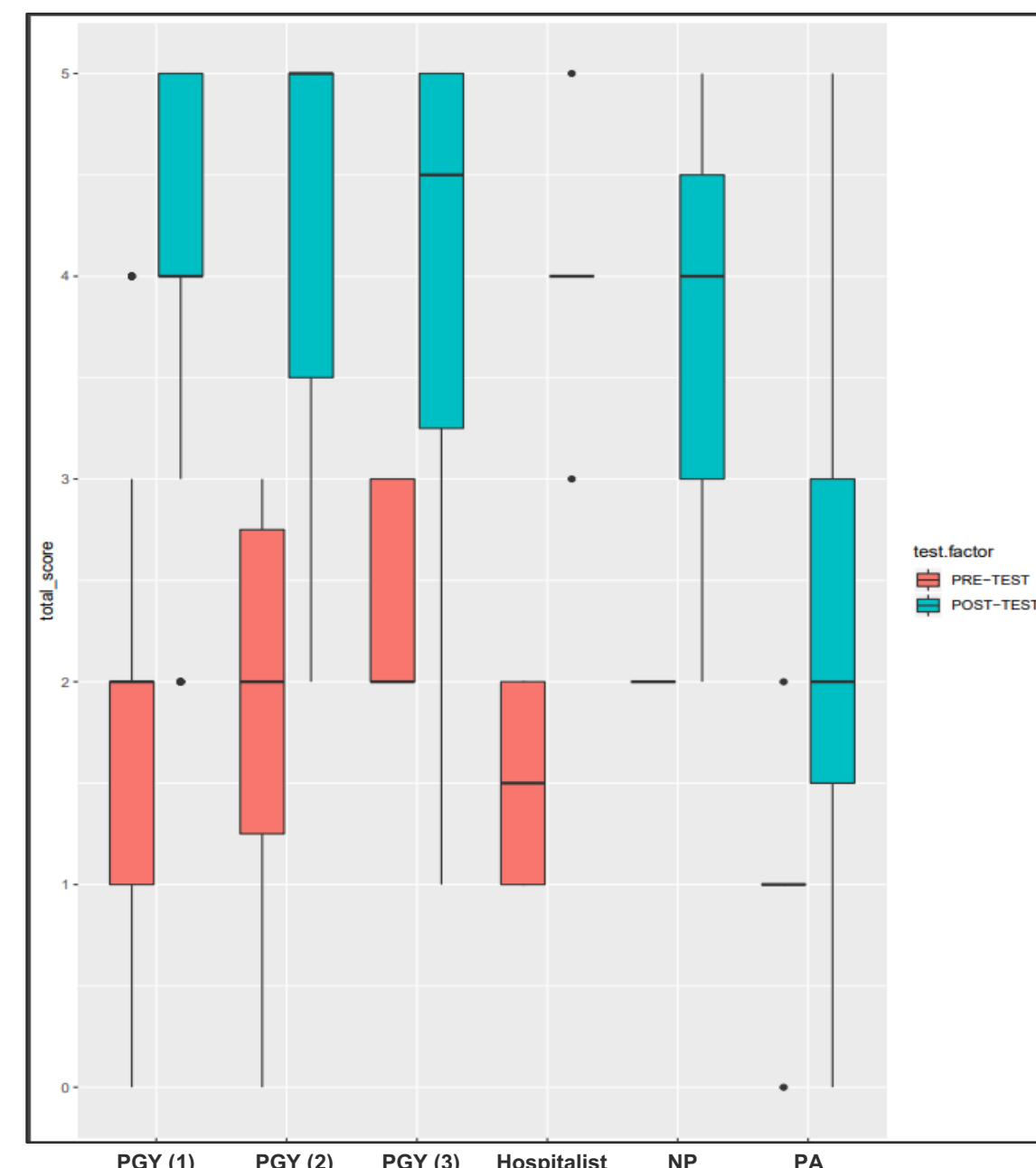
- We assessed the difference in the incidence of hypoglycemia, hyperglycemia and in-range blood glucose results between pre- and post- intervention groups using an incidence rate ratio (IRR).
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Figure 1: Comparison of In Target\* BG Pre- and Post- Intervention

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\*In target BG 70-180 mg/dL  
\*\*Pre-intervention period: September 2017-February 2018  
\*\*\*Post-intervention period: September 2018-February 2019

Figure 2: Comparison of Pre- and Post-Educational Intervention Learning Assessment Score Among the Various Prescriber Groups



### Conclusions

Our results demonstrate a significant improvement in percentage of in-target blood glucose results in two out of five medicine units. There was also an increase in post-education knowledge assessment scores in all of the prescriber categories.

### Future Directions

In the next steps of the project we plan to:

- Initiate a new model of ongoing professional education with reinforcement of fundamentals of inpatient glycemic management with house staff on general medicine teams in order to provide opportunities for clinical applications of educational principles.
- Revise the diabetes pocket card according to prescriber feedback to make it more concise and highlight high-yield information.
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-American Diabetes Association. "15. Diabetes Care in the Hospital: Standards of Medical Care in Diabetes—2019." *Diabetes Care* 42.Supplement 1 (2019): S173-S181-  
-Corsino, L., Dhatriya, K., & Umpierrez, G. (2017). Management of diabetes and hyperglycemia in hospitalized patients. *Endotext [Internet]*. MDText. com, Inc.

# Stop the Bleed: Development of a Perfused Synthetic Cadaver Model

Aakanksha Gupta, MD; Cassandra Villegas, MD, MPH; Jay Rosenberg, DVM; Robert Winchell, MD; Philip Barie, MD, MBA; Mayur Narayan, MD, MPH, MBA, MHPE

## Background

As active shootings and other mass casualty incidents have become more prevalent, courses designed to teach basic hemorrhage control to laypersons have proliferated. In the current Stop the Bleed (StB) course, participants undergo hands-on training using a synthetic limb mannequin. In a prior survey of 88 participants, there was overwhelming sentiment that the mannequin was limited by its inability to demonstrate cessation of bleeding when hemorrhage control techniques were applied. We hypothesized that simulated bleeding that can be controlled by StB techniques would improve the mannequin, and hence the experience and confidence of trainees.

## Design & Methods

The mannequin was redesigned as a self-contained circulation model that could mimic both arterial and venous bleeding. Several mechanisms of simulating blood flow were tested, and a hand pump mechanism was chosen. An 85 ml capacity synthetic rubber bulb with a 7.4 mm inner diameter tubing was used resulting in a stroke volume of 16 cc per hand stroke and pressure of 20-25 kPa or 150-187 mmHg. Finally, material cost was considered to facilitate low-cost, global distribution.

## Results

The final design resulted in an inexpensive, novel synthetic cadaver limb model. Nurse and physician educators conducted beta testing of the perfused mannequin. One-on-one interviews revealed positive feedback regarding both realism of the perfused mannequin and participants' ability to obtain bleeding control using StB techniques. In addition, survey conducted of 40 participants who trialed both the old and new mannequin reported an increased awareness of the rate of blood flow out of a wound, which in turn increased their sense of urgency in applying hemorrhage control techniques. They also reported better understanding of effectiveness of tourniquet as well as the amount of pressure required to achieve hemostasis.

## Conclusions & Next Steps

In an effort to address shortcomings noted by participants in the current StB mannequin, we developed a novel perfused-bleeding mannequin that mimics both arterial and venous bleeding, responds appropriately to various hemorrhage cessation techniques, and is both inexpensive and durable. We aim to include this mannequin in the standard StB kits and use it for future trainings.





# Stop the Bleed: Development of a Perfused Synthetic Cadaver Model

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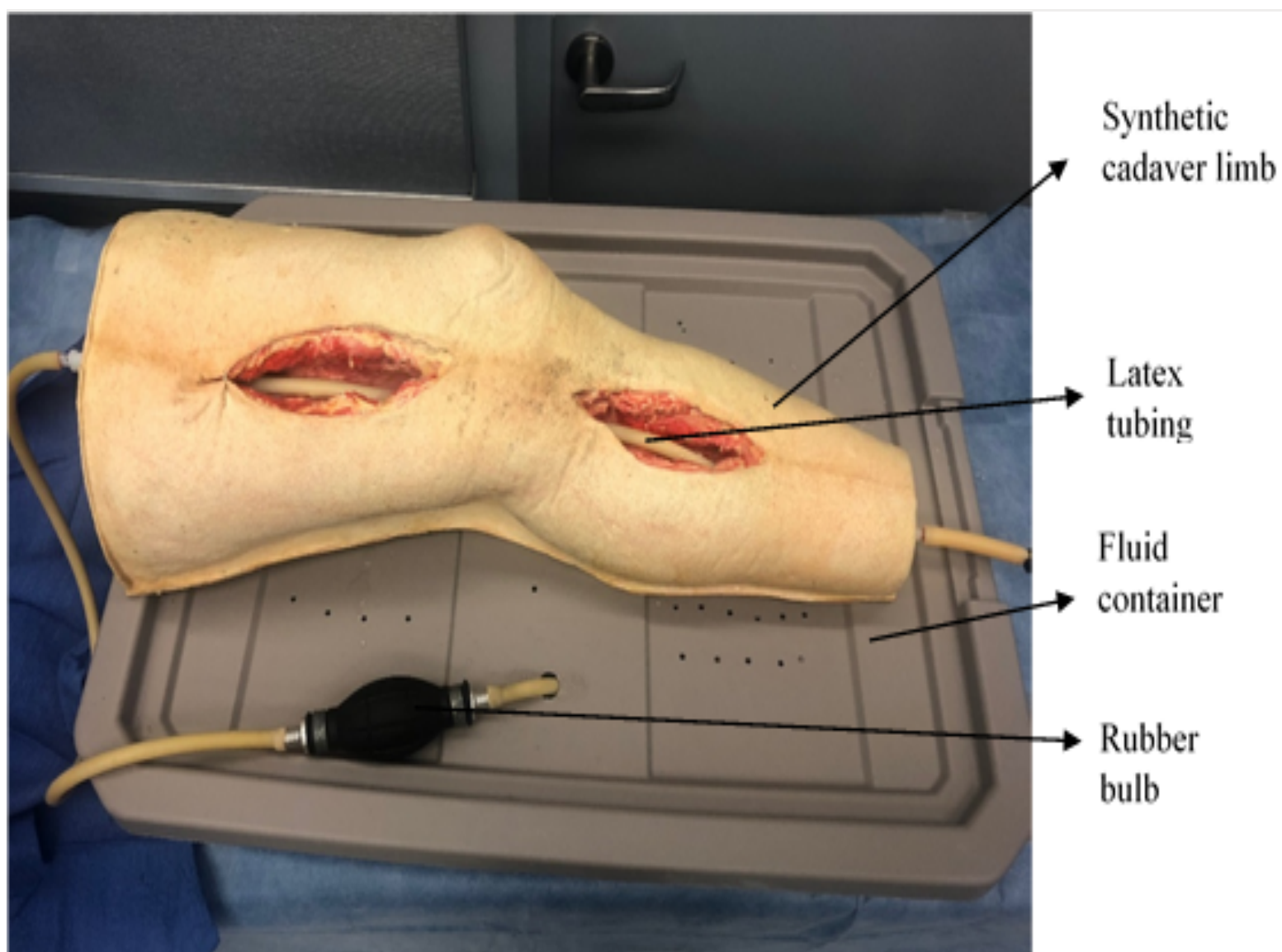
Department of Surgery, Weill Cornell Medicine and New York-Presbyterian Hospital, New York, NY 10065

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	New Model	Old Model	No Difference
Which model provides a more realistic bleeding experience	40	0	0
Which model provides a better understanding of rate of blood flow from an arterial wound	40	0	0
Which model heightens urgency more to perform StB techniques to	36	0	4
Which model provides a better understanding of amount of pressure required to achieve bleeding control	40	0	0
Which model provides a better understanding of effectiveness of tourniquet	40	0	0
Which model increases level of confidence more in achieving bleeding control	34	0	6

Fig. 1: Parts of Dynamic Bleeding Model

Table 1. Results of Survey comparing the two models

## Results

The final design resulted in an inexpensive, novel synthetic cadaver limb model. Nurse and physician educators conducted beta testing of the perfused mannequin. One-on-one interviews revealed positive feedback regarding both realism of the perfused mannequin and participants' ability to obtain bleeding control using StB techniques. In addition, survey conducted of 40 participants who trialed both the old and new mannequin reported an increased awareness of the rate of blood flow out of a wound, which in turn increased their sense of urgency in applying hemorrhage control techniques. They also reported better understanding of effectiveness of tourniquet as well as the amount of pressure required to achieve hemostasis.

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**Project Title:** Improving Communication with Families of High Risk Patients in the Pediatric Intensive Care Unit

**Statement of Problem:** Active participation in medical decision-making is a key coping strategy for parents with critically ill children. There is a growing body of evidence to suggest that high-quality physician-family communication in the Pediatric Intensive Care Unit (PICU) using family meetings may improve parental understanding of disease processes and can allow for family participation in shared decision-making.

**Objective/Aim:** To improve team communication with families of patients in the Pediatric Intensive Care Unit via fellow-led, scheduled family meetings.

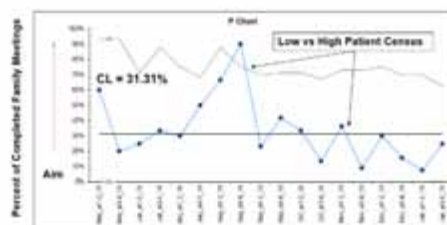
**Project Design/Methods:** During this initial 9-month quality improvement (QI) study, an interdisciplinary, fellow-led team including nursing, social workers, care coordinators and intensivists utilized sequential planned instrumentation to design and pilot the Family Meeting Checklist (FMC). This screening tool was used to identify high-risk patients and schedule the family meeting within 7 days. All fellows completed 2-hour training in communication skills. Process measures were collected via FMC review (percent of patients identified as high risk and percent of patients who had family meeting). FMC completion percent was used as a Plan-Do-Study-Act (PDSA) cycle specific process measure. Three PDSA cycles were completed to date. Run chart and statistical process control (“P”) charts and established rules for detecting special cause variation were applied. A validated Communication Assessment Tool Team (CAT-T) was used to assess team’s communication with family (outcome measure). Question 15 was used as a balancing measure.

**Results:** During this initial phase, total of 644 patients were screened. An average of 30.7% patients were identified as high risk and in need of a family meeting. A median of 65% of patients had FMC completed and the goal of 90% was reached towards the end of the second PDSA cycle. Completion rate of family meetings peaked at 90% during the summer months. With higher daily PICU patient census, the rate declined to an average of 31% of high risk patients receiving family meeting. An assessment of family’s perception of fellows’ communication skills using previously validated Communication Assessment Tool showed an average score of 4.5 (scale of 1-5), suggesting satisfaction with team communication.

**Conclusion:** This fellow-led QI initiative successfully designed and implemented Family Meeting Checklist as a screening tool to identify high-risk patients in need of a family meeting. High daily patient load mitigated the team’s ability to conduct family meetings. Future PDSA cycles will explore interventions to overcome this barrier.

**Optional: 1 Table/Figure:**

**Percent of Completed Family Meetings**







## Improving Communication with Families of High Risk Patients in the Pediatric Intensive Care Unit

Weill Cornell Medicine Quality Improvement Session 2019

Kelly Haque, MD; Megan Toal, MD; Joseph Dario, MD; Kristin Crosby, MD; Rebecca Jacobowitz, MD; Julie Levasseur, MD; Veronica Ramirez-Ramon, MD; Joy Howell, MD, Naomi Bishop, MD; Snezana Nena Osorio MD, MS

### Background:

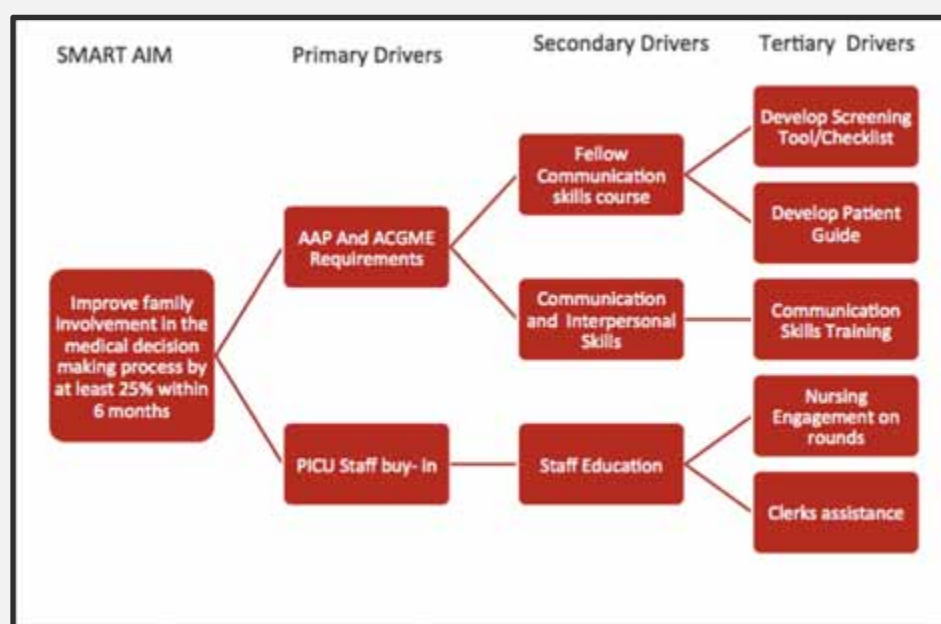
- Active participation in medical decision-making is a key coping strategy for parents with critically ill children
- Growing evidence suggests that high quality physician-family communication in the Pediatric Intensive Care Unit (PICU) is necessary to improve parental understanding of disease processes and to allow full participation in shared decision making
- Despite this, family meetings often fail to occur in a timely and effective manner

### Objective/Aim Statement:

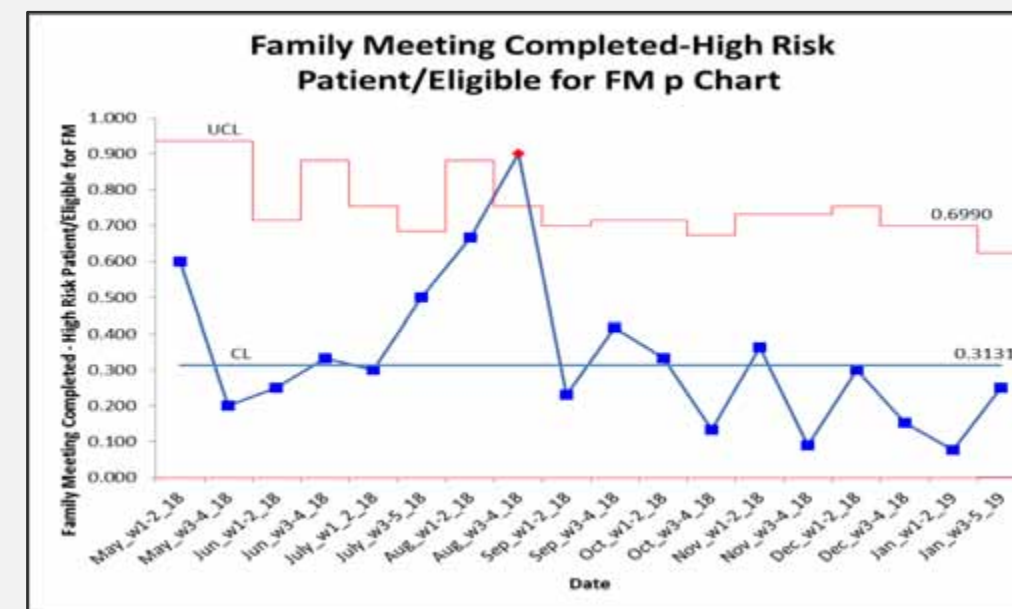
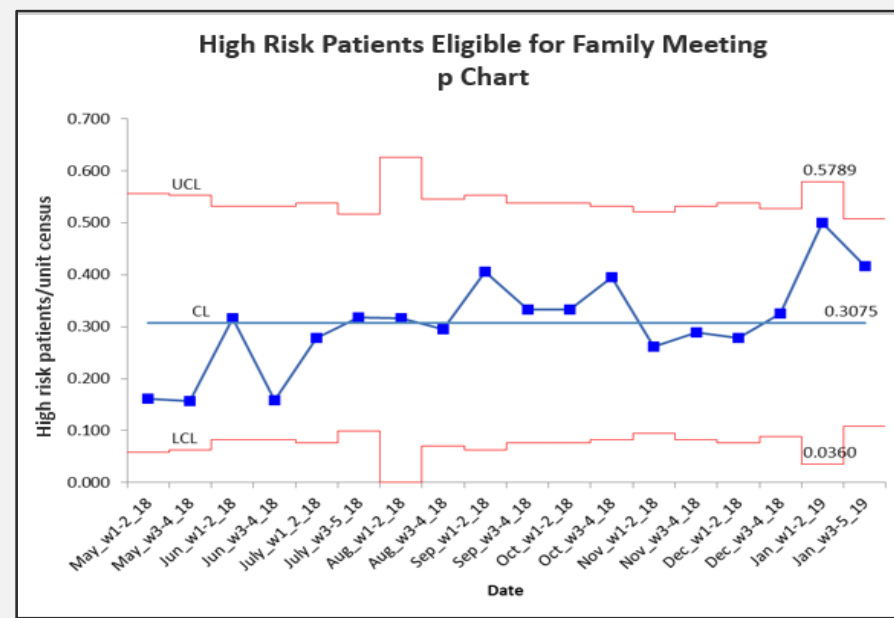
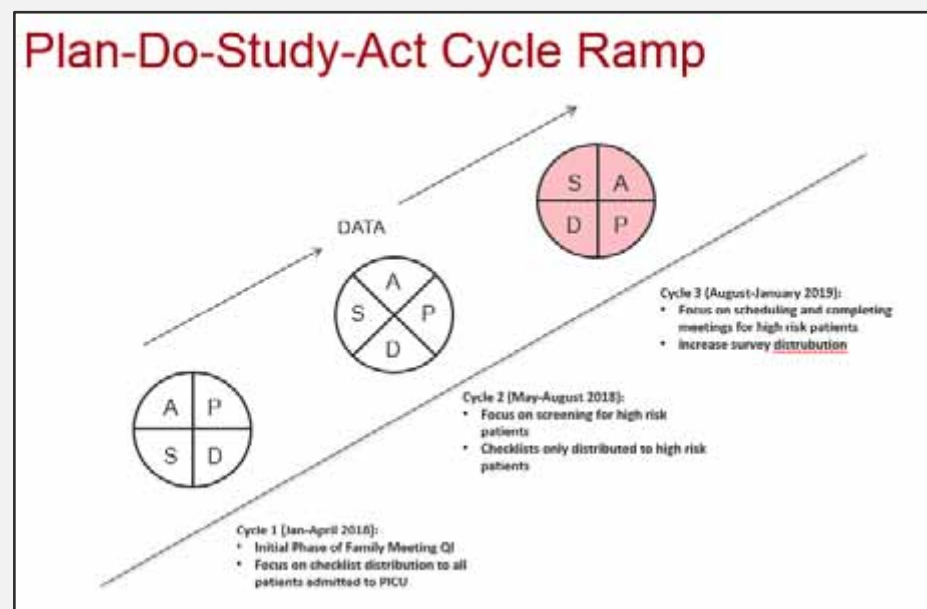
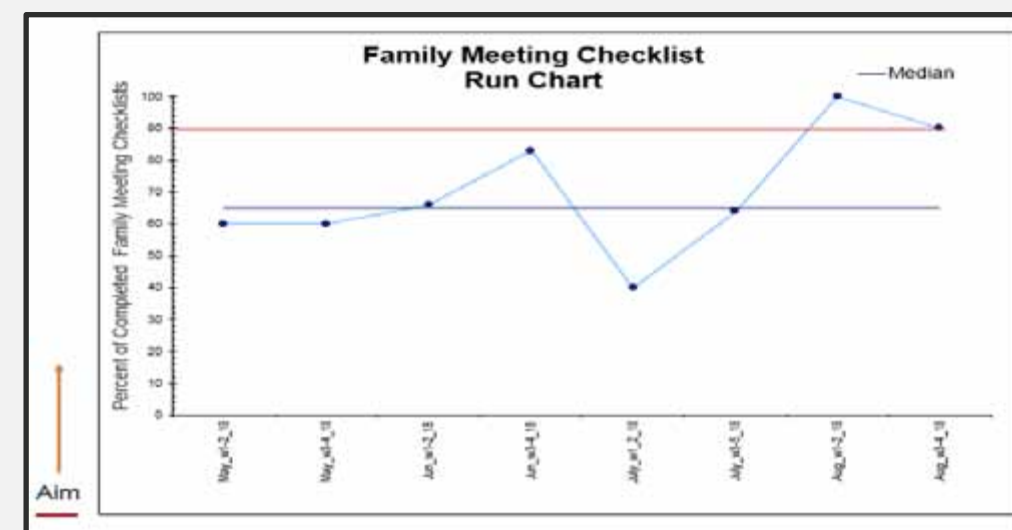
To improve team communication with families of patients in the Pediatric Intensive Care Unit via fellow-led, scheduled family meetings

### Design/Methods:

- An observational study using planned sequential experimentation
- Family meeting checklist was used to identify high-risk patients and to schedule family meetings within 7 days of admission (process measures)
- A validated Communication Assessment Tool Team (CAT-T) was used to assess team's communication with family (outcome measure). Q15 ("Made me feel less anxious about my child's condition after the family meeting") was used as a balancing measure



Family Meeting Checklist		Patient ID:	
Day 0 (Admission)		Days 1-3	Days 4-7 (Meeting)
<b>Action</b>	<b>Staff</b>	<b>Action</b>	<b>Staff</b>
<input type="checkbox"/> Determine likelihood of 15 days in PICU: <ul style="list-style-type: none"> <li>• ICP arrest (cardiac or respiratory)</li> <li>• Malignancy (new dx or advanced)</li> <li>• Admitted to ICU after 25 days in hospital (ward, OR floor or ICU Bed use)</li> <li>• Admitted from chronic care facility</li> <li>• Multiple comorbidities</li> <li>• Failure of 2 organ systems</li> <li>• Severe IIR or intracranial bleed requiring mechanical ventilation</li> <li>• ECMO candidate</li> <li>• Other Factor(s):</li> </ul>	Admitting RN/Fellow/PCC Attending	<input type="checkbox"/> Contact family member(s) to schedule meeting <input type="checkbox"/> Identify & verify staff to be present (MD, RN, SW, Subspecialists, Pastoral, etc.) <input type="checkbox"/> Set up in person translator if necessary • Translator name/ contact info:	Service Fellow/Resident/PA Service Fellow/Attending Service Fellow/Resident/PA Service Fellow/Attending
<input type="checkbox"/> Hand family members "family meeting brochure" <input type="checkbox"/> Identify family/narrative and obtain contact information <input type="checkbox"/> Assess patient's desire of involvement in family meeting (i.e. language, young adults)	Admitting RN SW/PCC SW/PCC/see also Fellow PICU - Patient Care Coordinator	<input type="checkbox"/> Establish team consensus on meeting goals and prepare agenda <input type="checkbox"/> Conduct interdisciplinary meeting <input type="checkbox"/> Document using Family Meeting documentation template <input type="checkbox"/> Set date for next meeting(s) if needed (if none)	Service Fellow/Attending Service Fellow/Attending Service Fellow/Attending Service Fellow/Attending
<input type="checkbox"/> NOT ELIGIBLE (Admission < 5 days)		<input type="checkbox"/> Meeting not held: <ul style="list-style-type: none"> <li>• Family refused</li> <li>• Family unavailable</li> </ul>	Service Fellow/Attending



### Results:

- Total of 644 patients admitted to the Pediatric ICU were screened for family meetings, with goal of 90% of patients in the PICU being screened towards end of PDSA Cycle 2
- An average of 30.7% of patients were identified as high risk and in need of a family meeting
- Completion rates of family meetings ranged from 10-90% for families of high risk patients; with higher PICU census, the rate declined to 31%
- Preliminary CAT-T results indicated high score (4.5, scale 1-5) suggesting satisfaction with communication

### Conclusions/Lessons Learned:

- This fellow led, quality improvement initiative successfully designed and implemented the Family Meeting Checklist as a screening tool to identify high-risk patients in need of family meetings
- High daily patient load mitigated the team's ability to conduct family meetings during the busy winter months

### Future Directions:

- Future interventions will focus on overcoming barriers to scheduling and implementing meetings during high census months
- Increase CAT-T survey distribution after family meetings to further understanding of satisfaction with PICU team communication

**Mobilization and Better Patient Discharge Outcomes**  
**Katherine Haynes RN BSN, Kaitlyn Lestak RN MSN,**  
**Margaret Sullivan, RN BSN PCCN, Claudine Titus RN BSN**

**Statement of the Problem:**

- According to the American Academy of Nursing's Expert Panel on Acute and Critical Care, it has been found that by day two of admission, older adults are already deconditioned from baseline. Reducing the risk for decline can significantly impact their function and quality of life. There are multiple evidence-based strategies that can be used in order to optimize patients outcomes at discharge (2019).
- Mood disturbances are common in the elderly and can contribute to a decreased habitual physical activity level (Monteiro-Junior, 2017).
- According to NYP analytics, in 2018 on 5 West, 166 patients came in from home and needed placement for a short term rehabilitation facility upon discharge. On average, this increases a patient's length of stay by four days. Our goal is to keep patients active, reduce length of stay and treat more patients!
- There are no current policies regarding the amount of physical therapy that a patient must receive during their hospital admission at New York Presbyterian Weill Cornell Medical Center.

**Objective/Aim of the study:**

In adult medical-surgical patients in an inpatient unit, does early and consistent mobilization and/or physical therapy during hospital stay lead to better patient outcomes at discharge?

**Project Design/Methods:**

This was a literature review using the CASP appraisal tool checklist for qualitative study, randomized clinical trial, and systematic review. In an observational study published in the Journal of Geriatric Physical Therapy a lack of physical therapy or mobilization during an older adult's admission results in an extended hospital stay or physical deconditioning and loss of functional ability. In this study, it was observed that patients who were seen by physical therapy within 24 hours of admission were less likely to require needs at discharge (Hartley et al, 2017).

- In a randomized clinical trial published in the Journal of American Medical Association, the intervention group was ambulated twice daily and encouraged to participate using a behavioral strategy. One month after hospitalization, the intervention group had a higher rating using a community mobility score compared to the control group. The intervention group was able to maintain their pre-hospitalization functional status, whereas the control group had functional declines (Brown et. al, 2016).
- In a systematic review of 1086 articles, 17 articles were selected. Of the 17 articles, four articles discussed functional outcomes of patients after discharge. These studies found that the intervention groups had higher test scores regarding mobility and activities of daily living. In addition, the intervention groups showed increased physical performance and prevented functional decline after hospitalization (Martinez-Velilla, 2016). patient's overall care.

**Results:**

**Strengths:** The research that is published all yield similar results. There is quantitative proof of the positive effects of physical therapy during hospitalization for older adults. Frequent physical therapy during hospitalization will decrease functional decline and discharge needs for older adults. The results from the study are all generalizable to our inpatient geriatric population on 5 West.

**Limitations:** There are different limitations for each article. It was found that in one article, research was used spanning between 1965-2015. In the observational study and randomized clinical trial, data was collected between three and six months, which could affect validity of the information found. There are many factors that contribute to length of stay and deconditioning, mobility being just one peice of the patient's overall care.

**Conclusions:** Based on the evidence review, we have identified innovative recommendations for practice change and future research.

- We recommend patients get out of bed at least twice a day, either ambulating or to the chair.
- Nurses should collaborate with physical therapists to create exercise plans for patients out of bed and in bed.
- Increasing the number of physical therapists will allow patients to receive more frequent treatment sessions.
- We also recommend all units implement a walking club to get patients moving, improving mood through socialization and motivation for mobility.

Utilizing this evidence, the 5 West Unit Council implemented a walking club. This activity takes place at least twice a week with patients identified to be mobile enough to walk. It encourages patients to participate in physical activity as well as socialization to improve mood. Physical Therapy and Nurses, and Nursing assistants can collaborate to improve patient outcomes and increase the success of the walking club.

Natalie Hellmers, Casey D'Souza, Carter Campbell, Gabrielle Auerbach, Claire Henchcliffe & Harini Sarva  
Quality Improvement Academy - Weill Cornell Medicine  
Division of Quality and Patient Safety - Weill Cornell Medicine

Project Title: Practice Improvement for Movement Disorders Division-Improving Access to Mental Health Professionals

Statement of the Problem: Patients with chronic neurodegenerative disorders like Parkinson's disease (PD) have anxiety, depression and other mental health issues that coincide with their condition. This project is designed to better understand the gaps and barriers toward attaining mental health resources and improve the healthcare delivery system by referring patients with movement disorders to available mental health professionals with expertise in the overlap between neurology and psychiatry.

Object/Aim: This project aims to assess healthcare delivery needs with a redcap online survey of PD patients who are part of our Movement Disorders practice and attend our monthly support group meeting. Survey questions were developed to assess the following: what their mental health needs are; where they currently receive supportive measures; and if they feel our practice is able to provide them with help. Based on this information, resources will be gathered by our staff into an educational booklet and shared amongst the greater population of patients that are a part of the Movement Disorders practice.

Project Design/Methods: This Quality Improvement Project utilized DMAIC: **Defining** the problem of access to mental health professionals through a survey of a portion of patients from the clinic, **measuring** the frequency of selected responses, **analyzing** responses, **improving** the barriers and gaps by educating patients on options of resources, and **controlling** for future improvements by re-surveying the current group. This quality improvement project will assess the stability of improvement over time by sending follow up survey questions to those who participated.

Results: 46 participants that attend our monthly support group were invited to respond to the survey; 28 responded. Of the respondents, the following demographics were obtained: 70% female; 25% were 55-64 years old; 39.3% were 65-74; and 35.7% were 75 and older. In terms of duration of PD, we found: 25.0% ranged from having 0-3 years of Parkinson's; 17.9% had PD for 4-6 years; 21.4% for 7-9 years; and 35.7% for greater than 10 years. In terms of mood disorders, they reported the following: 71.2% had some depression; 82% expressed some level of anxiety; 22.2% expressed having some hallucinations; and 81.5% indicated sleep changes. Despite the prevalence of mood disorders, few engaged in supportive measures including seeing a psychiatrist (25%), psychologist (37.5%), social worker (31.3%), or clergy, priest or other religious leader (18.8%). For those who indicated they did not use mental health services, 30% indicated cost was a barrier, and 53.8% indicated other as a barrier, adding responses like "Not sure who to go to", and "don't believe it would help." When asked about referral sources, half of the participants surveyed in this study stated that their primary care physician is their referral source for mental health services, and only 5% indicated contacting their insurance for this information. Four additional survey questions were distributed to the support group. Sixteen responses indicated the following: participants strongly agreed or agreed that this list of mental health providers should be disseminated among patients; and they would have liked more information on accepting insurances and specific information regarding the need for referrals.

Over half indicated that after distributing this referral list their movement disorder provider should ask whom they seeing and remain in contact with the chosen mental health profession. Conclusions: Survey responses from this Quality Improvement project indicate that there is an urgent need to enhance referral for mental health support services for patients. A list of 42 named-providers was created, including information on the Weill Cornell Mobile Crisis Unit, and the website for community resources through [www.parkinsons.org](http://www.parkinsons.org). While this quality improvement project focused on a small group of patients specifically with Parkinson's disease, mental health issues can coincide with other neurologic chronic illnesses and are important to address.



**Problem Statement:** Patients with chronic neurodegenerative disorders like Parkinson's disease (PD) have anxiety, depression and other mental health issues that coincide with their condition. This project is designed to better understand the gaps and barriers toward attaining mental health resources and improve the healthcare delivery system by referring patients with movement disorders to available mental health professionals with expertise in the overlap between neurology and psychiatry.

**Objective/Aim Statement:** This project aims to assess healthcare delivery needs with a REDCap™ online survey of PD patients who are part of our Movement Disorders practice and attend our monthly support group meeting. Survey questions are based on information on what their mental health needs are, assess where they currently receive supportive measures, and if they feel our practice is able to provide them with help. Based on this information, resources will be gathered by our staff into an educational booklet with updated resources and shared amongst the greater population of patients that are a part of the Movement Disorders practice.

**Design/Methods DMAIC was used:**

- D**efining the problem of access to mental health professions through a survey of a portion of patients from the clinic,
- M**easuring the frequency of selected responses
- A**nalyzing responses
- I**mproving the barriers and gaps by educating patients on resources
- C**ontrolling for future improvements by re-surveying the current group. This quality improvement project will assess the stability of quality improvement over time by sending follow up survey questions to those who participated.

**Results**

**Demographics:**

**Gender:** 70% female

**Age range:**  
55-64 years 25%  
65-74 years 39.3%  
75 years + 35.7%

**Duration of Parkinson's Disease:**

0-3 25%  
4-6 years 17.9%  
7-9 years 21.4%  
10+ years 35.7%

**Depression:** 71.2%

**Anxiety:** 82%

**Hallucinations:** 22.2%

**Sleep changes:** 81.5%

**Who was your referral source(s) for the mental health provider(s)?**

Friend	25%
Relative	20%
Primary Care Provider	50%
Insurance provider	5%
Parkinson's Associations (Parkinson's Foundation, Parkinson's Alliance, American Parkinson's Disease Association)	5%
Internet	0%
Other	25%

**Would you refer this service to others?**

I believe talk to a person trained to help with these problems help put things in perspective and can help calm one down significantly\*.

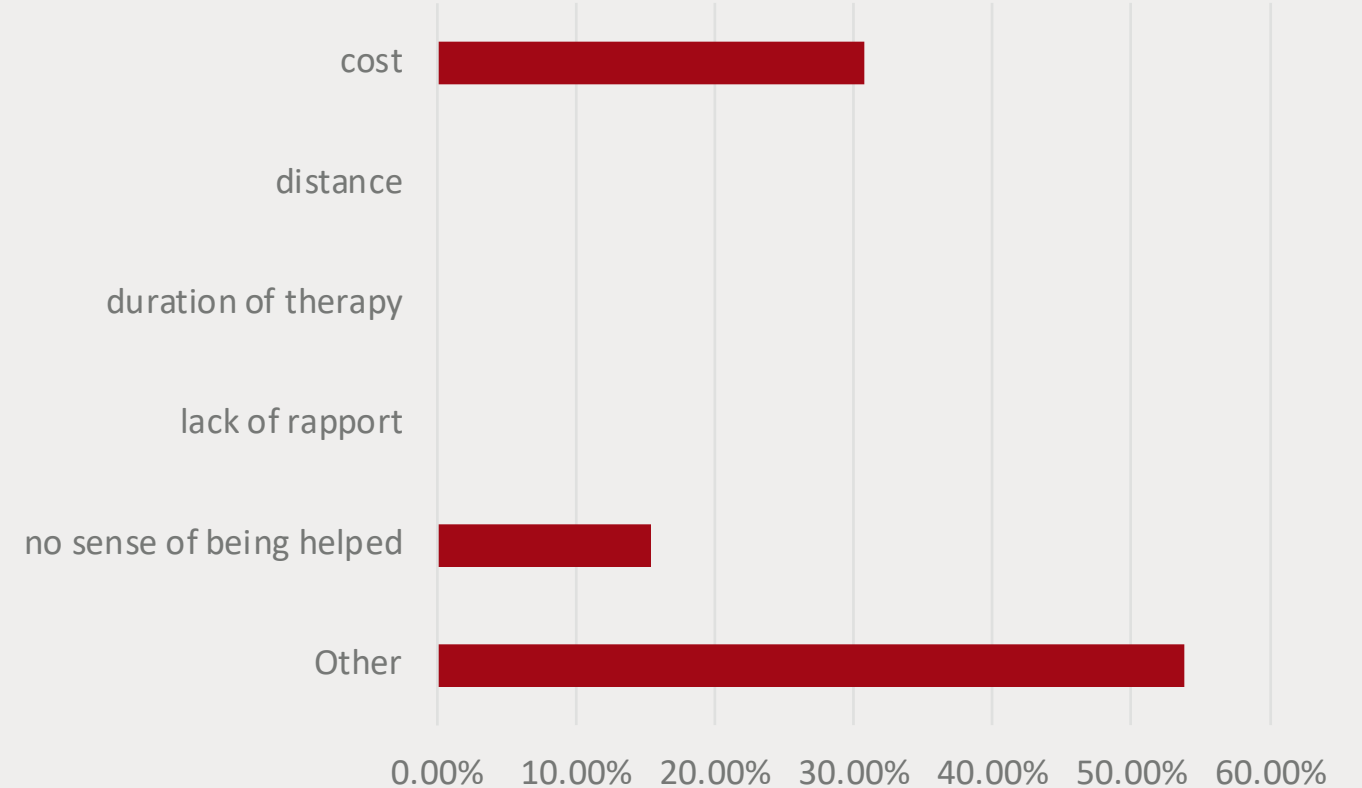
It feels good to be able to talk freely to a professional who listens to you and help you see yourself objectively...\*

**What are the barriers?**

\*not sure who to go to

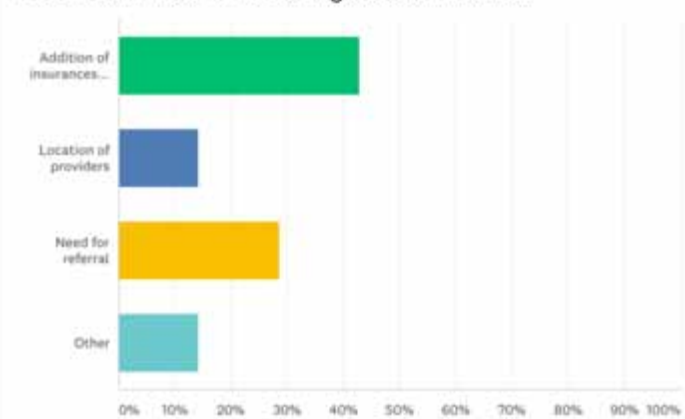
\*don't believe it will help

**What are your perceived barriers to mental health professionals?**

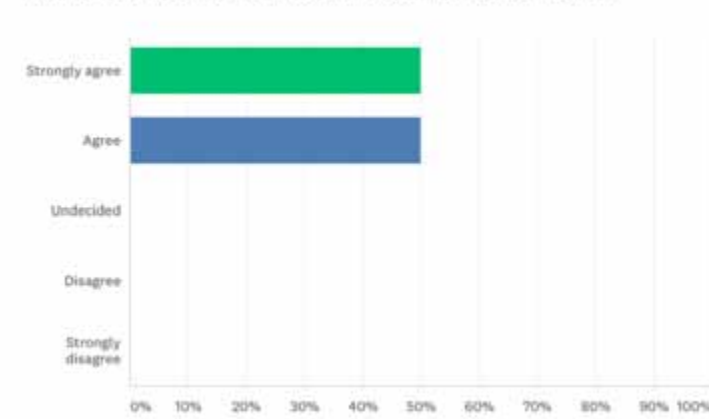


**Follow up survey responses**

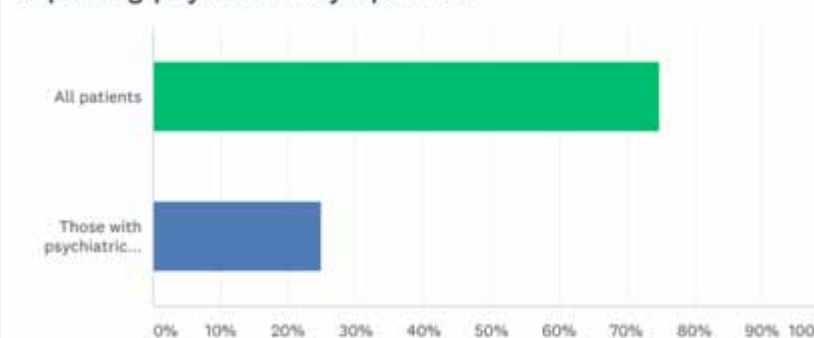
**What would need to be changed about the list:**



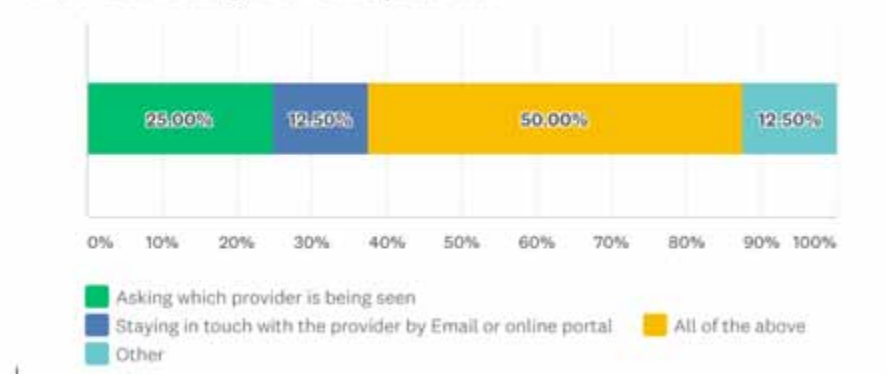
**This reference list is a useful resource for patients:**



**Should this be given to all patients in the practice or just to those reporting psychiatric symptoms?**



**What follow up should be done by the movement disorders group after distributing this list to patients?**



**Conclusions/Lessons Learned:** This Quality Improvement project indicates a need to enhance referral for mental health support services. A list of 42 named-providers was created, including information on the **Weill Cornell Mobile Crisis Unit**, and the website for community resources through [www.parkinsons.org](http://www.parkinsons.org). While this project focused on a small group of patients specifically with PD, mental health issues can coincide with other neurologic chronic illnesses and are important to address.

## **Avoiding the Bridge to Nowhere: Improving Evidence Based Appropriate NIPPV Utilization**

Dennis I Genin MD MPH, Joshua Jackson MD, Anisha Rathod RRT, Richard Verrette RRT, Anthony Smith MD, Calvin Hwang MD MPH, Nawaz Rupani MD, Rupinder Kaur DO, Susan Denn PA, Althea Bailey RN, Cynthia X Pan MD

### Problem Statement

An excessive amount of Non-Invasive Positive Pressure Ventilation (NIPPV) was being used in NYPQ without properly considering indications or contraindications. This led to patient harm. After implementing a Mortality Review System in 2016, the NYPQ Department of Medicine discovered several instances of patient harm due to inappropriate NIPPV use. Medicine leadership initiated a Quality Improvement Project to prevent further harm and reduce inappropriate NIPPV use.

### Objective/Aim Statement

- 1) Decrease total # of patient cases on INAPPROPRIATE NIPPV by 10%
- 2) Decrease total # of INAPPROPRIATE NIPPV days (# pts x NIPPV days) by 10%
- 2) Decrease average NIPPV LOS by 10% (< 3.5 days by 6/30/19)

### Design/Methods

A multidisciplinary workgroup of residents, fellows, pulmonary/ critical care attendings, palliative care attendings, nurses, and respiratory therapists (RTs) was created. Reviewing internal data, we found that NIPPV was inappropriately ordered in 37% of patients. The workgroup used PDCA to conduct small tests of change.

PDCA #1: "Education"

Hospital-wide educational effort which did not affect usage.

PDCA #2: "Policy"

Enacted policy changes, requiring pulmonary/critical care guidance for all inpatient use of NIPPV. This resulted in moderate reduction, but team feedback showed resistance to change among ordering providers.

PDCA #3: Empowered RTs to serve as "NIPPV Stewards." RTs audited NIPPV cases daily, reminded ordering providers about hospital policy. All discrepancies were escalated to physician leaders for review and possible intervention.

### Results

From 2017 to 2018, we achieved a 10.5% reduction in total NIPPV days, 8.3% reduction in monthly cases, and 6.5% in average NIPPV LOS. NIPPV mortality events for 2018 decreased to 1 from 4. Direct cost savings exceeded \$22,000 due to fewer device rentals and supplies.

### Conclusions/Lessons Learned

Process mapping identified gaps in NIPPV practice. These included lack of clear clinical standards for use, lack of interdisciplinary follow-up, unrestricted ordering privileges, lack of NIPPV "ownership," and end-of-life care scenarios in which NIPPV was used as a "bridge to nowhere."

A multidisciplinary team approach, structured monitoring process, staff empowerment, and incorporation of an updated evidence-based policy were key steps towards success. Additional positive factors included obtaining early buy-in from key stakeholders and learning from prior efforts.

Our team demonstrated that improving care can translate to higher patient safety and financial improvements, a tenet of High Value Care.

### Next Steps

We are currently conducting another survey of NIPPV appropriateness to validate current trends. We are in the midst of planning a fourth PDCA cycle to target acute NIPPV use specifically.





# Avoiding the Bridge to Nowhere: Improving Evidence Based Appropriate NIPPV Utilization

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Department of Medicine, Division of Pulmonary & Critical Care & Palliative Care Medicine,  
NewYork-Presbyterian Queens, Flushing, NY

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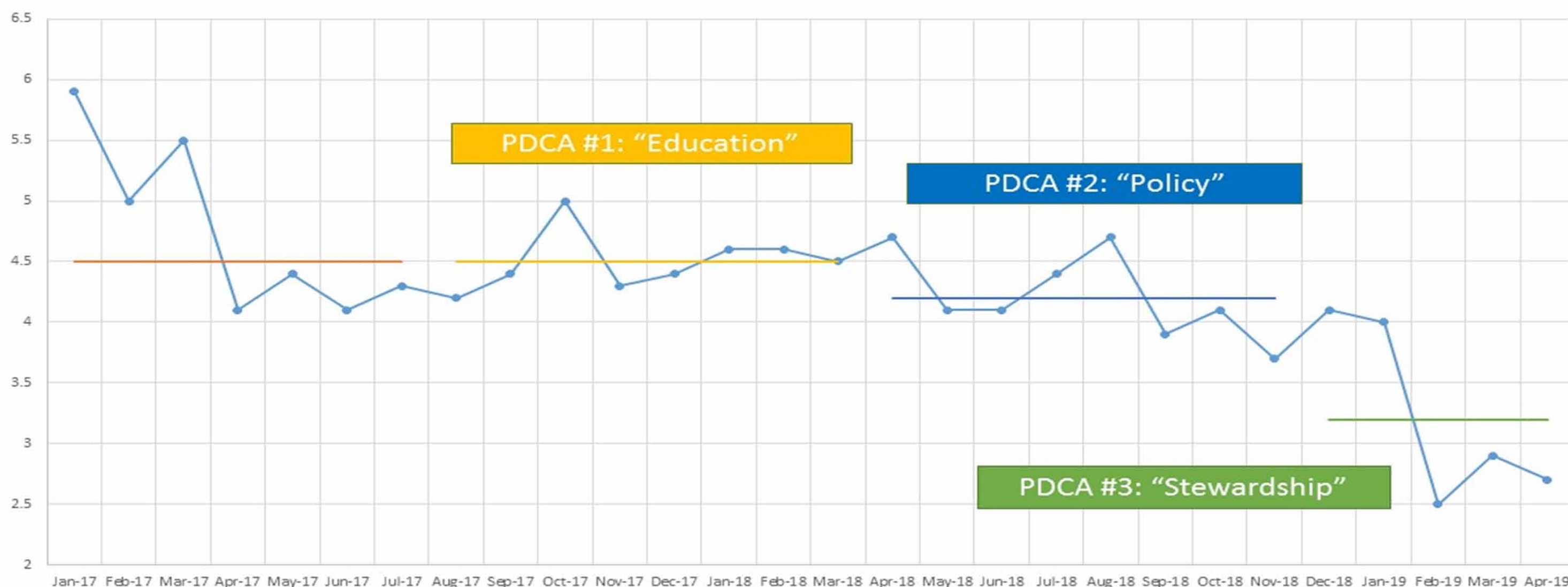
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- 2) Decrease average NIPPV LOS by 10% (< 3.5 days by 6/30/19)

## Design/Methods

NIPPV LOS (d)



## Results

From 2017 to 2018, we achieved a 10.5% reduction in total NIPPV days, 8.3% reduction in monthly cases, and 6.5% in average NIPPV LOS. NIPPV mortality events for 2018 decreased to 1 from 4. Direct cost savings exceeded \$22,000 due to fewer device rentals and supplies.

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A multidisciplinary team approach, structured monitoring process, staff empowerment, and incorporation of an updated evidence-based policy were key steps towards success.



## **Preventing Harm by Studying In-Hospital Deaths**

Calvin Hwang, MD MPH and Leandra Derico, MHA

### Problem Statement:

In September, 2016, the Dept. of Medicine (DOM) at NYP Queens recognized that patients were unintentionally being harmed. The Vizient mortality index suggested that patients admitted under Medicine were dying at a rate above the national average.

### Objective

NYPQ DOM aimed to reduce the Vizient Mortality from 1.17 to <1.0 for all Medicine patients by December 2017. Once this target was met, the DOM lowered the target to <0.8 for 2018.

### Design & Methods

We created a Mortality Review Committee (MRC) consisting of volunteer physicians, nursing leaders, and physician assistants modeled on the process used by the Mayo Clinic. 81% of all in-hospital Medicine mortalities were reviewed between 2016-2018. Cases in which potential deviations from accepted standard of care were flagged for additional review by the MRC. The MRC identified mortality patterns centered around common processes. These at-risk processes were then prioritized for improvement using an impact-effort matrix. Improvement efforts were coordinated by the DOM with support from the Quality Department, along with other clinical departments.

### Results

Over 2 years, NYPQ DOM reduced the expected Vizient Mortality Index by an absolute value of 38%, from 1.17 to 0.79 (based on 2017 benchmarking). This was achieved through a multidisciplinary, systematic mortality review system focused on care processes. Once patterns were detected, DOM leadership conducted targeted interventions. Several key projects included a hospital-wide alcohol withdrawal protocol, cardiac arrest team (CAT) simulation-based training, rapid response team (RRT) nursing training, and a reduction of inappropriate non-invasive positive pressure ventilation (NIPPV) project. Additional non-clinical efforts were conducted through the Quality Department and Clinical Documentation Improvement (CDI).

### Lessons Learned

Successful mortality reduction requires a combination of systematic detection & analysis, targeted interventions, multidisciplinary collaboration and clinical leadership support. Early successes created a foundation of experience from which later projects could tap. The DOM actively facilitated collaborative problem solving by emphasizing progress rather than perfection.

### Next Steps

The Mortality Review Committee is actively collaborating with NYP central leadership to integrate electronic reporting (KeepSafe) and to standardize reporting processes. Current projects include implementation of care pathways, facilitation of appropriate hospice referrals, and increasing the integration of quality improvement education into GME.



## Preventing Harm by Studying In-Hospital Deaths

Weill Cornell Medicine Quality Improvement Poster Session

Calvin Hwang, MD MPH and Leandra Derico, MHA | May 22, 2019

### PROBLEM STATEMENT

In September, 2016, the Dept. of Medicine (DOM) at NYP Queens recognized that patients were unintentionally being harmed. The Vizient mortality index suggested that patients admitted under Medicine were dying at a rate above the national average.

### OBJECTIVE

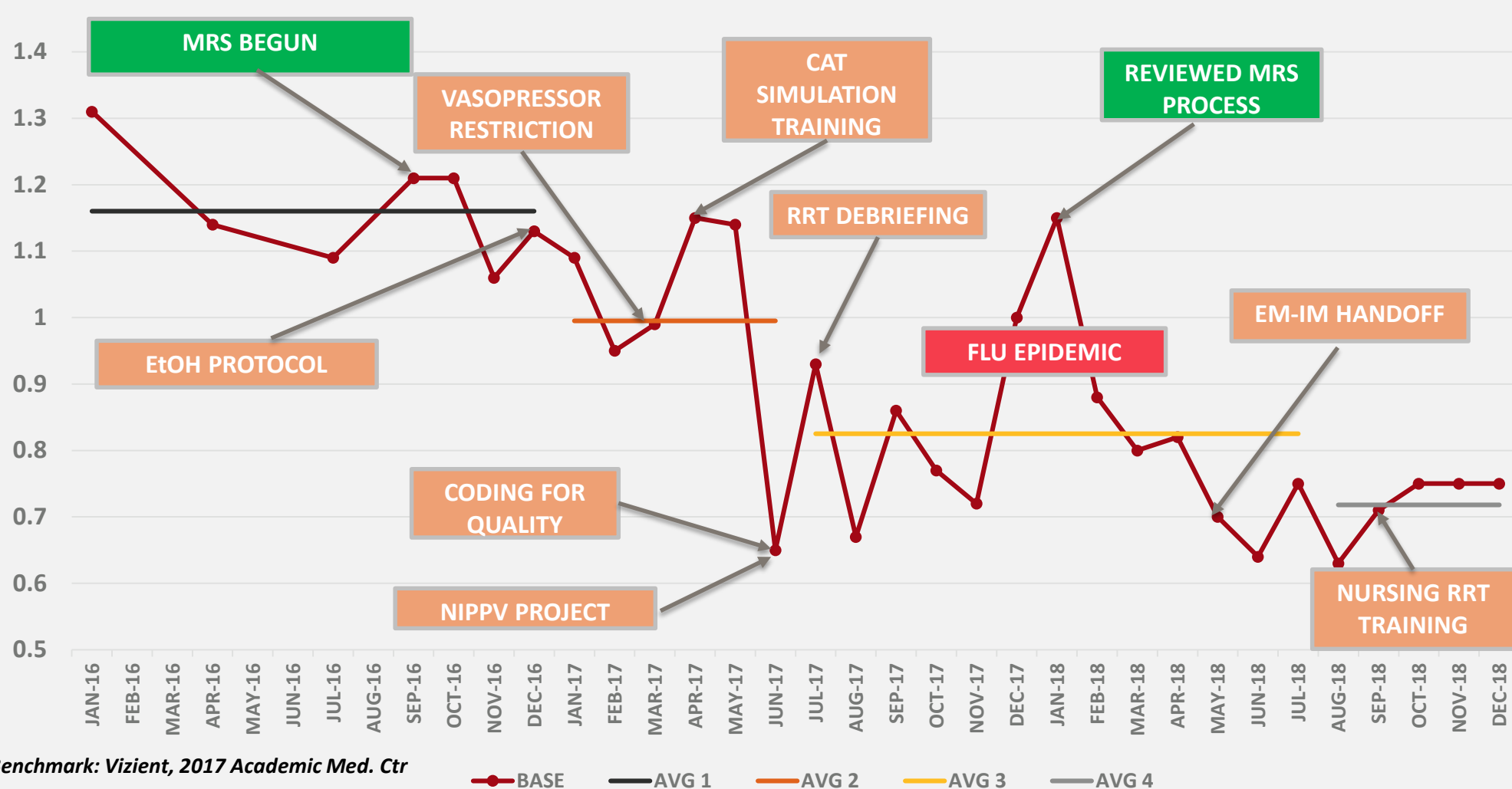
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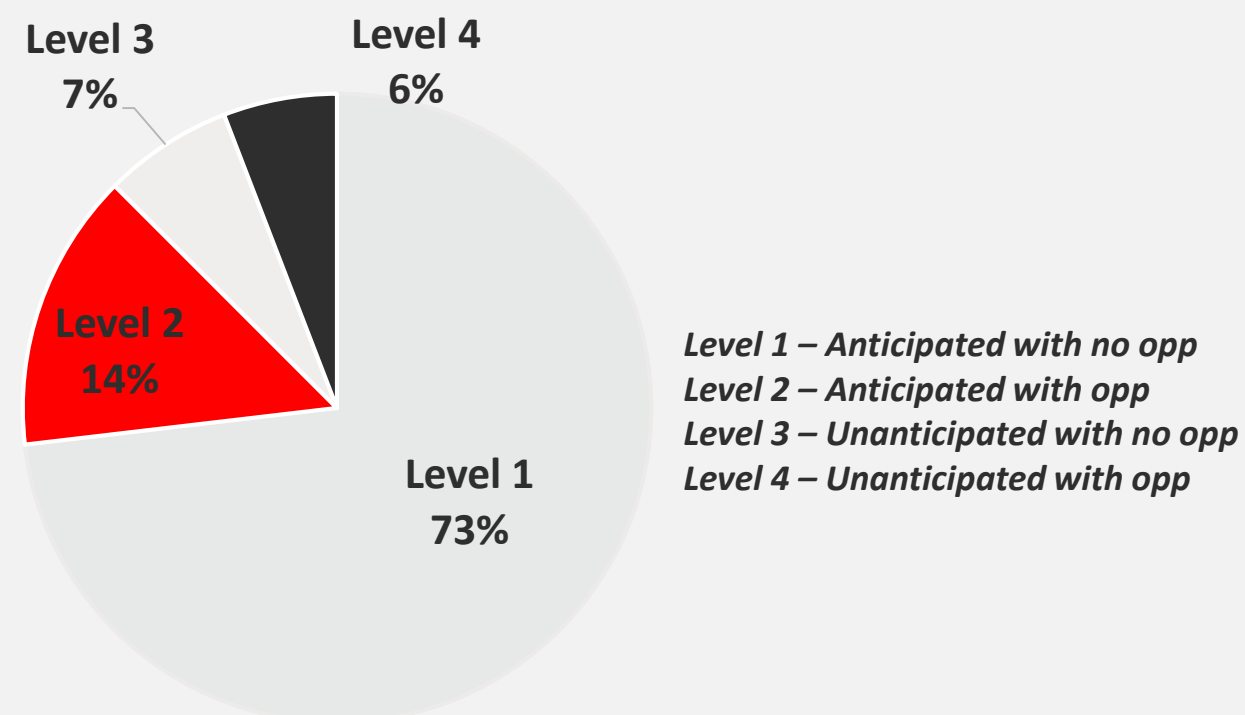
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### NYPQ DOM MORTALITY INDEX



### 2018 Categories of Death



### Opportunity Rates

2016	2017	2018
31.0%	19.7%	20.2%



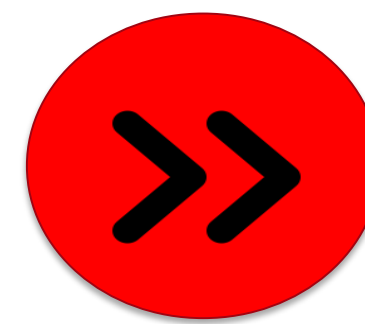
### RESULTS

Over 2 years, NYPQ DOM reduced the expected Vizient Mortality Index by an absolute value of 38%, from 1.17 to 0.79 (based on 2017 benchmarking). This was achieved through a multidisciplinary, systematic mortality review system focused on care processes. Once patterns were detected, DOM leadership conducted targeted interventions. Several key projects included a hospital-wide alcohol withdrawal protocol, cardiac arrest team (CAT) simulation-based training, rapid response team (RRT) nursing training, and a reduction of inappropriate non-invasive positive pressure ventilation (NIPPV) project. Additional non-clinical efforts were conducted through the Quality Department and Clinical Documentation Improvement (CDI).



### LESSONS LEARNED

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### NEXT STEPS

The Mortality Review Committee is actively collaborating with NYP central leadership to integrate electronic reporting (KeepSafe) and to standardize reporting processes. Current projects include implementation of care pathways, facilitation of appropriate hospice referrals, and increasing the integration of quality improvement education into GME.

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**Background:** Ovarian and testicular torsion are time-dependent, gonad- and fertility- threatening diagnoses. Gonadal torsion cases accounted for 8% of closed emergency department malpractice claims in a recent article published in the *Journal of Healthcare Risk Management*. Individual malpractice case reviews demonstrated patterns of both diagnostic and therapeutic delay. Currently NYP Emergency Departments (EDs) do not have a formal clinical pathway to expedite care of these high-risk presentations.

**Objective:** Assess the impact of *Code Torsion* - a novel, ED-based clinical pathway to expedite the diagnosis and management of ovarian and testicular torsion. The ultimate goal of Code Torsion is to provide the fastest access to definitive management for these time-sensitive, fertility-threatening diagnoses.

**Methods:** *Code Torsion* was conceived by a workgroup comprised of Emergency Medicine Physician & Nursing leadership, Radiology, Urology, OB/GYN, and the Transportation service line. Upon clinical evaluation, if a patient is determined to have a high risk presentation, patients are subsequently streamlined for transport, diagnostic ultrasound (US) imaging, and consultation with the appropriate service. Identification of high risk patients is initiated as early as ED triage by nursing who utilize their triage assessments skills to identify these patients and immediately notify the providers. The following metrics were evaluated on *Code Torsion* cases; *US Order-Read* time, *Arrival-US Read* time and *Arrival-OR* time. Intervention data was subsequently compared to abstracted pre-intervention data from January 1, 2018-December 1, 2018. We did not evaluate cases of torsion where code torsion was not activated prospectively. Additionally, formal case reviews and Root Cause Analysis cases were reviewed.

**Results:** *Code Torsion* was piloted at WCMC between 12/1/2018 and 4/9/2019. During that time, we have activated the pathway 97 times (49 female, 28 male, 24% pediatrics) ; accounting for 9% of all gonadal sonograms. Of those, 7 (7%) had findings on US that were positive or equivocal for torsion with 4 (4%) requiring operative intervention. One patient was taken to the OR despite having a negative US (5 total, 4 female, 1 male pediatric case). In comparison to concurrent cases obtaining gonadal US during this pilot, Code Torsion activations reduced ED Arrival-US Read time by 96 minutes and US Order-US Read time by 49 minutes. In comparison to pre-intervention actual torsion cases, Code Torsion reduced the ED Arrival-US Read time by 62 minutes; US Order-US Read time by 19 minutes, and ED Arrival-OR time by 89 minutes.





# Code Torsion: A novel, multidisciplinary clinical pathway to expedite the Emergency Department management of ovarian and testicular torsion.

Weill Cornell Medicine Quality Improvement Poster Session, May 22, 2019

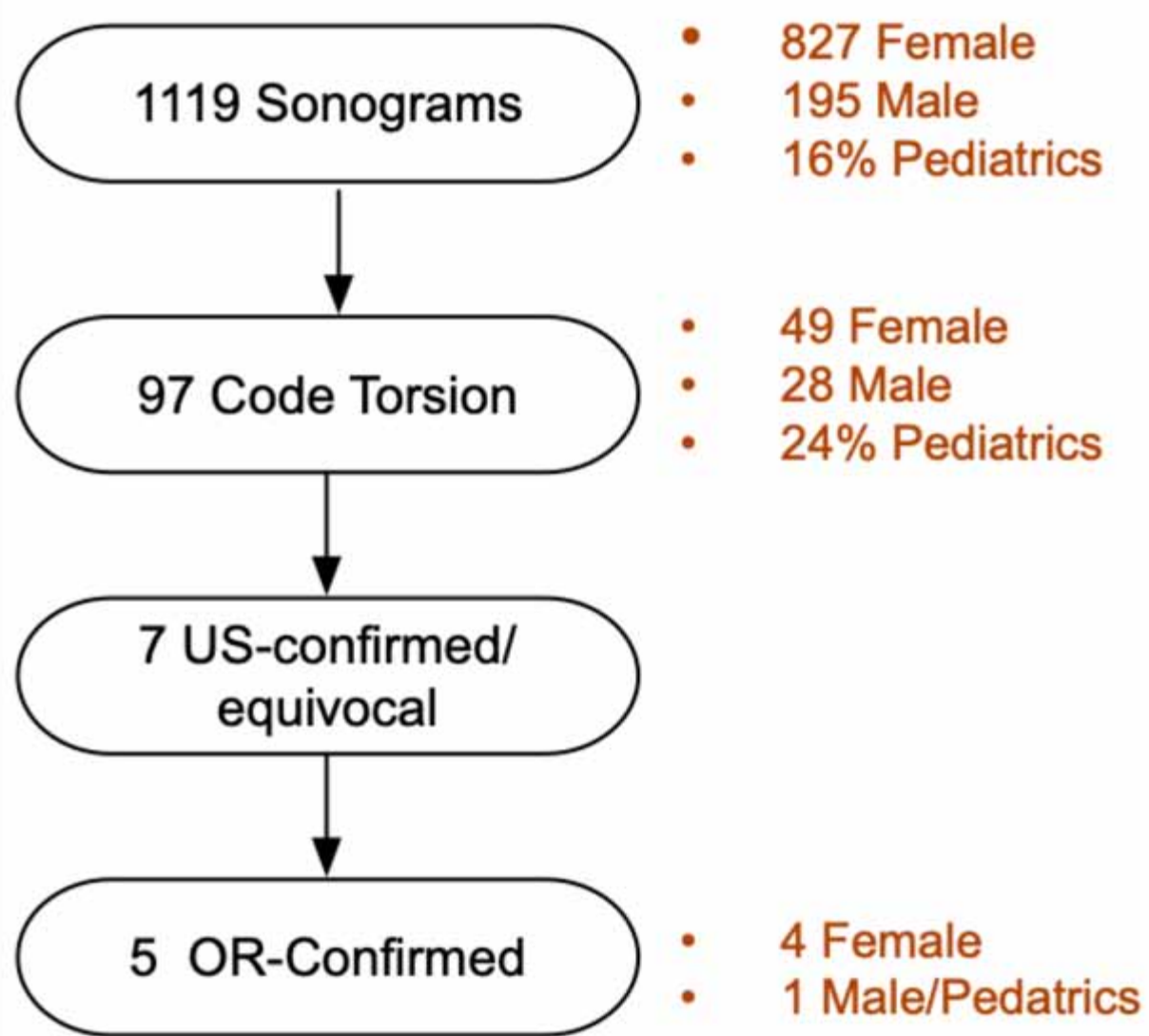
D Lakoff MD; A Dajer MD; B Farmer MD; J Kazam MD; A Lincoln RN; C McHugh RN; S Platt MD; M Raymond RN, R Sharma MD, R Tanouye MD; C Vasquez RN; A Vella MD; P Steel MD

**Problem Statement:** Gonadal torsion cases accounted for 8% of closed emergency department malpractice claims in a recent article published in the *Journal of Healthcare Risk Management*. Individual malpractice case reviews demonstrated patterns of both diagnostic and therapeutic delay. Currently NYP Emergency Departments (EDs) do not have a formal clinical pathway to expedite care of these high-risk presentations.

**Objective:** Assess the impact of *Code Torsion* - a novel, ED-based clinical pathway to expedite the diagnosis and management of ovarian and testicular torsion. The ultimate goal of *Code Torsion* is to provide the fastest access to definitive management for these time-sensitive, fertility-threatening diagnoses.

**Design:** A multidisciplinary team of Emergency Medicine Physician & Nursing leadership, Radiology, Urology, OB/GYN, and the Transportation service line designed a pathway to expedite care for ED presentations high-risk for torsion. On arrival, ED triage nurses and providers identify high risk patients and activate *Code Torsion*. Patients are subsequently streamlined for transport, diagnostic ultrasound (US) imaging, and consultation with the appropriate service.

## Code Torsion Intervention



	Pre-intervention 1/1/18-11/30/18		Intervention 12/1/18-4/9/19	
	Torsion	W/o Torsion	Torsion	W/o Torsion
<b>Total to OR</b>	12	2290	6	889
<b>US Order-US Read</b>	78	114	59	108
<b>Arrival-US Read</b>	182	216	120	216
<b>Arrival-OR</b>	342	n/a	253	n/a
	<b>Pre <math>\delta</math></b>		<b>Post <math>\delta</math></b>	
<b>US Order-US Read</b>	-36		-49	
<b>Arrival-US Read</b>	-34		-96	

Torsion	Pre-Post $\delta$
<b>US Order-US Read</b>	-19
<b>Arrival-US Read</b>	-62
<b>Arrival-OR</b>	-89

**Results:** *Code Torsion* was piloted at WCMC between 12/1/2018 and 4/9/2019. During that time, *Code Torsion* 97 times (49 female, 28 male, 24% pediatrics); accounting for 9% of all gonadal sonograms during this time period. 5% of *Code Torsion* cases required operative intervention for gonadal torsion. In comparison to pre-intervention torsion cases, *Code Torsion* reduced the ED Arrival-US Read time by 62 minutes; US Order-US Read time by 19 minutes, and ED Arrival-OR time by 89 minutes. In comparison to concurrent cases obtaining gonadal US during this pilot, *Code Torsion* activations reduced ED Arrival-US Complete time by 96 minutes and US Order-US Complete time by 49 minutes.

**Conclusions:** Given the international impact of CVA and AMI activation, *Code Torsion* is the first (to our knowledge) attempt at inter-departmental, interdisciplinary coordination of care process to expedite management of the gonad-threatening diagnoses. By coordinating and expediting the ED evaluation of high risk patients, our findings show that we have reduced the time to diagnosis by 62 minutes and time to OR by 89 minutes.

**Next Steps:** 1) Provide feedback to frontline clinical staff to refine *Code Torsion* activation criteria 2) To implement and evaluate effectiveness at other campuses throughout the NYP enterprise 3) To measure the impact of code torsion on missed torsion cases and malpractice litigation within the enterprise.



## **ERAS for Cesarean Delivery: A Quality Improvement Initiative**

### **STATEMENT OF THE PROBLEM**

New York Presbyterian – Weill Cornell has an average 4 day length of stay (LOS) following cesarean section (CS), which is higher than many other maternity hospitals. Furthermore, there is wide variation in expectations among patients regarding the CS itself, post-operative milestones, and discharge.

### **OBJECTIVE/AIM OF THE STUDY**

Enhanced recovery after surgery (ERAS) was developed as a way to standardize clinical care pathways and communicate across multidisciplinary teams to improve patient recovery. The goal of ERAS is to enhance the patient experience through active participation in the recovery process, while reducing LOS. ERAS encompasses 4 main stages:

1. Planning and preparing before surgery
2. Reducing physical stress of the operation
3. Managing post-operative analgesia with a standardized regimen
4. Early feeding and ambulation

The objective of our quality improvement initiative was to implement an ERAS protocol for scheduled CS and evaluate its efficacy.

### **PROJECT DESIGN/METHODS**

We prospectively monitored patients 3 weeks prior to and 3 weeks subsequent to implementation of an ERAS for CS protocol. Patients were provided with a detailed information sheet explaining what to expect before, during and after their CS, both in the obstetrician's office and on arrival for pre-operative laboratory testing. On the day of scheduled surgery, patients were maintained on an ERAS pathway of care, and were given a survey asking how well they were informed of items such as NPO guidelines, pain management options, and LOS.

### **RESULTS**

There were 38 patients in the pre-ERAS group and 33 patients in the post-ERAS group. We were able to demonstrate a mean LOS of 3.5 days +/- 1.03 for the pre-ERAS group and 3.0 days +/- 0.35 for the post-ERAS group, translating to a reduction of 0.5 days,  $p=0.005$ . Over 50% of patients completed a phone survey following their scheduled CS. Subgroup analysis of satisfaction scores between pre-ERAS ( $n=20$ ) and post-ERAS ( $n=19$ ) groups did not show a statistical difference. Scores ranged from 1-5 with 1 representing completely unsatisfied and 5 representing completely satisfied; both groups had a median score of 5 [IQR 4-5],  $p=0.99$ .

### **CONCLUSIONS**

A reduced LOS in patients undergoing scheduled CS was achieved even in the first 3 weeks of implementing an ERAS protocol, without compromising patient experience. A shorter LOS offers substantial cost savings for the health care system, room for more throughput, and less risk to patients. The implementation of ERAS for CS required input and partnership with providers in multiple departments and roles including nursing, obstetrics, anesthesiology, pediatrics, nutrition, lactation services, social work, and patients. Future goals include sustainability of the ERAS program, continued implementation in patients requiring intrapartum CS, and expansion to other hospitals within our enterprise. We also view ERAS as an approach to reduce racial and ethnic disparities and achieve impartial post-surgical healthcare through the utilization of standardized protocols and guidelines.

## Problem Statement

NYP–Weill Cornell has an average 4 day length of stay (LOS) following cesarean section (CS), which is higher than many other maternity hospitals. Furthermore, there is wide variation in expectations among patients regarding the CS itself, post-operative milestones, and discharge.

## Aim of the Study

Enhanced recovery after surgery (ERAS) was developed as a way to standardize clinical care pathways and communicate across multidisciplinary teams to improve patient recovery. The goal of ERAS is to enhance the patient experience through active participation in the recovery process, while reducing LOS. The objective of our quality improvement initiative was to implement an ERAS protocol for scheduled CS and evaluate its efficacy.

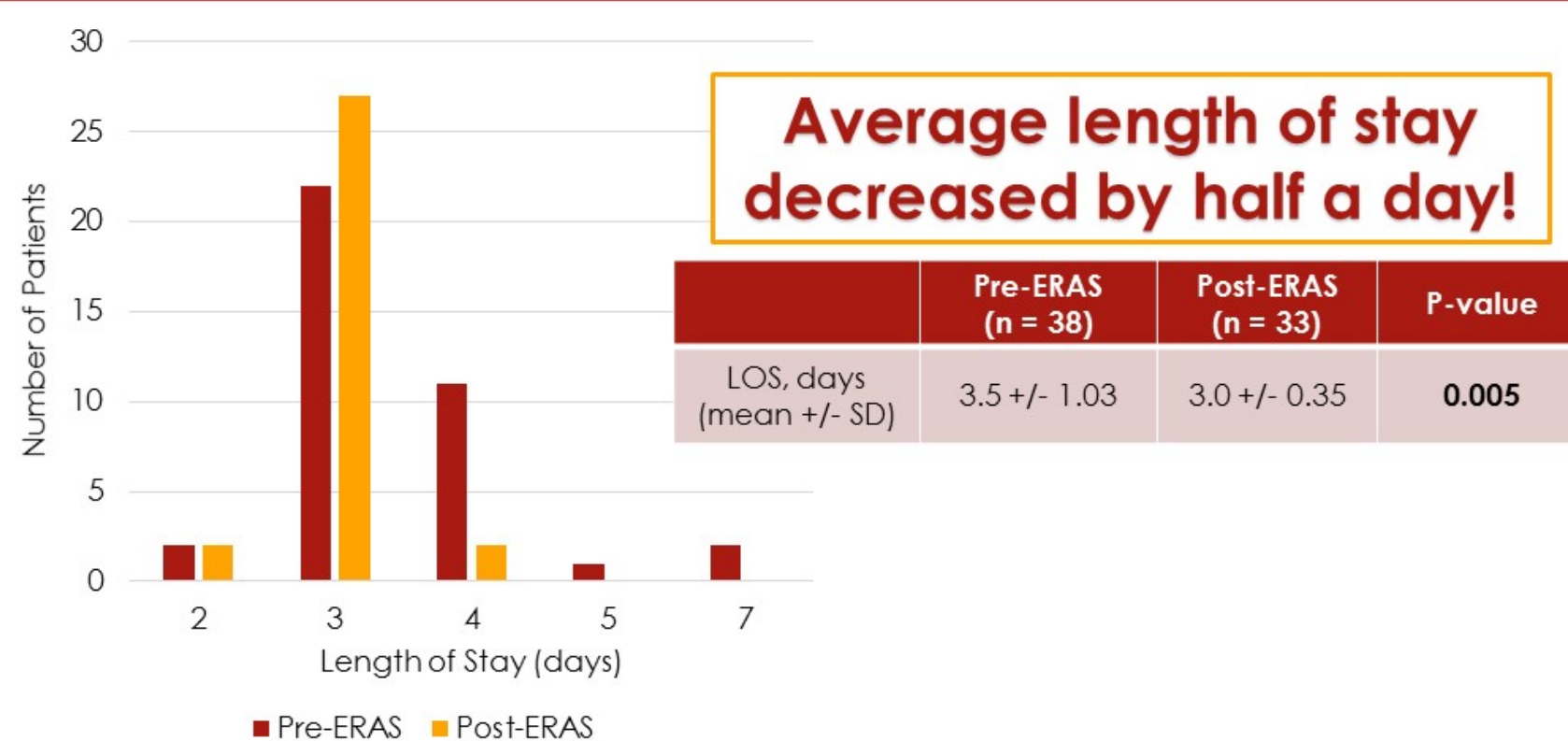
## Study Design

We prospectively monitored patients 3 weeks prior to and 3 weeks subsequent to implementation of an ERAS for CS protocol. Patients were provided with a detailed information sheet explaining what to expect before, during and after their CS, both in the obstetrician's office and on arrival for pre-operative laboratory testing. On the day of scheduled surgery, patients were maintained on an ERAS pathway of care, and were given a survey asking how well they were informed of items such as NPO guidelines, pain management options, and LOS.

## Results

- 38 patients in pre-ERAS group
- 33 patients in post-ERAS group
- Over 50% of patients completed a phone survey following their scheduled CS.
- Subgroup analysis of satisfaction scores between pre-ERAS (n=20) and post-ERAS (n=19) groups did not show a statistical difference; both groups had a median score of 5 [IQR 4-5], p=0.99.

## LOS Data Pre- and Post-ERAS Implementation



## Conclusions

A reduced LOS in patients undergoing scheduled CS was achieved in the first 3 weeks of implementing an ERAS protocol, without any evidence of a compromised patient experience. A shorter LOS offers substantial cost savings for the health care system, room for more throughput, and less risk to patients. The implementation of ERAS for CS required input and partnership with providers in multiple departments and roles, as well as, patients themselves.

## Next Steps

Future goals include sustainability of the ERAS program, continued implementation in patients requiring intrapartum CS, and expansion to other hospitals within our enterprise. We also view ERAS as an approach to reduce racial and ethnic disparities and achieve impartial post-surgical healthcare through the utilization of standardized protocols and guidelines.

# **Abstract**

## **Patient Pulling and Mobile Heartbeat (MBH) Utilization :**

### **An Initiative to Improve patients flow from ED to Medical Surgical Unit (5North)**

**Santini Ong, BSN, RN, Amoy Virgo, RN, BSN, MSOL, Adrian Yau, RN, BSN**

#### **1. Statement of the Problem:**

New York Presbyterian - Weill Cornell together with 5N (Medical Surgical Unit) is committed to operational excellence, delivering the best of care with Amazing patient experiences. To achieve such prodigious goal a study is warranted to Increase Patient Flow from Emergency Department to 5 North thru interdisciplinary team collaboration, innovative ideas and use of advance technological interventions to timely orchestrate the efficient transfer of patient to ensure that patients received the ultimate care in a given timeframe.

#### **2. Objective/Aim of the study:**

- The primary objective of the SMART (Specific-Measurable-Attainable-Realistic-Time bounded) based study is to Increase Patient Flow focused on a quantitative quality improvement that affected patient flow and transferring patient from Emergency Department to Medical Surgical Unit (5N) by pro actively pulling patient from ED with the use of Mobile Heartbeat (MHB) in a timely manner.

#### **3. Project Design/Methods:**

- Quantitative data gathering was conducted, the data was reviewed in real time, and the participants of the study were NYP staff. In general, having a stronger partnership with the patient care directors, medical directors, care coordination team, PPOC, social worker, physician assistant, nurses aides, unit clerks, transport department and the charge and clinical nurses from the ED, highlighted some of the barriers for discharge through a huddle forum that helped to reduce delayed discharges and creating room for empty beds. Thus increasing the rate or ratio of pulling patients from the ED to 5North. Additional caused of delay are identified as Pending transport from Emergency Department to the Unit (5N), On going or scheduled diagnostic test and procedures prior to unit transfer and patient sudden changed of medical status.

According to the BMJ Quality Improvement Reports 2016, Improving



Emergency Department flow through bed utilization, the most significant gains was based on their study via communication strategies and digital information management systems.” Hence, recognizing and addressing some of the issues with patient flow challenges is not only a critical aspect of patient care, but equally pertinent to the availability of beds to pull patients from the ED to the unit-5North in a timely manner.

APED (Admitted Patients in the Emergency Department) executed a Task Force to aid in resolving this issue of patient flow from the ED in a timely manner. As a result, the usage of Mobile Heartbeat Technology was initiated in March 2017 to help to alleviate this problem. Currently the Information Technology (IT) Department works in conjunction with the ED, and Medical Surgical Department facilitate innovative and technological interventions of improving patient flow from the ED to 5N.

#### **4. Results:**

The outcomes showed a significant positive correlation between pulling patients from ED, usage of Mobile Heartbeat Technology and Interdisciplinary Team collaboration in improving patient flow. As a result, it showed a 20% decrease in trend of patients transporting from the ED to 5North from a given timeframe.

#### **5. Conclusions:**

A mutually beneficial strategic initiative in providing the best healthcare services and maintaining high quality patient experience, managing some of the challenges with the application of scientific based method of intervention is imperative. Overall Interdisciplinary team effort and application of digital communication primarily for the advanced and technological benefits that it fostered. It also promoted collaboration, integrative care with the multidisciplinary team, and improved communication among the team members. These practices of communication were also aligned with PPOC, ED, and 5N, which was subsequently, extended to other medicine service line. This mode of communication and intervention created an atmosphere that identified better ways of communication among across the spectrum.

Aforementioned are viable tools in continuity execution of medical interventions and improving patient care and satisfaction.



# Patient Pulling and Mobile Heartbeat (MBH) Utilization : An Initiative to Improve patients flow from ED to Medical Surgical Unit (5North)

Santini Ong, BSN, RN, Amoy Virgo, RN, BSN, MSOL, Adrian Yau, RN, BSN

### Problem Statement:

Health times (2016), identifies patient flow as the movement and processes involved in the progression of patients along a pathway of care from one location to another. Patient transfers from the emergency department to an inpatient floor is a challenging process that involves many barriers to flow. Historically, this process involved the sending unit “pushing” the patient in their attempt to transfer. A more proactive “pull” approach is prescribed as a way of reducing transfer times and improving patient flow. “Pull time” refers to the period between the assignment of a clean, ready bed to patient transfer from the sending unit to the assigned bed. The national benchmark is 60 minutes.

5-North (5N) is a 36-bed Adult Medicine unit at NYP-Weill Cornell Medicine. The average pull time on 5N was 81 minutes at the end of 2017. Barriers to patient preventing the transfer of patients from the Emergency Department (ED) to 5N within the national pull time benchmark included:

- Communication issues
- Inadequate utilization of technological resources
- Inefficient processes to address challenges with staffing and assignment.
- Delays in completing nursing report
- Delays in transporting the patient to the inpatient unit.

### Objective/Aim Statement:

PICO: Among adult patients in a high volume trauma center, how effective is the use of Mobile Heartbeat (MBH), compared to the standard verbal communication process in improving patient flow from ED to the Medical Surgical Unit

**Design/Methods:** This research-based initiative to improve patient flow is a collaborative effort between the ED, 5 North, Patient Placement Operations Center (PPOC) and Patient Transport. During the course of multidisciplinary meetings, communication and team building across departments were identified as key opportunities to reduce pull time. These areas marked the focus for the pull initiative by completing shadowing and utilizing the Mobile Heartbeat Technology (MBH) to optimize direct communication between the ED and 5N nurses, which reduced delays in endorsing report.

#### Improving communication:

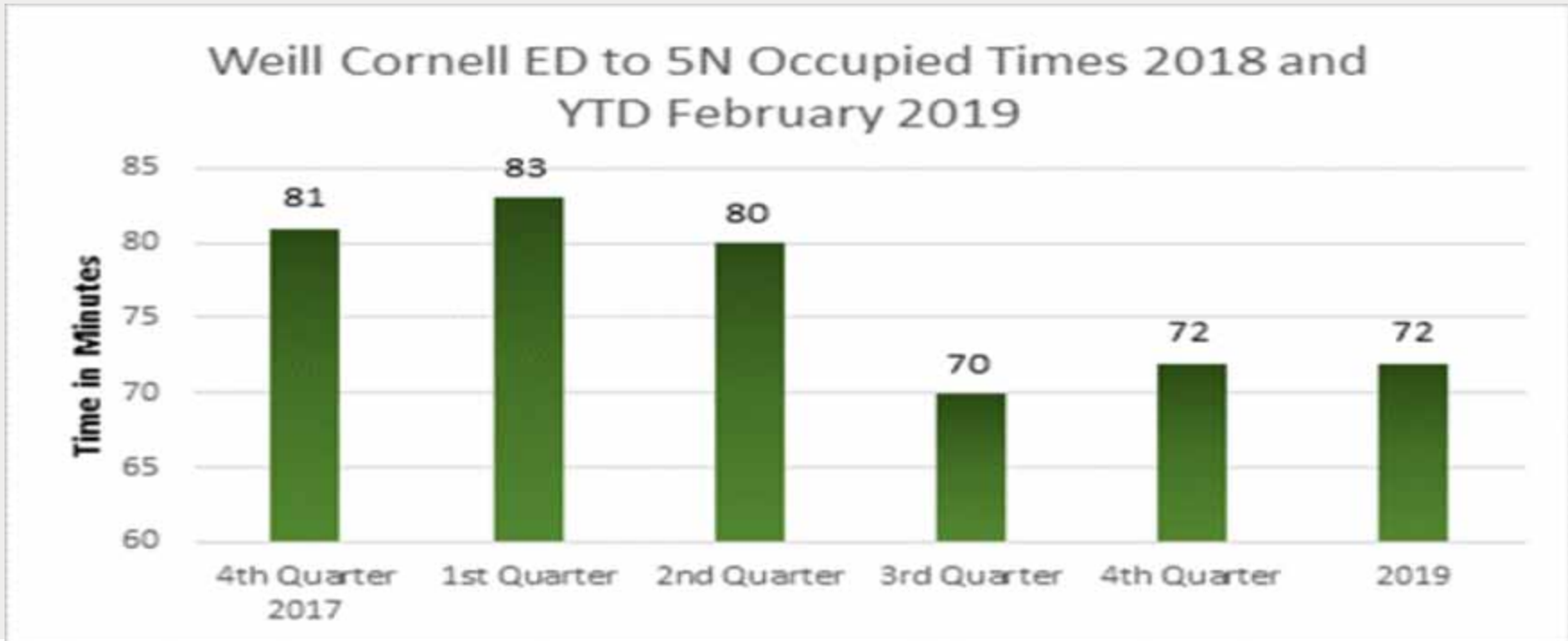
- At the start of each shift, the 5N Charge Nurse identified the nurses for admission and communicated with the Unit Assistant.
- The bed assignment was completed by PPOC in Tele Tracking.
- The Unit Assistant on the receiving unit visualized the assigned bed and alerted the receiving nurse to patient assignment.
- The receiving nurse would then utilize MHB to contact the Emergency Department nurse for report. After report, patient transport was arranged.

#### Interdepartmental team building:

- ED nurses shadowed a 5N nurse for a day to experience firsthand the challenges experienced on the receiving unit
- Both teams (ED, 5N) attended the monthly Patient Flow meetings where patient flow barriers were discussed.

#### Unit Clerks, EVS and Charge Nurses worked collaboratively to:

- Discuss confirmed discharges
- Pre-Assign nurses in order which nurses will receive admission from ED.
- Discharge patient out of system in real time.
- Communicate with EVS staff to clean available room/bed.



### Results

Identified reasons for delays/transfers:

- Pending transport from Emergency Department to the Unit (5N).
- On-going or scheduled diagnostic test and procedures prior to unit transfer.
- Sudden change in patient clinical status.
- Barriers to communication.

Outcomes revealed positive correlation between pulling time and use of MBH. The results confirmed a 20% decrease in trend of patients transported from the ED to 5North.

### Lessons Learned

The utilization of MHB was instrumental in more efficiently connecting interdepartmental nursing staff and establishing familiarity between ED and 5N.

### Next Steps

- Information Technology (IT) department to continue collaboration with the ED and Medical/Surgical departments in facilitating innovative and technological interventions to improve patient flow.
- Further work to enhance communications between Emergency Department and Patient Transport.

## Use of the “Improving Pediatric Patient Centered Transition (IMPACT) Bundle” to Reduce Pediatric Inpatient Readmission: A Retrospective Factorial Design.

Snezana Nena Osorio, MD MS, Sandra Gage, MD PhD, Leah Mallory MD, Erika Abramsons MD MS, David Cooperberg, MD

**Background and objectives:** Reducing 30-day readmission (RR) is a quality and safety goal nationally. The use of complex interventions such as transition bundles has been suggested as potential solution. However, the effect of pediatric transition bundle on readmission is unknown. A pilot report from 4 hospitals described the design and implementation of 4- element IMPACT bundle (transition checklist, teach back, timely and communication with outpatient providers and post-discharge phone call). A variation in implementation of the bundle was noted among sites.

We sought to 1) reduce RR and 2) use retrospective multifactorial analysis to identify important effect of individual or combined bundle elements on pediatric readmission.

**Methods:** Retrospective patient data including 30-day readmission and bundle element exposure was collected from 1/2014 to 12/2017. Patients were manually classified using a previously published pediatric medical complexity algorithm into 3 clinical risk groups (CRG): no chronic disease (CRG1), single chronic condition (CRG2) and multiple or complex chronic conditions (CRG3). Primary outcome was 30-day RR. A 2<sup>4</sup> multifactorial design matrix of the 16 bundle element combinations was developed by using 4 dichotomous (used/not used) factors. Study-It software was used to estimate and analyze each of the 4 factors' effect and their interactions. Main effect terms and 2-factor interactions for each of the elements in the study were evaluated. Due to wide variation in subgroup size, weighted effect estimates were calculated and verified using statistical process control charts.

**Results:** Of 7727 subjects, 4002 were in CRG1 (Readmission Rate =3.5%), 1938 in CRG2 (RR= 4.2%), and 1787 in CRG3 (RR=17.6%). The number of subjects in each matrix category ranged from 16 - 674. In CRG1 and CRG2 checklist was the most effective single element in reducing RR (by 2.4% and by 4.3%), while in CRG 3 it was teach back (by 4%). In CRG3 the combination of teach back and checklist had the greatest effect on RR (combined reduction of 6.4%).

**Conclusions:** This study demonstrated that RR differs across medical complexity groups. Similarly, the effects of bundle elements on RR varied across CRGs. The most effective single bundle elements were the checklist (CRG1 and CRG2) and teach back (CRG3), while their combination was the most effective for CRG3. Neither, the follow-up phone call nor the outpatient handoff alone reduced RR, however this may be due to small sample size. Further validation of these results with a larger population in a controlled setting is needed.





# Individual and Combined IMPACT Bundle Elements Reduce Pediatric Readmissions for Different Level of Medical Complexity –A Retrospective Multifactorial Design

Snezana Nena Osorio, MD, MS, Sandra Gage, MD PhD, Leah Mallory, MD, Erika Abramson, MD MS

David Cooperberg MD

**Problem Statement:** Transitions between care settings pose significant safety risks to patients . The Improving Pediatric Patient-Centered-Care Transition (IMPACT) 4-element transitions care bundle aims to improve safety around hospital discharge through use of Pediatric Discharge Bundle.

**Objective/Aim Statement:** To identify the effect of individual and or combined bundle elements on reducing 30-day readmission rate (RR).

**Design/Methods:** A retrospective multifactorial analysis of individual patient readmission rate and each bundle element from January 2014 to December 2017

- 1) No chronic disease (CRG 1 e.g. bronchiolitis)
- 2) Single chronic condition (CRG2: e.g. asthma)
- 3) Multiple or complex chronic conditions (CRG3: e.g. cystic fibrosis, technology-supported)

**Primary Outcome:** 30-day RR

**Data Analysis:**

- Rational subgrouping analysis performed
- 2x4 multifactorial design matrix of the 16 bundle element combinations developed using 4 dichotomous (used/not use) factors i.e. bundle elements
- Study-it software (McGraw-Hill Professional, NY, NY) used to estimate and analyze each of the 4 bundle effects and their interactions
- Main effect terms and 2-bundle element interactions for each of the bundle elements in the study were evaluated
- Due to wide variation in subgroup size ( 16-674) weighted effect estimates were calculated
- Statistical process control charts used to verify results

### Table 1. Characteristics of Study Sample

Clinical Risk Group	Number of Patients (n)	Readmission Rate (%)
CRG1	4002	141 (3.5%)
CRG2	1938	82 (4.2%)
CRG3	1787	315 (17.6%)
Total	7727	538 (6.9%)

Figure 1. Subgroup Analysis: RR by Clinical Risk Group by Year

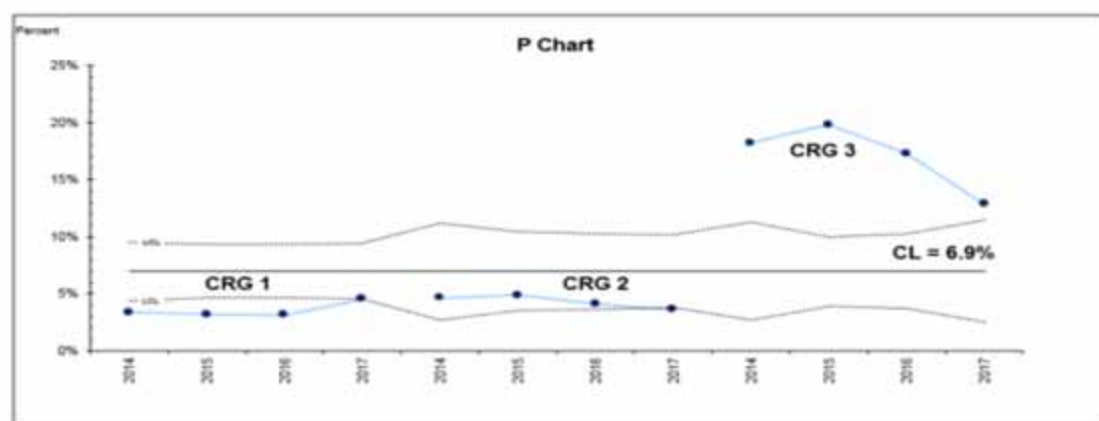


Figure 2: Response Plot CRG 3

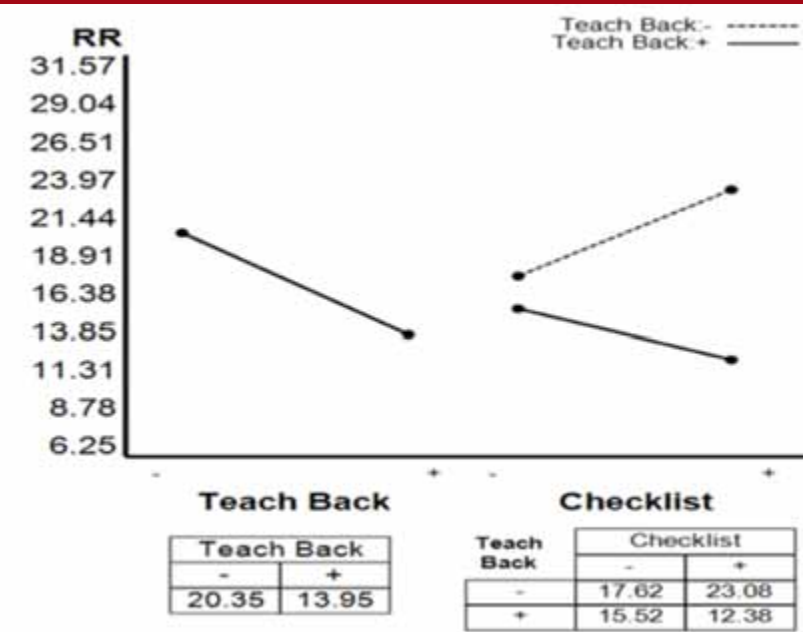
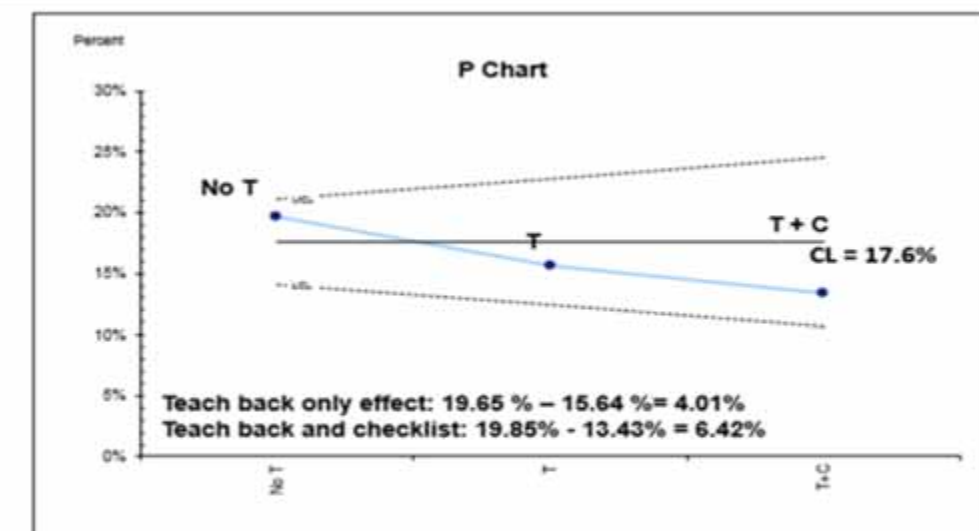


Figure 3: Weighted Effect of (T) and (T+C) on RR in CRG3



T= Teach back  
C = Checklist

### Results:

- In CRG 1 and in CRG 2 the checklist was the most effective single element in reducing RR (by 2.4% and by 4% respectively).
- In CRG 1 both teach back and handoff slightly mitigated the effect of checklist

### Conclusions/Lessons Learned:

- The effects of bundle elements on RR varied across CRGs
- The most effective single bundle elements were the checklist (CRG1 and CRG2) and teach back in CRG3
- Checklist and teach back combination was most effective in CRG3
- Neither follow-up phone call nor the outpatient handoff alone reduced readmissions

### Limitations:

- Variation in subgroup size
- The effect of contextual factors not captured in the design

### Next Steps:

- Further validation of these results with a larger population in a controlled setting is needed
- Examine effect of IMPACT bundle elements on 3, 7 and 5-day RR
- Examined individual site contribution to RR

### Acknowledgements:

Authors would like to thank Lloyd Provost for his valuable contributions

## **The use of postoperative video visits to reduce readmissions in patients undergoing Urologic surgery: A pilot initiative**

Lina Posada, MD; Aleem Islam Khan, BS; Jonathan Fainberg, MD; Bashir Al Hussein Awamleh, MD; Douglas S. Scherr, MD

### **Statement of the Problem:**

Hospital readmissions after major urologic oncological surgery range between 3% in robotic-assisted laparoscopic prostatectomy (RALP) and 30% in radical cystectomy (RC). Telemedicine is an innovative field that resulted in an increase in health care access and reduction of associated costs. The role of telemedicine in a postoperative setting and its impact upon readmission rates have not been studied.

### **Objective/Aim of the study:**

To evaluate the feasibility of postoperative video visits and assess the impact in reducing readmissions following major urologic oncologic surgery.

### **Project Design/Methods:**

Patients undergoing major urological surgery by a single provider (DSS) were screened to participate in our study. All patients with a compatible smartphone were included. At time of enrollment patients were instructed how to utilize the video-visit application. Instructions were also provided on how to measure liquid intake and urine output once discharged. Video visits began the day after discharge and were made every other day for a total of 2 weeks (7 visits per patient). In each visit, we assessed current medications, oral fluid intake, urine output, food intake, flatus/bowel movements, use of spirometer, daily activity, fever, and surgical wound appearance. Video call providers utilized a script designed to provide a consistent structure to each visit. Specific patient answers triggered either an intervention (done by video call providers) or a “red flag”, prompting video call providers to contact the attending surgeon for further management.

The primary outcome was to assess the feasibility of post discharge video visits by calculating the number of completed calls as well as patient adherence to the post-operative care plan, measured by calculating the percentage of fluid intake and urine output reported. Secondary outcomes were the impact upon the rate of thirty-day hospital readmission measured by comparing readmission rates to matched controls done before the study period, and patient satisfaction using a validated survey on the last visit.

### **Results:**

A total of 163 calls were completed to 34 postoperative patients (mean 4.79 calls/patient) Of these, 11 (32.3%) were after RC, 11 (32.3%) after RALP, 5 (14%) after nephrectomy and 7 (20.5%) after other procedures. Overall, 59 interventions and 3 red flags were made (Table 1). Oral intake was quantified for 76.7% of the calls and urine output for 70.6%. A total of 3 (8.8%) patients were readmitted within 30 days of surgery. The matched controls had a total of 4 (11.8%) readmissions, which translates into a 3% decrease in readmission rate in patients receiving video visits. As measured by the survey, the level of satisfaction among patients was 87%.

**Conclusions:**

Postoperative video visits after major urological surgery are feasible, with 68.4% of planned calls completed. Additionally, we proved high patient adherence to the post-operative plan. Video visits in post-operative patients seem to reduce 30-day readmissions. Further large, randomized studies should be done to assess if video visits have a significant effect on reducing readmissions and higher-grade complications post-discharge.

Table 1. Reason for interventions and red flags during video visits.

	<b>Interventions (n=59)</b>	<b>Red Flags (n=3)</b>
Medications	5 (8.5%)	
Oral intake	14 (23.7%)	
Appetite/Nutrition	13 (22.0%)	1 (33.3%)
Bowel movements	9 (15.3%)	2 (66.7%)
Use of spirometer	6 (10.2%)	
Activity	6 (10.2%)	
Wound care and appearance	3 (5.1%)	
Urine output	3 (5.1%)	
Tube flushing*		
*Only for patients undergoing radical cystectomy with neobladder		



# The use of postoperative video visits to reduce readmissions in patients undergoing Urologic surgery: A pilot initiative



Quality Improvement Poster Session

Lina Posada, MD; Aleem Islam Khan, BS; Jonathan Fainberg, MD; Bashir Al Hussein Awamleh, MD; Douglas S. Scherr, MD | May 22, 2019

## Problem Statement

- Hospital readmissions after major urologic oncological surgery range between 3% in robotic- assisted laparoscopic prostatectomy (RALP) and 30% in radical cystectomy (RC).
- Telemedicine is an innovative and its role in a postoperative setting and its impact upon readmission rates have not been studied.

## Objective/Aim Statement

To evaluate the feasibility of postoperative video visits and assess the impact in reducing readmissions following major urologic oncologic surgery.

## Design/Methods

- **Participants:** Patients undergoing major urological surgery by a single provider with an available smart phone and English speakers.
- **Intervention:** Video visits every other day after discharge for a total of 2 weeks. In each visit, we assessed current medications, oral fluid intake, urine output, food intake, flatus/bowel movements, use of spirometer, daily activity, fever, and surgical wound appearance. Specific patient answers triggered either an intervention or a “red flag” that was communicated to the attending surgeon.
- **Primary outcomes:** Number of completed calls and patient adherence to the post-operative care plan,
- **Secondary outcome:** Differences in rate of thirty-day hospital readmission compared to matched controls that didn't receive a video call and patient satisfaction using a validated survey on the last visit.

## Results

A total of 163 calls were completed to 34 postoperative patients

- mean 4.79 calls/patient).
- 68.4% of planned calls completed

Surgical procedures included

- 11 (32.3%) RC
- 11 (32.3%) RALP
- 5 (14%) nephrectomy
- 7 (20.5%) other procedures.

Oral intake was quantified for 76.7% of the calls and urine output for 70.6%.

## Conclusions and Next Steps

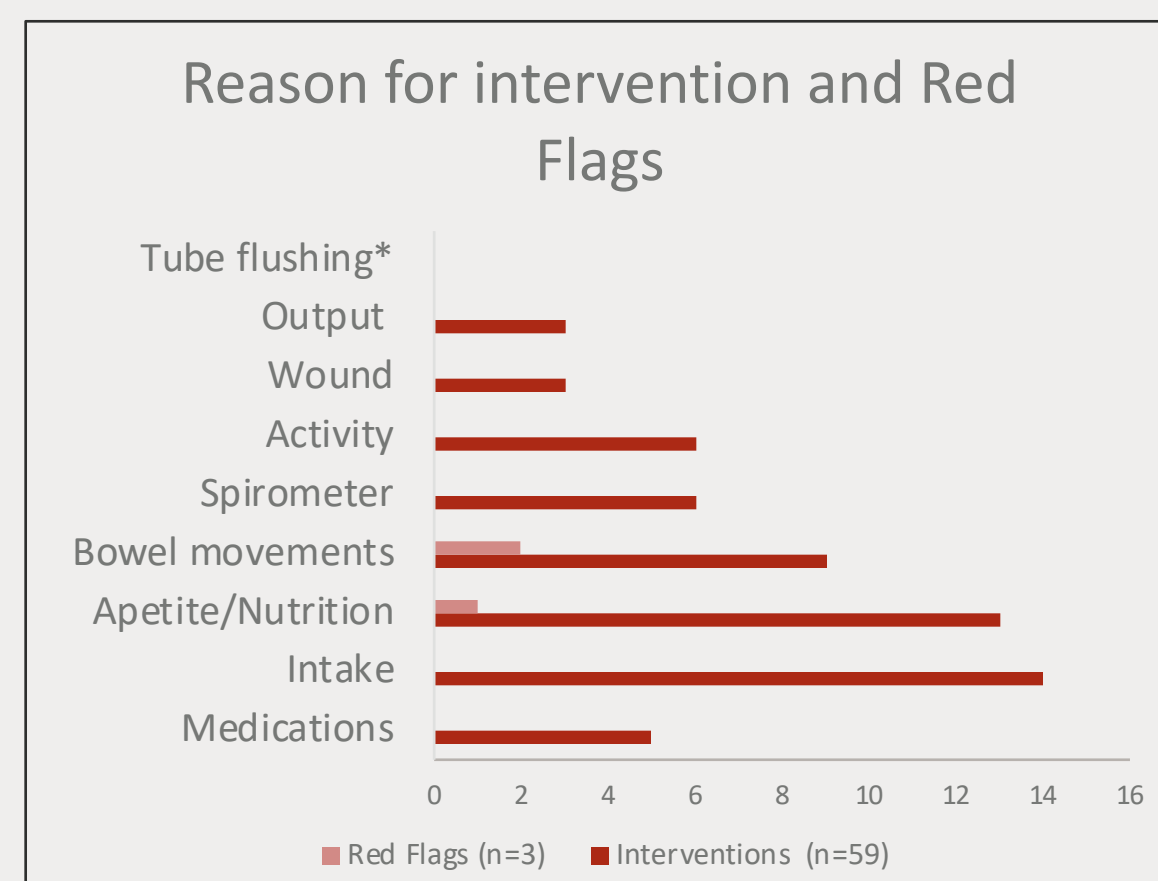
Postoperative video visits after major urological surgery are feasible and proves high patient adherence to the post-operative plan. Video visits in post-operative patients seem to reduce 30-day readmissions. Further large, randomized studies should be done to assess if video visits have a significant effect on reducing readmissions and higher-grade complications post-discharge.

PATIENTS	N= 34	% / SD
AGE	69	10.75
SEX		
MALE	24	70.6
FEMALE	10	29.4
RACE		
WHITE	16	47.0
OTHER	2	5.9
UNKNOWN	16	47.0
ASA		
2	14	41.2
3	18	52.9
4	2	5.9
SURGERY		
RC	11	32.3
NEPHRECTOMY	5	14.7
RALP	11	32.3
OTHER	7	20.6
APPROACH		
ROBOTIC	24	70.6
OPEN	10	29.4
LOS	4.5	3.75
DISCHARGE FACILITY		
HOME	32	94.1
SAR	2	5.9

## 30-day Readmission Rate:

- 3 (8.8%) in video call groups
- 4 (11.8%) in matched control group
- 3% decrease in readmission rate in patients receiving video visits.

Survey satisfaction: 87%



## **Regionalization & Standardization of Pediatric GI Pathology Second Reviews**

Rose ML, Luo J, Beneck D, Rodgers W, Abularrage JJ, Loughlin G, Jaffer A, Albanese C, Oh PS

### **1. Statement of the Problem:**

Accurate histologic diagnosis guides effective management, and variability of pediatric GI histologic diagnoses impacts clinical diagnosis and subsequent management. Pediatric pathologists are highly specialized and their expertise and consensus is required for diagnosing low-volume pediatric conditions. Comparison of pathology reports on second review reveals 31.8% diagnostic variability with increased volume of cases transferred to WCM in 2018. Further, a prolonged second review process delays definitive diagnosis and clinical decision making with specimen transport times exceeding 7 days (range, 2-14 days) in >50% of 2<sup>nd</sup> review requests from NYP/Queens to WCM.

**2. Objective/Aim:** To reduce second review requests by 20% and to reduce cross-campus second review completion times by 20% by leveraging pediatric pathology resources available at both NYP/Queens and WCM.

### **3. Project Design/Methods:**

Study design: Cross-sectional observational study

Setting/population: Pediatric gastroenterology patients at NYP/Queens undergoing endoscopy

Measures:

- Outcome measures: concordant vs variable diagnoses, second review requests
- Process measures: time to second review

### **DMAIC:**

- Define (define the problem):

1. There is variability in histologic diagnosis on second review for low-volume pediatric gastroenterology conditions, which impacts clinical diagnosis and management decisions.
2. There is a delay in the second review process which delays diagnosis and clinical decision making.

- Measure (quantify the problem):

1. Comparison of NYP/Queens and WCM pediatric gastroenterology pathology reports sent for second review showed 31.8% diagnostic variability.
2. The second review process with transport from NYP/Queens to Cornell, processing and review time takes from 2 days to 2 weeks to complete.

- Analyze (identify the cause of the problem):

1. There was inconsistent clinical information being provided to the NYP/Queens pediatric pathologist by the clinicians, presenting challenges in making accurate clinical-histologic correlations and diagnoses. There was also vague nomenclature being used in the NYP/Queens pathology reports which leads to difficulty in interpretation by clinicians.
2. There was a delay in locating slides within the NYP/Queens pathology department, taking up to 2 weeks. Additionally, the same-day intercampus courier service was temporarily defunct due to loss of a parking permit, with shipping being used as a workaround and taking 3 additional days with additional cost to arrive at WCM. Procedures requiring fresh samples to be sent to WCM for first review (suction rectal biopsies to rule out Hirschsprung disease) were on hold.

- Improve (implement and verify the solution):

1. Clinical information shared with the NYPQ pathologists was standardized for all endoscopies. Nomenclature of NYP/Queens pathology reports was aligned through detailed discussions with the pathology and pediatric gastroenterology departments. Inconclusive and low-volume diagnostic cases continued to be sent for second review to ensure accurate/concordant diagnosis.

2. The slide filing system within the NYP/Queens pathology department was improved with the reassignment of this task, making location of slides more efficient. The parking permit was re-established, allowing for same-day transport of specimens including fresh specimens.

- Control (maintain the solution):

1. Clinical information sharing was automated with direct electronic access to endoscopy reports and photos by the pathologists. Cases to send for second review were defined and standardized (inconclusive, low-volume, high-impact diagnoses).
2. Parking permit remains valid allowing for same-day transport and reduced time for second review.

#### **4. Results:**

- Second review requests reduced by 80%
- Second review completion time reduced by 65%

#### **5. Conclusions:**

Providing consistent and clear clinical information allows for more accurate clinical-histologic correlation and aligning nomenclature in reports allows for clearer interpretation by clinicians. This has enormous implications for clinical practice in terms of diagnosis and subsequent management plans.

Communication and collaboration is essential, as joint review of inconclusive cases with the pathology and pediatric GI teams yielded more effective problem analysis, continued open discussion, and a sustained improvement standard. Root cause identification (lack of a parking permit) by speaking directly with the people involved clarified a targeted intervention to expedite the second review process

Future steps include: initiating weekly joint pediatric GI/pathology conference to facilitate continued discussion, and establishing electronic transfer of clinical information to pathology as well as virtual second reviews to eliminate transport time.



- Problem Statement**
1. Second review variability of pediatric GI histologic diagnoses impacts clinical diagnosis and subsequent management
    - Comparison of pathology reports on second review reveals 31.8% diagnostic variability
    - Increased volume of cases transferred to WCM in 2018
  2. A prolonged second review process delays definitive diagnosis and clinical decision making
    - Specimens transport times exceeded 7 days (range, 2-14 days) in >50% of 2<sup>nd</sup> review requests from NYP/Queens to WCM
    - Challenges in same-day intercampus courier service

**Objective/Aim Statement** To reduce second review requests by 20% and to reduce cross-campus second review completion times by 20%

**Design/Methods**

NYPQ-centered Interventions	Integrated Network Interventions
- Standardize clinical information shared for all endoscopies	- Standardize selection for 2 <sup>nd</sup> review submissions
- Align nomenclature of pathology reports	- Inconclusive and low-volume/high-impact diagnostic cases
	- Optimize specimen transport system by re-establishing courier parking permits

**Results**

	Total procedures	Second review
2016	321	13 (4%)
2017	323	14 (4%)
1/2018-8/2018	265	36 (14%)
<b>Post-intervention:</b> 9/2018-2/2019	210	6 (2.8%)

- Second review requests reduced by **80%**
- Second review completion time reduced by **65%**

**Conclusions/Lessons Learned**

- Providing consistent and clear clinical information allows for more accurate clinical-histologic correlation
- Aligning nomenclature in reports allows for clearer interpretation by clinicians
- Joint review of inconclusive cases with the pathology and pediatric GI teams yields more effective problem analysis, continued open communication, and a sustained improvement standard
- Root cause identification (lack of a parking permit) by speaking directly with the people involved clarified a targeted intervention to expedite the second review process
- Leveraging network-wide pediatric pathology resources between NYP/Queens and WCM strengthens diagnostic confidence for defined high-impact, low-volume and inconclusive pediatric cases

**Next Steps**

- Monitor quality metrics
- Enhance case identification: low-volume/high-impact
- Electronic clinical information transfer to pathology & virtual second reviews

## Reducing CLABSIs in Hospitalized Adults on 5 Central via a CLABSI Maintenance Bundle

By: Alissa Santos BSN, RN-BC & Erin Suvar BS, RN, CMSRN

### Abstract

**Statement of the problem-**To determine whether the use of a daily central line maintenance checklist, increased staff education, and the use of a CVC bundle can decrease the rate of central line associated bloodstream infections in hospitalized adults on 5 Central.

**Objective/ Aim of the study-**To educate staff on reducing CLABSIs through the practice of using a central line maintenance checklist daily, and a modified SBAR communication sheet for central lines for shift change. Our aim is to meet or be below the national average for CLABSI rates for the first quarter of 2019 on 5 Central.

**Project Design/Methods-**CLABSI rates in hospitalized adults on 5 Central were measured through audits of patients with central lines by CLABSI champions and Charge RNs. The chart audit made sure of proper documentation of CHG baths, dressing changes, and insertion/ removal. A monthly in-service was conducted on proper central line dressing techniques on 5 central. During staff huddles in the morning, champions reminded and educated staff about the increase in CLABSI rates and the "7 steps to CLABSI Prevention" hand out that was created using evidenced based practice.

**Results-**From November 2018 - March 2019 there has not been any CLABSIs on 5 Central. After performing audits on the patients with central lines, proper documentation was being done in regard to CHG baths, dressing changes, the necessities of the central line, etc.

**Conclusion-**In conclusion, educating staff weekly on the importance of CLABSI prevention was successful through handouts, in-services, and a modified SBAR handoff sheet. The SBAR handoff sheet was beneficial since it held Nurses accountable on CHG baths, dressing change/line due dates, and due dates for mediport needle changes. By increasing the communication, awareness, and education on the issue of CLABSIs, the rate of these infections will be decreased on 5 Central.



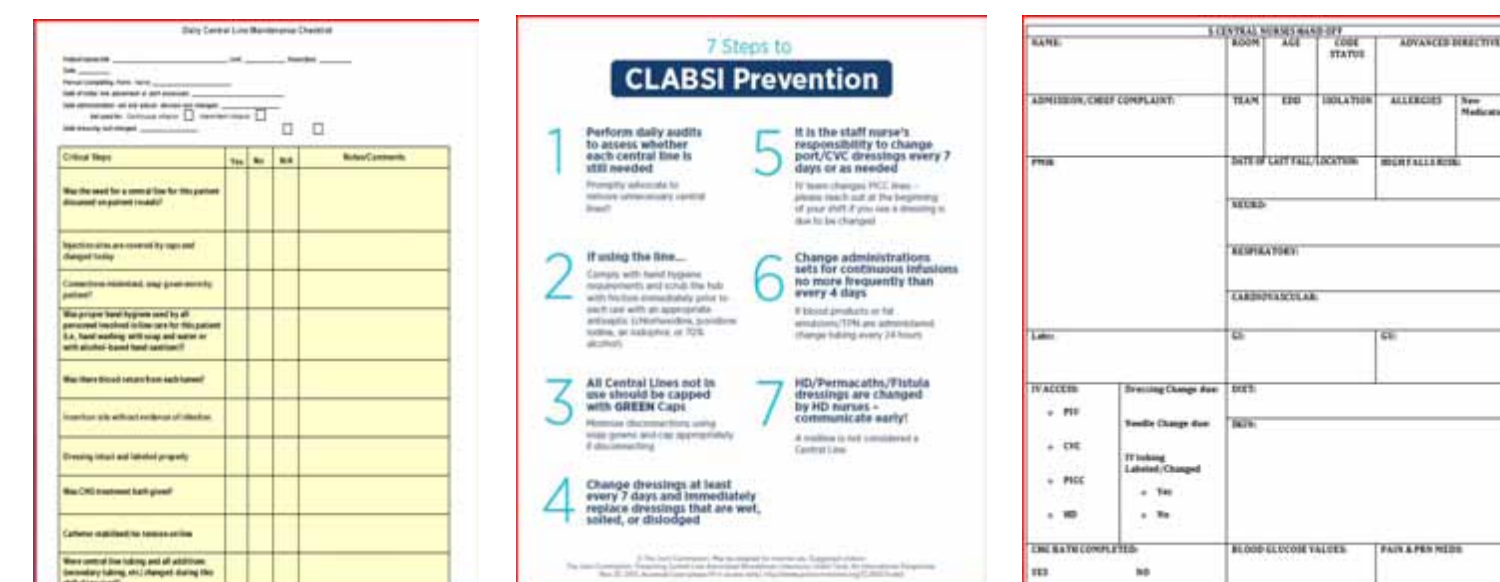
By: Alissa Santos BSN, RN-BC & Erin Suvar BS, RN, CMSRN

## Background

- Central line–associated bloodstream infections, or CLABSIs, are associated with increased patient morbidity, mortality, and health care costs. Central line infections occurred more than five days after insertion in almost 72% of all CLABSIs reported to the National Healthcare Safety Network (NHSN) by Pennsylvania acute care hospitals in 2010. This suggests that there are likely infection prevention lapses in the maintenance of central lines.
- Dressing changes and line maintenance are critical in preventing CLABSIs but compliance is difficult due to lack of standardization in processes and monitoring for compliance.
- Bundles are described by the Institute for Healthcare Improvement (IHI) as “groupings of best practices with respect to a disease process that individually improves care, but when applied together result in substantially greater improvement.
- A CVC daily maintenance care bundle includes procedural guidelines for hygiene, dressing changes, and access as well as specific timeframes. The use of a post insertion central line maintenance bundle has been shown to decrease CLABSIs.
- The purpose of this study is to determine whether the use of a CVC bundle, including a daily central line maintenance checklist and increased staff education, can decrease the rate of central line-associated bloodstream infections in hospitalized adults on 5 Central from November 2018- March 2019.
- By educating staff on reducing CLABSIs through the practice of using a central line maintenance checklist daily, and a modified SBAR communication sheet for central lines, the rate of CLABSIs would decrease.

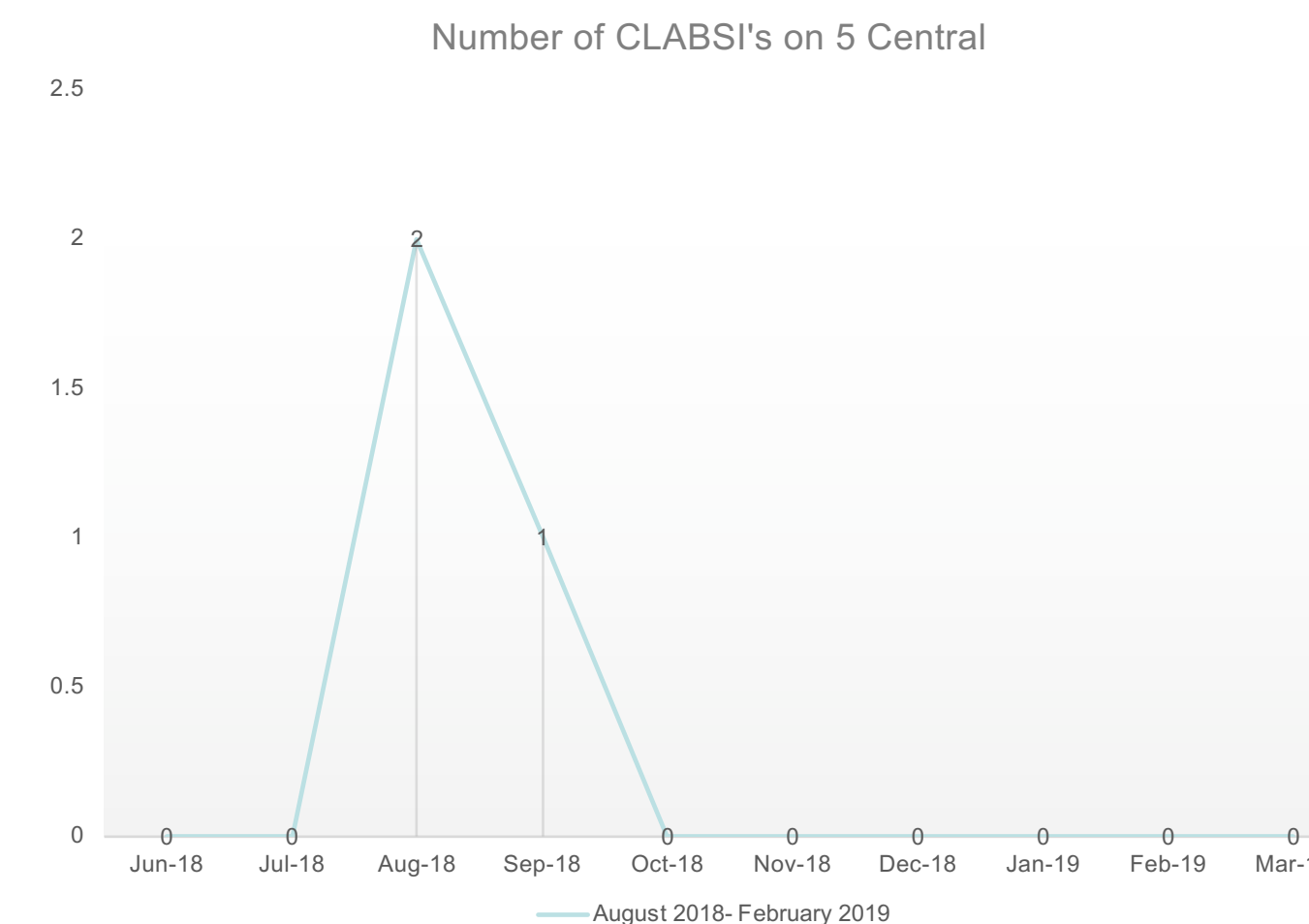
## Methods

- In this Quality improvement project, our aim was to see a reduction in CLABSIs, and to meet or be below the national average of CLABSI rates for the first quarter of 2019 on 5 Central.
- The Sample population included hospitalized patients on 5 Central with central lines.
- Data collection period
  - Start- November 2018
  - Completion- March 2019
- Using the evidence for best practice guidelines, a CLABSI Maintenance bundle was developed, an informational guideline sheet and a checklist was created for staff nurses as part of the bundle. A revised SBAR handoff sheet was modified on the unit to include dressing change/lines due date and CHG bath to increase communication and accountability.
- CLABSI champion RNS performed audits of patients with central lines. The chart audit made sure of proper documentation of CHG baths, dressing changes, and insertion/ removal.
- A monthly in-service was conducted on proper central line dressing techniques on 5 central. During staff huddles in the morning, champions reminded and educated staff about the increase in CLABSI rates and the "7 steps to CLABSI Prevention" hand out that was created using evidenced based practice.



## Results

- After using a CVC bundle, there were zero CLABSIs on 5 Central from November 2018 – March 2019.
- Quality improvement activities such as the weekly rounding and compliance audits, monthly in-services on central line dressing techniques, and daily huddles showed measurable change throughout our interventions.



	2017 Q4	2018 Q1	2018 Q2	2018 Q3	2018 Q4	2019 Q1
CLABSI per 1000 Central Days	0.00	3.19	0.00	8.60	0.00	N/A
Benchmark	1.23	1.02	0.99	1.06	N/A	N/A

## Discussion

- In conclusion, educating staff weekly on the importance of CLABSI prevention was successful through handouts, in-services, and a modified SBAR handoff sheet. The SBAR handoff sheet was beneficial since it held Nurses accountable on CHG baths, dressing change/line due dates, and due dates for mediport needle changes.
- By increasing the communication, awareness, and education on the issue of CLABSIs, the rate of these infections decreased on 5 Central.
- Limitations included resistance to change from staff, attendance to educational in-services by staff, and time for auditing during busy shifts.
- Recommendations for future practice include the consistent use a CLABSI maintenance bundle, encouragement of CLABSI prevention guidelines, and providing feedback to staff.

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Title: QI-Focused Education to Improve IBD Care Quality and Ensure Prompt Patient Access To Needed Treatment: An Interim Analysis

Statement of the Problem:

Rates of adherence to quality metrics in patient-centered care services for inflammatory bowel disease (IBD) care, including patient education and counseling, assessment of side effects and other safety risks, and documentation of patients' medication adherence, have been suboptimal.

Objective:

We aimed to close gaps in process-based IBD quality measures and patient-centered care using an audit-feedback quality improvement (QI) approach. By analyzing and improving pathway-directed treatment practices and workflow processes, we strived to ensure that IBD patients received quality care, emphasizing prompt access to medications.

Methods: This study employed a mixed-methods design. At baseline, 22 gastroenterologists completed a survey regarding QI- and IBD-related knowledge, attitudes, self-reported practice patterns, and physician demographics. A chart review of 200 IBD patient charts identified disparities and barriers to quality care. Physicians participated in a Grand Rounds presentation developed from their survey and chart data to address identified gaps in care and enhance action plans. Assessment of achievements and challenges encountered by the clinicians occurred at a second Grand Rounds. A final chart audit of 200 IBD patients will be conducted to evaluate improvement in IBD care.

Results:

22 gastroenterologists (14 Weill Cornell Medicine (WCM), 8 community WCM-affiliated) were recruited. 41% (21% vs 75%) reported having limited or no confidence in understanding pre-authorization requirements; 18% (29% vs 0%) had standardized letters of necessity for patients needing biologics; 9% (7% vs 13%) received approval for treatment coverage within 3-4 days; 32% (29% vs 38%) did not know the time delay from treatment selection to approval; and 23% (29% vs 13%) did not know the proportion of patients for whom biologic therapy requests were ultimately denied.

200 patient charts were reviewed at baseline and 100 at the interim analysis. 191 vs 91 patients had a prescription requested. Of those, on average a preauthorization was requested 6 (0-35 days; n=71) vs 5 (0-28 days; n=95) days after the prescription request. Preauthorization letters were sent after 6 (0-8 days; n=75) vs 5 (0-7 days; n=68) days. Approval was received after 11 (0-40 days; n=76) vs 7 (0-43 days; n=51) days. Prescriptions were written after 18 (0-35 days; n=101) vs 10 (0-39 days; n=66) days. Prescriptions were filled after 30 (0-42 days; n=64) vs 20 (0-42 days; n=42) days and dispensed after 43 (0-106 days; n=67) vs 21 (0-70 days; n=64) days. 34% (baseline) vs 36% (interim) were assessed for anti-drug antibodies; 34% vs 36% had serum drug levels drawn; 56% vs 41% had their biologic therapies switched; 18% vs 6% had their dosage increased due to nonresponse; and 16% vs 1% had their dosing interval shortened due to nonresponse.

Conclusions:

Our chart review findings demonstrate the capability of continuing medical education to reduce the timeline by which patients receive biologic medications. While an improvement, there are still areas we can target to further reduce delays in treatment such as integrating pharmacists into the clinic, which is the next phase of this study.



QI-Focused Education to Improve IBD Care Quality and Ensure Prompt Patient Access To Needed Treatment: Interim Analysis

Tamar Sapir, PhD<sup>1</sup>; Laura Simone, PhD<sup>1</sup>; Jeff Carter, PhD<sup>1</sup>; Kristina Fajardo, MS<sup>1</sup>; Kathleen Moreo, RN, B-C, BSN, BHSA, CCM<sup>1</sup>; Stevie Yang, BS<sup>2</sup>; Jonathan Galati, BS<sup>2</sup>; Brian Krichevsky, MBA, MS<sup>2</sup>; Fatiha Chabouni, MD<sup>2</sup>; Carl V. Crawford, MD<sup>3</sup>; Ellen Scherl, MD<sup>2</sup>

<sup>1</sup>PRIME Education; <sup>2</sup>Jill Roberts Center for IBD, Weill Cornell Medical College - New York Presbyterian Hospital; <sup>3</sup> Division of Gastroenterology and Hepatology, Department of Medicine, Weill Cornell Medical College- NewYork Presbyterian Hospital

Background, Setting, and Objectives

Background: Rates of adherence to quality metrics in patient-centered care services for inflammatory bowel disease (IBD) care have been suboptimal. To address this, we created a novel QI education program to promote improvements in essential areas of IBD care for patients with Crohn's disease (CD) or ulcerative colitis (UC).

Setting: Jill Roberts Center (JRC) for IBD at Weill Cornell Medicine and local community gastroenterology practices

Objectives:

- Evaluate system-level (1) performance of IBD quality measures, (2) alignment of treatment practices with evidence-based pathways, and (3) processes for ensuring patient access to needed treatment
Compare performance on IBD quality measures and treatment practices among gastroenterologists in an academic IBD center and in local community practices
Apply QI-focused educational interventions to impact sustainable, systems-based improvements in IBD care quality and prompt access to needed treatment

IRB-Approved Methods & Data Sources

Baseline:

- Survey of 22 gastroenterologists regarding QI- and IBD-related knowledge, attitudes, self-reported practice patterns, and physician demographics.
Chart review of 200 IBD patient charts identified disparities and barriers to quality care

Intervention:

- Grand Rounds presentation based on survey and chart data to address identified gaps in care and develop action plans to close gaps

Follow-up:

- Second Grand Rounds to assess achievements and challenges encountered by clinicians in implementing action plans and closing identified gaps
Final chart audit of 200 IBD patients to evaluate improvement in IBD care



Study Population

Inclusion Criteria:

- Age ≥ 18 years
Diagnosis of UC or CD by ICD codes
Moderate/severe disease (UC: Mayo 6-12; CD: Harvey Bradshaw Index ≥6)
Prescription of a biologic
GI-related imaging in past 24 months
≥1 visit with provider in previous 12 months
Absence of infectious colitis or other competing diagnoses

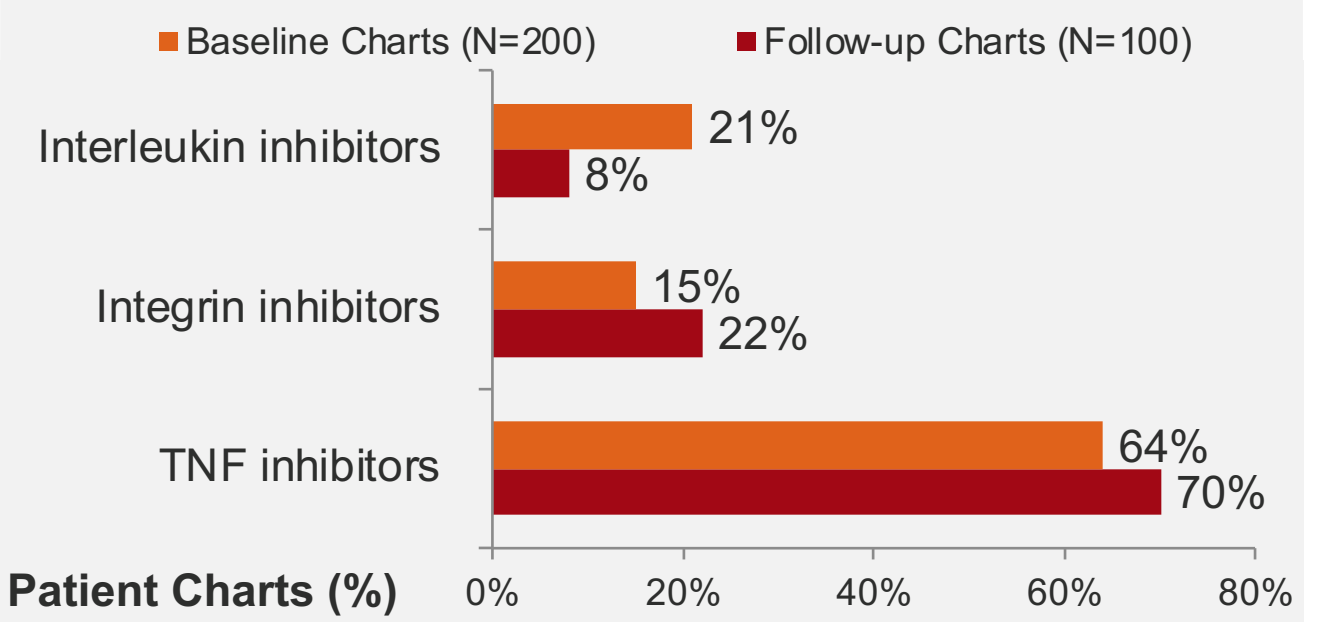
Table with 3 columns: Patient Demographics, Baseline (N = 200), Follow-up (N = 100). Rows include % Female, Median age, IBD disease duration, Type of IBD diagnosis, and Median visits per patient.

Key Findings

Table with 3 columns: Therapeutic Regimens Prescribed in Past Year, Baseline (N = 200), Follow-up (N = 100). Rows list various biologic and medication combinations.

Abbreviations: CS: corticosteroids; 5-ASA: 5-aminosalicylic acid; IM: immunomodulators

Classes of Biologics Prescribed

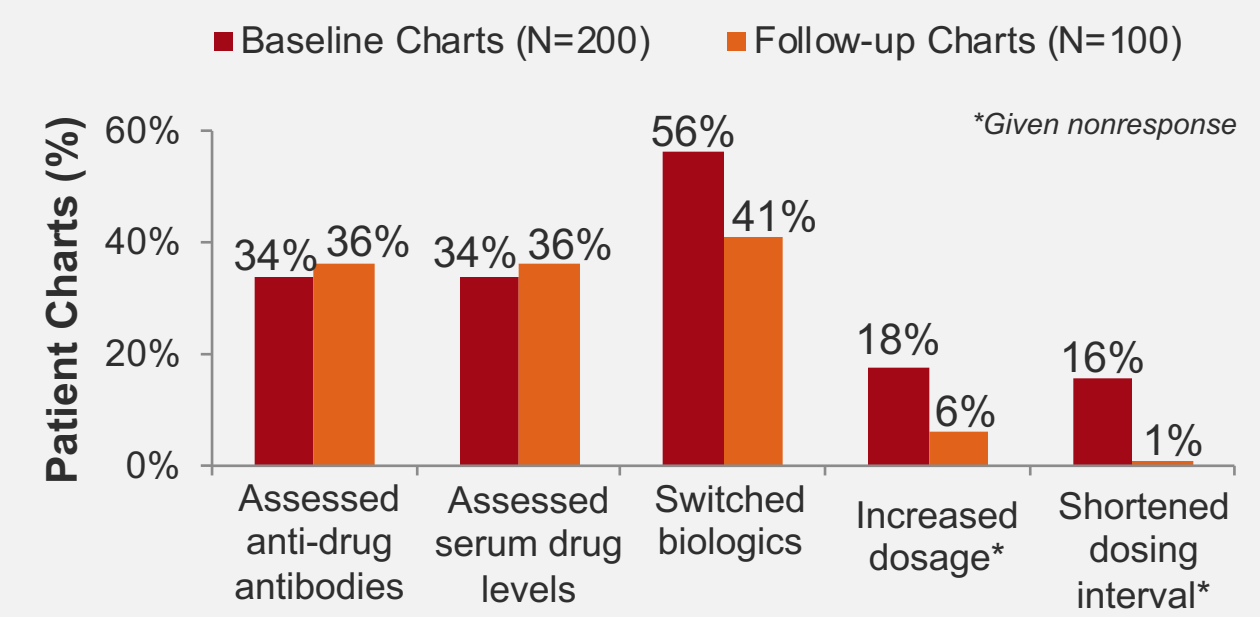


Providers' Practice Assessment (Baseline Survey)

Table with 3 columns: Practice Assessment Item, Community (N=8), Academic (N=14). Rows include confidence in PA requirements, standardized letters, approval timelines, and knowledge of PA processes.

Abbreviations: PA: prior authorization

Biologic Therapy Optimization



Prescription Request to Dispensation Timeline (Baseline)

Table showing Mean # of days (range) for various steps: Rx requested, PA requested, PA sent, Approval received, Rx written, Rx filled, Rx dispensed.



- A total of 21 prior authorization requests were initially denied
A prior authorization denial added an average of 11 more days to this process, and can result in patients receiving the medication after 55 days

Prescription Request to Dispensation Timeline (Follow-up)

Table showing Mean # of days (range) for various steps: Rx requested, PA requested, PA sent, Approval received, Rx written, Rx filled, Rx dispensed.



- A total of 16 prior authorization requests were initially denied
A prior authorization denial added an average of 9 more days to this process, and can result in patients receiving the medication after 49 days
Overall time to dispensation from a denial was reduced by 6 days which resulted in patients receiving their medication 2 days sooner on average

Conclusions

- A tailored CME event appears to reduce lag time for patients to receive much needed biologic therapy
There are still areas we can target to further reduce delays in treatment such as integrating pharmacists into the clinic, which is the next phase of this study

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1. **Problem:** The Interventional Radiology department places numerous inpatient drains and tubes daily, which patients return to their inpatient unit with. We currently have no effective way of communicating the drain/tube location to employees caring for the patient on the floor, including nurses, technicians, and transport personnel. Drains and tubes can be manipulated or dislodged unintentionally when moving, transferring or bathing patients.
2. **Objective:** Identify when and how drain dislodgements are most likely to occur while patients are in the hospital. Use this information to design an intervention to prevent future tube dislodgements and avoid additional procedures.
3. **Project Design/Methods:** Interventional Radiology reports were reviewed to identify patients with dislodged tubes in the last one year period. Inpatient events were recorded and patient location, circumstance, and consequence of dislodgement were identified. Next, a blue 8x11 "Tube Alert" sign was designed to place above the patient bed, which will highlight the location of the drain/tube on the patient's body, including laterality and type of drain. The sign will be filled in following the patient's procedure and secured to the bed to make all personnel caring for and moving the patient aware. The initiative was designed to be implemented on a pilot inpatient unit, with additional units to follow. We will record drain dislodgements going forward and see if the number decreases as a result of the intervention.





**Minimizing Interventional Radiology Tube Dislodgements in Inpatients**

Weill Cornell Quality Improvement Poster Session

Kimberly Scherer, D.O., Marc Schiffman, M.D. | 05/22/2019

**Problem Statement**

The Interventional Radiology Department places numerous inpatient percutaneous drains and tubes daily. Drains and tubes can be manipulated or dislodged unintentionally when moving, transferring or bathing patients, which may lead to a second procedure to replace the drain.

**Objective/Aim Statement**

Identify when and how drain dislodgements are most likely to occur while patients are in the hospital. Use this information to design an intervention to prevent future drain dislodgements and avoid additional procedures.

**Design/Methods**

Interventional Radiology dictations were searched over the last one year period to identify patients with dislodged tubes.

Charts were reviewed to identify the patient location, type of drain, time of dislodgement and consequence.

“Tube Alert” sign was designed to place above the patient bed to identify the location of tube.

Last, 15 hospital transporters were surveyed regarding the utility of the intervention.

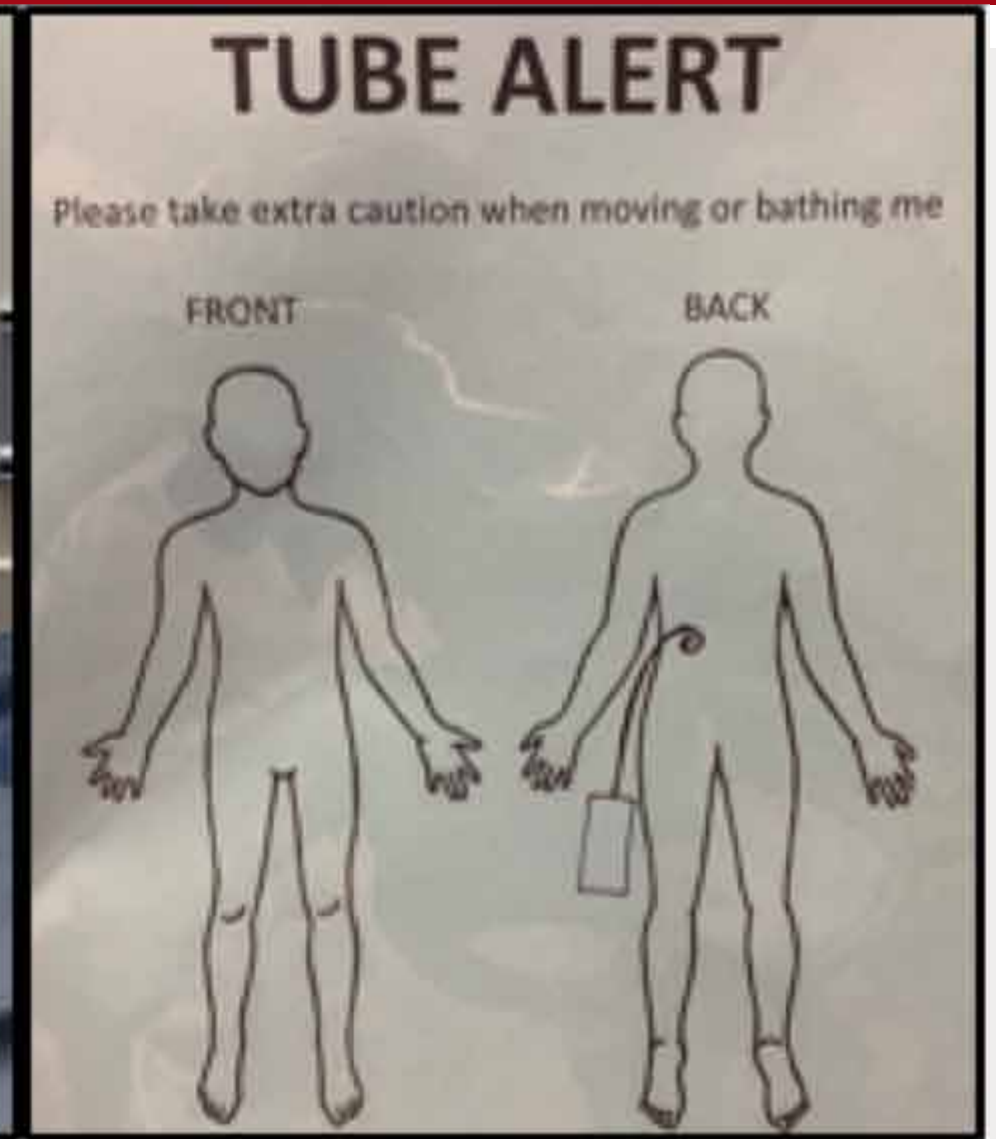
Final phase of the project will be to measure rate of tube dislodgements post intervention.



Dislodged drain found by nurse



Example of sign on patient bed



Tube Alert Sign

**Results**

14 inpatients were identified with tube dislodgments in the last year. Of these patients, 12 required additional procedures to replace the tube. Dislodgements occurred on a variety of inpatient floors. Based on chart reviews, the most likely time for dislodgement to occur was when moving, transporting, or bathing patient.

15/15 patient transporters surveyed found the sign to be very helpful for patient care. 15/15 patient transporters were able to correctly identify the location of the drain based on the sign shown.

**Conclusions/Lessons Learned**

We identified that the most likely time for drains to get dislodged was during transferring beds, moving in and out of bed, and bathing. We identified 14 patients with tube dislodgements, which underestimates the true number of incidents. We are hoping to prevent unintentional dislodgement by placing “Tube Alert” signs on patient beds identifying the location of the patient drain, to better educate staff caring for, moving and transporting the patient.

**Next Steps**

We have implemented our “Tube Alert” initiative with our pilot inpatient unit 8C. Future plans include continuing to monitor tube dislodgements, implementing the system hospital-wide and standardizing our drain dressings. This will improve ease of dressing changes for nursing staff and help troubleshoot possible problems earlier.

## **Title**

Underserved Populations with Missing Race/ Ethnicity Data Differ Significantly From Those with Structured Race/Ethnicity Documentation

## **Authors**

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## **Author Status**

The presenting author is not a student or trainee.

## **Funding source**

This work was supported by Weill Cornell Medicine's Clinical and Translational Science Center grant number UL1 TR000457 and by the National Institutes of Health grant number R01 GM105688 and R01 MH105384.

## **Conflicts of interest**

None of the authors of this work have any pertinent conflicts of interest to declare.

## **Abstract text**

**Background:** We aimed to address deficiencies in structured electronic health record (EHR) data for race and ethnicity by identifying Black and Hispanic patients from unstructured clinical notes and assessing differences between patients with or without structured race/ethnicity data.

**Methods:** Using EHR notes for 16,665 patients with encounters at a primary care practice, we developed rule-based natural language processing (NLP) algorithms to classify patients as Black/Hispanic. We evaluated performance of the method against an annotated gold standard, compared race and ethnicity between NLP-derived and structured EHR data, and compared characteristics of patients identified as Black and/or Hispanic using only NLP versus patients identified as such only in structured EHR data.

**Results:** For the sample of 16,665 patients, NLP identified 948 additional patients as Black, a 26% increase, and 665 additional patients as Hispanic, a 20% increase. Compared to the patients identified as Black or Hispanic in structured EHR data, patients identified as Black or Hispanic via NLP only were older, more likely to be male, less likely to have commercial insurance, and more likely to have higher comorbidity.

**Limitations:** The NLP technique was validated against a relatively small sample of manually annotated notes from a single site, and interrater reliability suggested that thorough training of annotators is crucial to ensure the validity of ground truth in this area.

**Conclusions:** Black and/or Hispanic patients who are not documented as such in structured EHR race/ethnicity fields differ significantly from those who are. Relatively simple NLP can help address this limitation.

**Implications:** Structured EHR data for race and ethnicity are subject to data quality issues. Supplementing structured EHR race data with NLP-derived race and ethnicity may allow



researchers to better assess the demographic makeup of populations and draw more accurate conclusions about inter-group differences in health outcomes.



# Underserved Populations with Missing Race/ Ethnicity Data Differ Significantly From Those with Structured Race/Ethnicity Documentation

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## Background

While the adoption of the electronic health record (EHR) has enabled health disparities researchers to conduct innovative population-level analyses, the quality of this research is limited by well-documented data quality issues which hinder the ability to examine potential gaps in care for patients who belong to underserved populations. The absence of informative structured race and ethnicity data in the EHR is a particularly salient challenge, as patients with no structured race/ethnicity data in the EHR, or uninformative structured EHR data, may differ from patients with structured, informative data in clinically and/or statistically significant ways, rendering analyses dependent solely on structured data subject to bias that that may adversely impact the accuracy and value of results.

## Study Question/Hypothesis

The goals of this study were to develop an NLP method for extracting race and ethnicity from unstructured clinical notes, determine the extent to which the NLP-extracted race and ethnicity values improved identification of Black and Hispanic patients compared to structured EHR data, and compare characteristics of patients identified as Black or Hispanic in structured EHR race and ethnicity data as compared to NLP-derived data for patient demographics.

## Methods

We performed a cross-sectional observational study of 16,665 adult patients with two or more office visits with a physician, physician's assistant, or nurse practitioner between 1/1/2017 and 8/1/2018 at a specific internal medicine practice with a diverse patient population. For these patients, we obtained from the EHR all clinical notes (n = 4.7 million) authored by clinicians from all outpatient practices across the institution regardless of clinician specialty and date of authorship. We then manually reviewed a convenience sample of clinical notes (n = 1000) to identify textual patterns and then iteratively developed rules to classify patients as Black and/or Hispanic based on free text notes in the EHR. After developing and implementing these rules on the above sample of notes, we constructed a gold standard to evaluate the performance of the tool through the manual review and annotation of 400 notes and compared the output of the natural language processing pipeline to the results of manual review, calculating precision, recall, and F-score.

After calculating the performance of the tool, we compared Black patients identified by structured EHR race data versus Black patients identified only by NLP with respect to age, sex, insurance status, and number of medical conditions (as defined by the number of active entries on each patient's problem list in the EHR). Additionally, we conducted the same comparison on patients identified as Hispanic in structured EHR ethnicity data to patients identified as Hispanic only by NLP. To perform the comparisons, we used independent samples t-tests and chi-square tests, considering a p-value of less than 0.05 as statistically significant.

## Results

As illustrated in Tables 1 and 2, for classifying patients as Black or not Black based on 400 notes, the NLP method achieved precision of 0.885, recall of 0.939, and F-score of 0.911. For classifying patients as Hispanic or non-Hispanic based on 400 notes, the NLP method achieved precision of 0.984, recall of 0.984, and F-score of 0.984.

As described in Figure 1, when applied to 4.7 million notes for 16,665 patients, the NLP method identified 948 patients as Black beyond the 3660 identified as such in structured EHR race data, a relative percentage increase of 26%. 48% of all patients identified by either NLP or structured EHR race data as Black were identified by both methods. As illustrated in Table 3, patients identified in structured EHR race data as Black or Hispanic differed from the sample of patients identified as Black or Hispanic via NLP alone. Notably, patients identified as Black via NLP alone were more likely to be male, older, and had more active problem list entries in the EHR; additionally, they were less likely to have commercial insurance. These differences were statistically significant.

**Table 1: Performance of NLP pipeline on race**

n = 400 Gold standard: Black Gold standard: Not Black	NLP predicted: Black	NLP predicted: Not Black
	True positive: 92	False negative: 6
	False positive: 12	True negative: 290

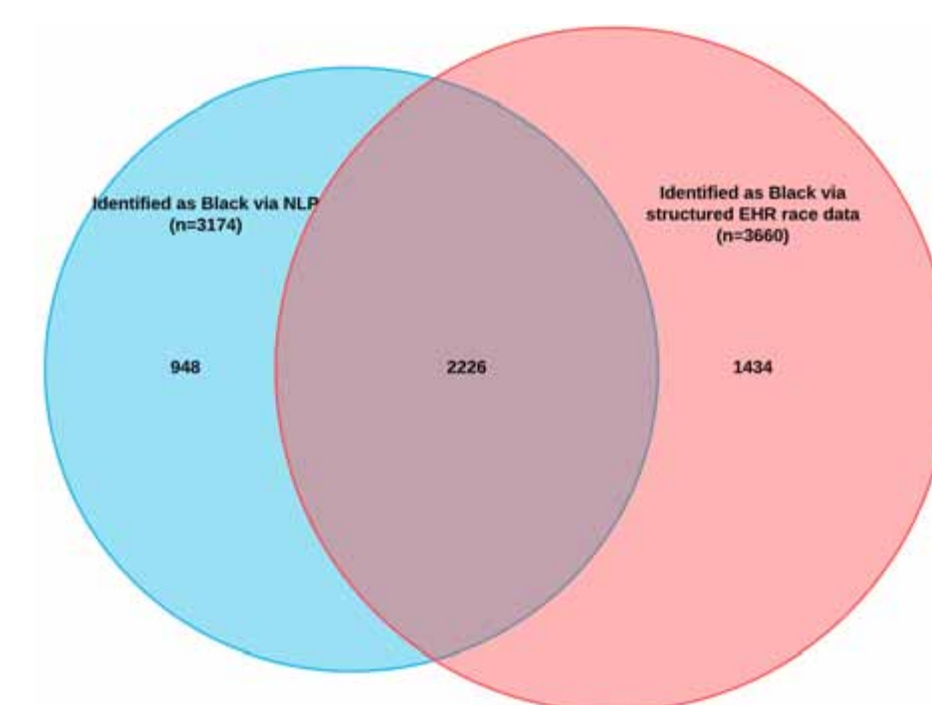
**Table 2: Performance of NLP pipeline on ethnicity**

n = 400 Gold standard: Hispanic Gold standard: Not Hispanic	NLP predicted: Hispanic	NLP predicted: Not Hispanic
	True positive: 126	False negative: 2
	False positive: 2	True negative: 270

**Table 3: Comparison of Black patients identified via NLP only to Black patients identified in structured EHR data**

Characteristic	Recorded as Black in structured EHR data	Identified as Black via NLP alone
Number of subjects	3660	948
Age as of today (years)		
	Median [IQR]	64.9 [55.1 - 73.6]
	Range	19.9 - 95.7
Sex		
	Male [%]	359 [37.9%]
	Female [%]	589 [62.1%]
Number of active problem list entries		
	Mean	14.5
	Range	0 - 73
Insurance		
	Commercial [%]	283 [29.9%]
	Medicaid [%]	43 [4.5%]
	Medicare [%]	319 [33.6%]
	Self-pay [%]	10 [1.0%]
	Managed Medicaid/Medicare [%]	293 [30.9%]

**Figure 1: Overlap of patients identified as Black using EHR data and NLP pipeline**



## Conclusions

Substantial numbers of Black and/or Hispanic patients are not documented as such in structured EHR fields, and these patients differ significantly from those who are. Relatively simple NLP can help address this limitation.

## Limitations

The primary limitation of this study is the relatively small sample size of manually annotated notes, especially given the relative rarity of false negatives in the data set. The generalizability of this sample may also be limited by the sample patients' relatively high data density and recent contacts with the health care system.

## Impact

Our results highlight the potential of NLP techniques to improve the identification of race and ethnicity in EHR data to enable researchers to conduct large-scale, population-based analyses. Underestimating the portion of a given patient population that is Black and/or Hispanic by relying solely on structured EHR race data may lead to biased study conclusions, especially given the differences observed in our study between patients identified as Black/Hispanic in structured EHR race/ethnicity data versus NLP-derived data. By implementing this approach, researchers can more accurately ascertain the true demographic makeup of their intended patient population, which may differ substantially from estimates using structured EHR race or ethnicity data fields alone.

## Funding and conflicts

This work was supported by Weill Cornell Medicine's Clinical and Translational Science Center grant number UL1 TR000457 and by the National Institutes of Health grant number R01 GM105688 and R01 MH105384. The authors have no competing interests to declare.



## ***A MULTIDISCIPLINARY TEAM APPROACH TO INITIATE DISCHARGES BEFORE NOON***

**Sunena Tewani, MD, Yvonne Francis-Heaven, RN, EMPA, CCM, Aurelia Pemberton, RN, CN, Nicole Guerrero, MSN, RN, PCCN, and Renuka Gupta MD, FHM, FACP**

### **Background**

Patient flow and throughput are challenges that hospitals around the country face on a daily basis. Delays in throughput lead to prolonged ER times, delays in patient care, increased length of stay, patient dissatisfaction and frustrations for the medical teams. Prior studies have shown that discharges before noon improve hospital throughput. However, hospitals struggle in creating a long standing and a sustainable process.

Review of the data from 2018 at our hospital showed that on our medical units about 6% of patients are discharged before noon. Specifically on 5 Central, one of our medical/surgical units, only 68 of 1422 (4.8%) patients on the unit were discharged before noon.

### **Purpose**

Our goal was to create a multidisciplinary initiative that would increase the number of discharges before noon. This not only involved the residents and interns, but required a collaborative effort amongst the families, care management, social work, and nursing.

### **Description**

On October 1, 2018 our discharge before noon (DBN) pilot was launched on 5 Central, which is primarily a housestaff med/surg unit. On weekday mornings, during interdisciplinary rounds (IDRs) at 10 AM, teams identify 1-2 patients for potential DBN for the following day. On afternoon IDRs at 2:30 pm, patients are reconfirmed with the medical team, care coordination/social work, and the charge nurse. Patients and families are notified by both medical team and care coordination/social work on day prior to discharge. Care coordination worked with our ambulance service team and specific ambulances were designated for pre-noon discharges. Labs were also given priority and arranged with phlebotomy to be drawn earlier to ensure results were available during morning rounds. The charge nurse facilitated the discharges to allow the staff nurses to attend to other acute patient care needs.

### **Conclusions**

With the implementation of the Discharge Before Noon pilot, within the first month alone 24 of 185 (13%) patients were pre-noon discharges. Furthermore, an additional 16 patients (9%) were discharged before 1 pm. Thus the percentage of patients discharged before 1 pm was 22%. We have continued this initiative over the past 6 months and an average of 9.9% of patients continue to leave before noon while an average of 17% of patients are discharged before 1 pm.



Barriers to early discharges were identified and included delays in transportation, patients requesting lunch prior to discharge, timely completion of discharge paper work by both the medical teams as well as nursing. Despite these barriers, the number of discharges before noon, as well as before 1pm in the afternoon, had drastically increased with this multidisciplinary approach.

### **Conclusions**

Although our Discharge Before Noon Initiative is in its early stages, the impact has been profound. We have already seen a significant impact in increasing the number of DBNs. In the first six months, the percentage of discharges before noon has doubled. This initiative remains ongoing as we continually adjust our approach and identify new barriers. Future goals for our study include analyzing the change in ER to floor admission times, analyzing patient experience data, and expanding the initiative to the other medical and med/surg units in the hospital.



# A Multidisciplinary Team Approach to Initiate Discharges Before Noon Quality Improvement Poster Session

Sunena Tewani, MD, Yvonne Francis-Heaven, RN, EMPA, CCM, Aurelia Pemberton, RN, CN  
Nicole Guerrero, MSN, RN, PCCN, and Renuka Gupta MD, FHM, FACP | May, 22, 2019

## Problem Statement

Patient flow and throughput are challenges that hospitals around the country face on a daily basis. Delays in throughput lead to prolonged ER times, delays in patient care, increased length of stay, patient dissatisfaction and frustrations for the medical teams. Prior studies have shown that discharges before noon improve hospital throughput. However, hospitals struggle in creating a long standing and a sustainable process.

In 2018, at Weill Cornell, about 10% of patients were discharged from the hospital before noon. On the medicine services, only about 6% of patients left before noon and specifically on 5 Central, one of our medical/surgical units, only 68 of 1422 (4.8%) patients on the unit were discharged before noon. However, 50% of patients are discharged between the hours of 3 pm and 7 pm. Delays in discharges prevents patients from being admitted to the floors until the evening and night hours.

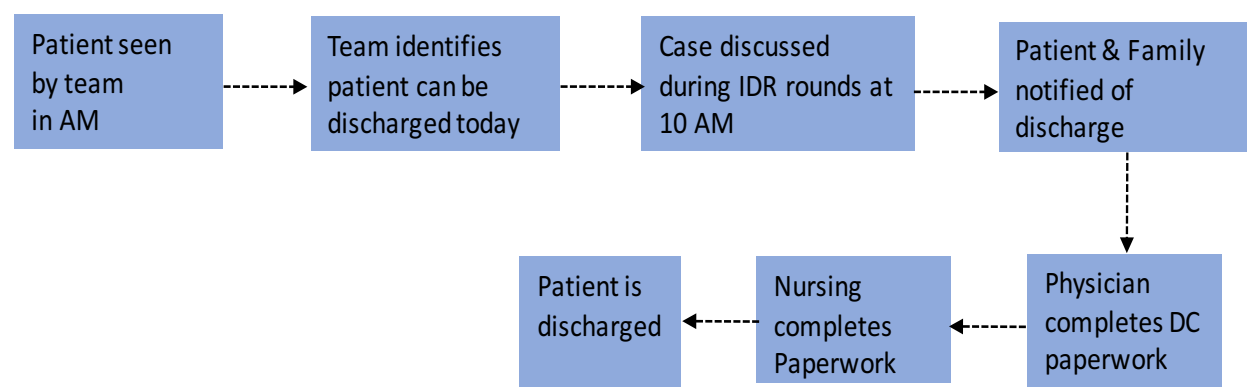
## Objective/Aim Statement

Our goal was to create a multidisciplinary initiative that would increase the number of discharges before noon. This not only involved the residents and interns, but required a collaborative effort amongst the families, care management, social work, and nursing.

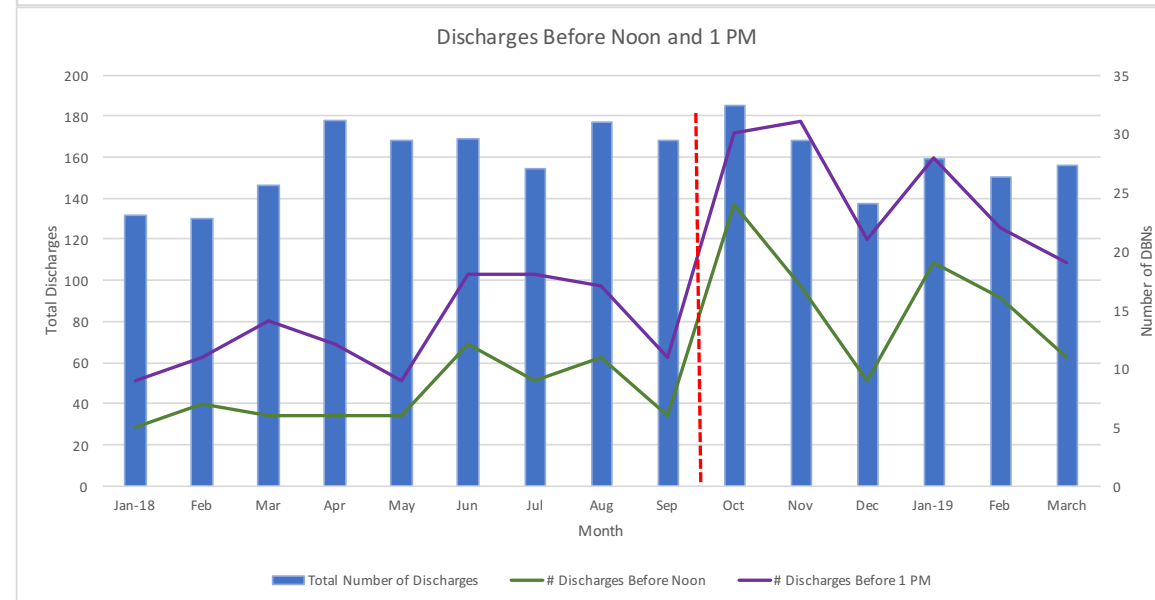
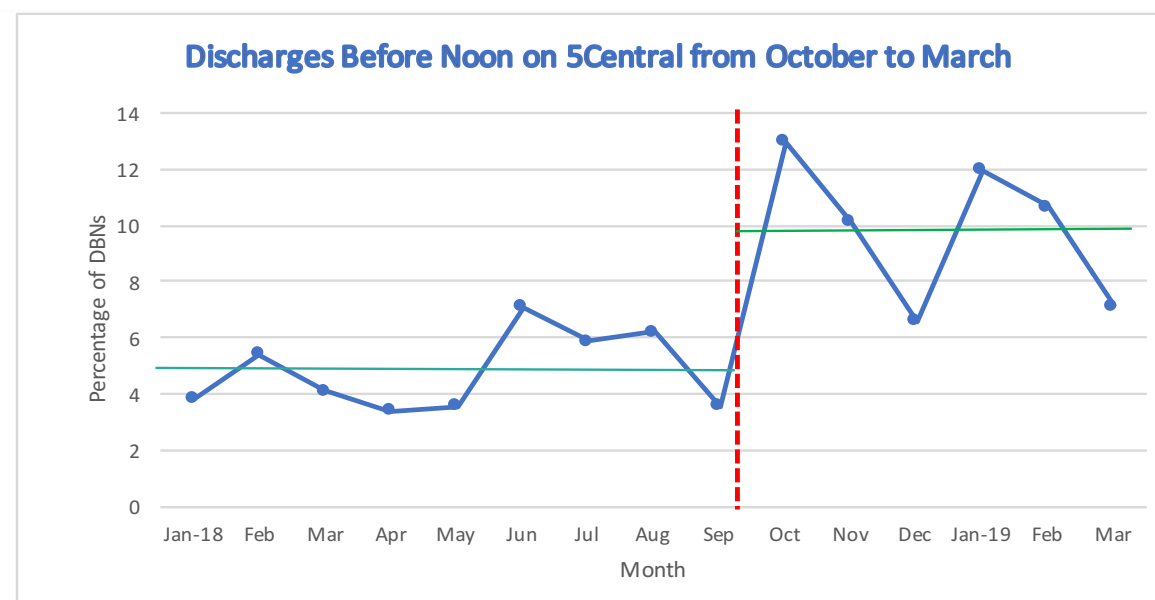
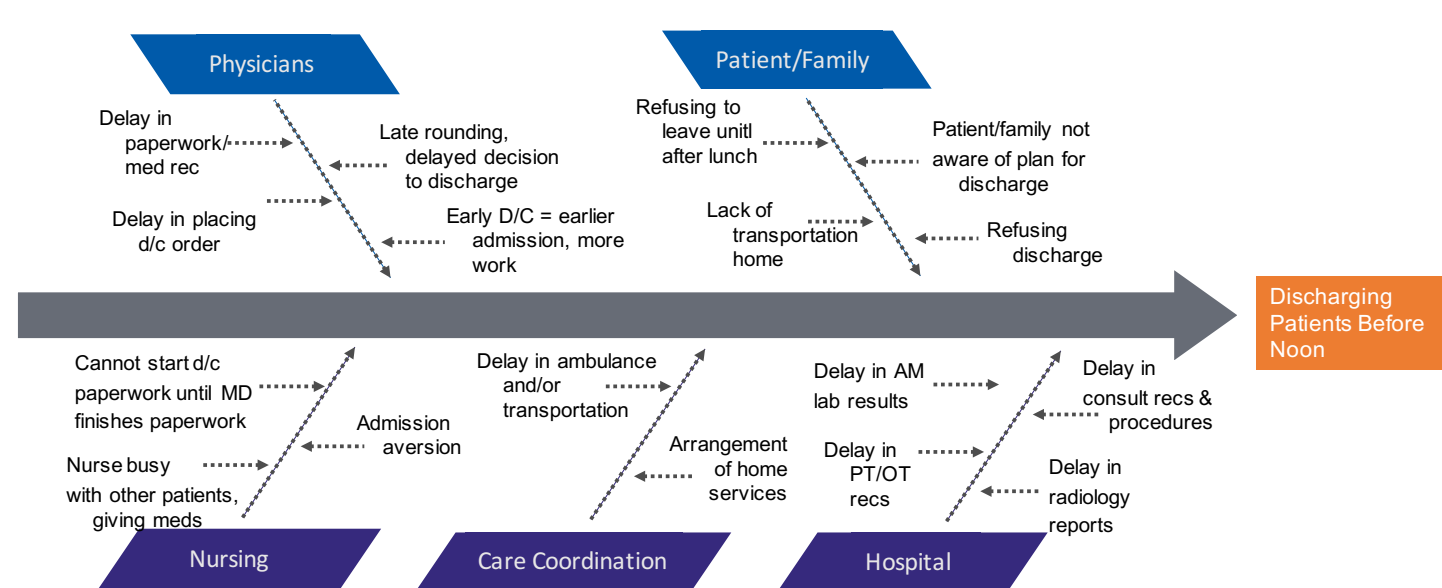
## Design/Methods

On October 1, 2018 our discharge before noon (DBN) pilot was launched on 5 Central, which is primarily a housestaff med/surg unit. On weekday mornings, during interdisciplinary rounds (IDRs) at 10 AM, teams identify 1-2 patients for potential DBN for the following day. On afternoon IDRs at 2:30 pm, patients are reconfirmed with the medical team, care coordination/social work, and the charge nurse. Patients and families are notified by both medical team and care coordination/social work on day prior to discharge. Care coordination worked with our ambulance service team and specific ambulances were designated for pre-noon discharges. AM Labs for these patients were given priority and drawn earlier to ensure results were available during morning rounds. The charge nurse facilitated the discharges to allow staff nurses to attend to other acute patient care needs.

Current Patient Discharge Process Map



Fishbone Diagram Identifying Barriers to Early Discharges



## Results

With the implementation of the Discharge Before Noon pilot, within the first month alone 24 of 185 (13%) patients were pre-noon discharges. Furthermore, an additional 16 patients (9%) were discharged before 1 pm, making the percentage of patients discharged before 1 pm was 22%. We have continued this initiative over the past 6 months and an average of 9.9% of patients leave before noon while an average of 17% of patients are be discharged before 1 pm.

Barriers to early discharges were identified and included changes in clinical status of the patients, delays in transportation, patients requesting lunch prior to discharge, timely completion of discharge paper work by medical teams and nursing. Despite these barriers, the number of discharges before noon, as well as before 1pm in the afternoon, had drastically increased with this multidisciplinary approach.

## Conclusions/Lessons Learned

Although our Discharge Before Noon Initiative is in its early stages, the impact has been profound. We have already seen a significant impact in increasing the number of DBNs. In the first six months, the percentage of discharges before noon has doubled. This initiative remains ongoing as we continually adjust our approach and identify new barriers.

## Next Steps

Future goals for our study include:

1. Analyzing the change in ER to floor admission times
2. Tracking time from discharge order being placed to the actual time the patient is discharged
3. Analyzing patient experience
4. Expanding the initiative to other med/surg units in the hospital



**Title: Benefits of Frequent Security Rounding on a Medical-Surgical unit**

**Done by:** Melinda Vargas and Katrina Mendoza

**Problem Statement:**

- Workplace violence against nurses has been an ongoing issue in the profession of nursing. According to the U.S. Department of Health and Human Services data, in 2014, the rate was 154 injuries for 10,000 workers in public hospitals (Esposito, 2017).
- In many hospitals, security officers play crucial roles which include: assisting in restraints and observation, following up on violent event reports and participating in interdisciplinary workplace violence prevention (Gillespie, Gates, Miller, & Howard, 2012).
- On 5 North, nursing staff encounter behaviorally challenging patients on a daily basis. The implementation of frequent security rounding on 5N has helped in the reduction of behavioral emergencies.

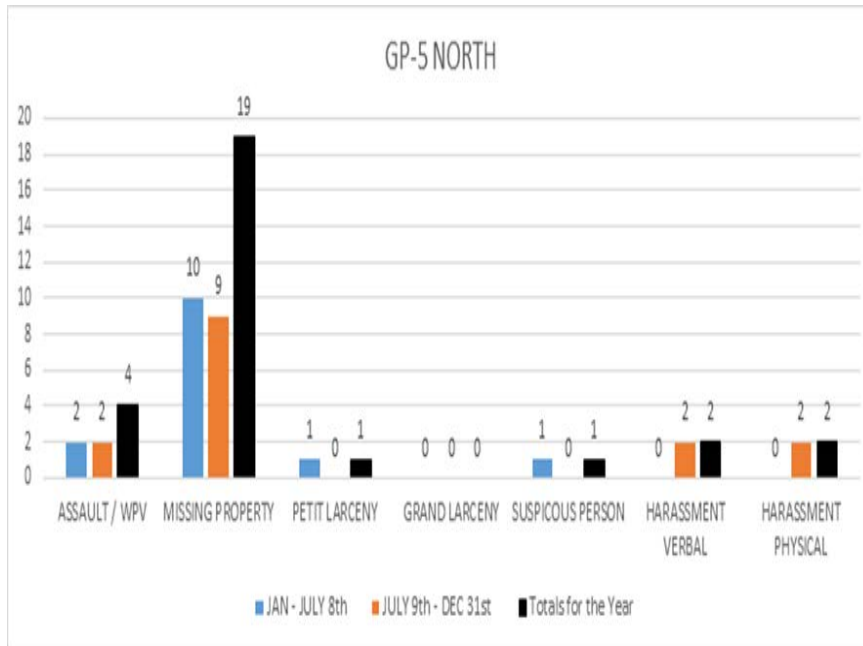
**Primary Objective:**

Among nursing staff in an inpatient setting, the implementation of frequent security rounding has improved the de-escalation of potential behavioral emergencies and reduced assaults by behaviorally challenging patients, as compared to no security presence.

**Design/Method:**

- Frequent security rounding began on July 8<sup>th</sup> 2018. Quantitative data was collected by security personnel comparing changes in number of assaults, missing property, petit Larceny and suspicious person, verbal and physical harassment.
- Senior staff RN conducted a survey at the beginning of 2018 (Pre-Security rounding) surveying staffs’ perception of safety on the unit
- Staff RN conducted a survey at the beginning of 2019 (Post- Security rounding) surveying staffs’ perception of safety on the unit.
- Initiated an Incident Binder at the end of 2018 –documentation of related behavioral incidents with detailed report and information.

**Results:**



- Security’s response time has decreased
- Increase in interdisciplinary collaboration
- Pre-Security rounding- Negative nurses’ perception of safety on the unit

Out of 40 Surveys 9 staff members stated they did feel safe on the unit, 28 said no and 2 said sometimes

- Post-Security rounding- Positive Nurses' perception of safety on the unit.

Out of 37 Surveys 31 staff members stated they did feel safe on the unit, 2 said no and 4 said sometimes

**Conclusion:**

- Strengths:
  - A controlled experiment, focusing strictly on 5N's data outcomes.
  - Maintained anonymous with the use of close ended questions
- Limitations:
  - There is limited quantitative research on the discussion of the benefits of security frequent rounding. This has presented the opportunity for 5N to create an innovative proactive approach to staff safety through our use of security rounding.
  - Much of the data obtained took place in an emergency department setting.
  - Only 37 surveys obtained versus 40
- Recommendations:
  - On admission and after psychiatric consult, patients should have PRN medications ordered in case of a behavioral emergency.
  - Voice concerns in tier huddle.
  - Buddy system – a team effort in recognizing and handling behavioral emergencies.
  - There needed to be re-enforcement of CPI training in order to aide in the decrease of behavioral emergencies
  - Staff members become CPI certified.
  - Implementation of panic buttons.
  - Documentation of all problems in our incident binder
  - Traffic Light System – Clinically categorize all patients from low to high risk for related violence
  - Frequent security rounding.
  - 5N can benefit from the presence of mental health workers.
  - Potentially begin a Behavioral Emergency Response Team (BERT) during behavioral emergencies which will include security and a trained psychiatric professional.

**References:**

- Gillespie, G. L., Gates, D. M., Miller, M., & Howard, P. K. (2012). Emergency department workers' perceptions of security officers' effectiveness during violent events. *Workplace Violence and Aggression*, 42(1), 21-26. doi:10.3233/WOR-2012-1327
- Esposito, L. (2017, January 18). Nurse face more violence from hospital patients. Retrieved February 3, 2019, from <https://health.usnews.com/wellness/articles/2017-01-18/nurses-face-more-violence-from-hospital-patients>



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**Objective/Aim Statement:**

The implementation of frequent security rounding has improved the de-escalation of potential behavioral emergencies and reduced assaults by behaviorally challenging patients.

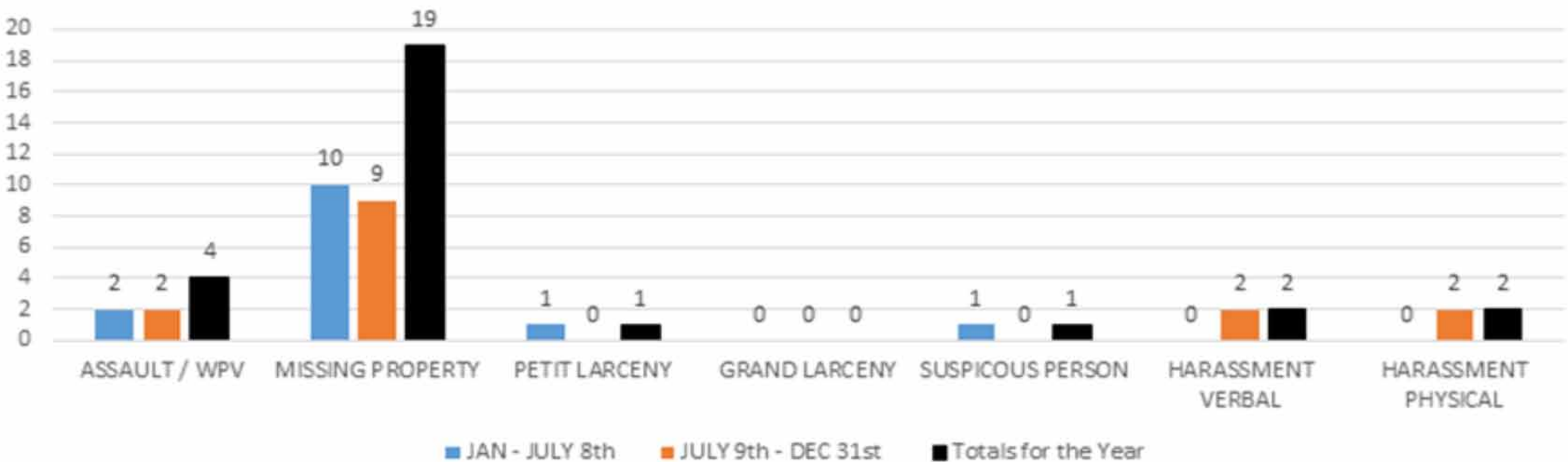
Study began on July 2018 and ended on January 2019.

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GP-5 NORTH



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