2018-2019 ANNUAL UPDATE

Quality and Patient Safety Program Department of Medicine

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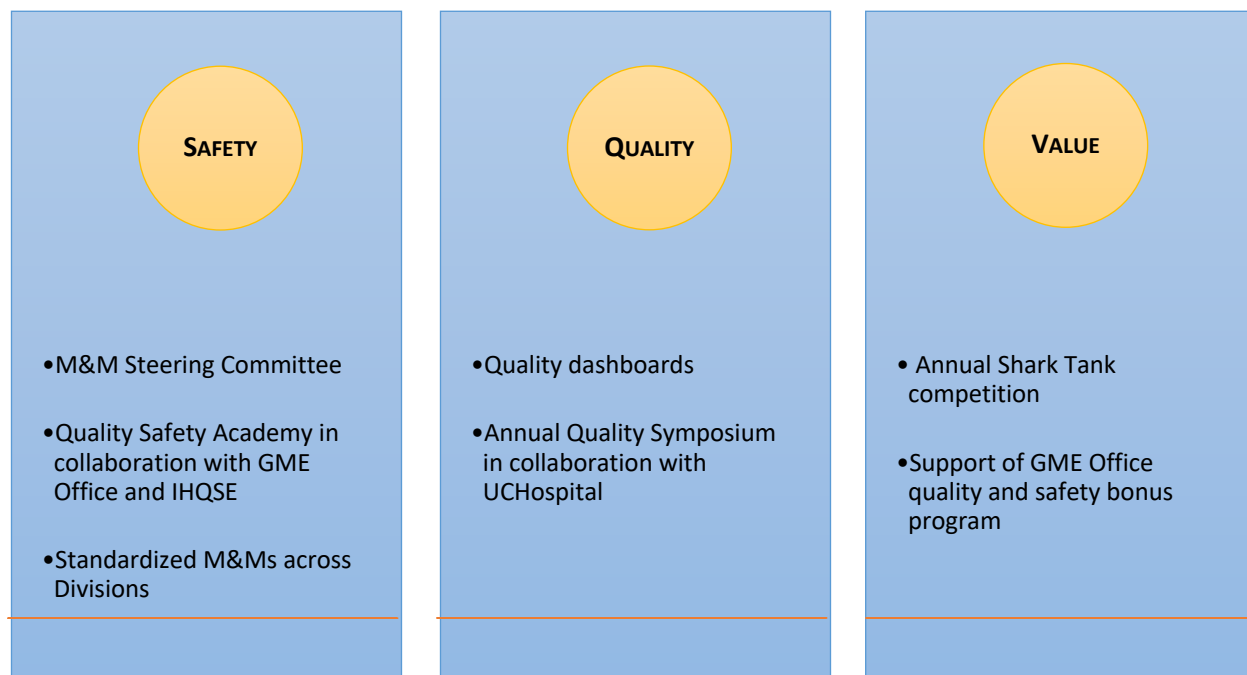Andrew Levy, MD
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Executive Summary

The ongoing mission of the Department of Medicine Quality and Patient Safety program (DOM QPS) is to promote a culture of patient safety, quality, and systems innovation among DOM faculty, trainees and staff to deliver patient-centered and high value care. To achieve this mission, the DOM QPS has designated four overarching goals:

- Facilitate collaboration between DOM faculty, trainees and staff, as well as with other School of Medicine Departments, medical centers and training programs in conducting quality improvement activities
- Engage and offer faculty and trainees the opportunity to learn about, participate, and lead quality improvement and safety projects
- Foster a community of safety and quality among all members of the University of Colorado Anschutz Medical Campus (AMC) community
- Develop a robust data analytics program to support measurement of quality improvement performance throughout the DOM.

In the 2018-2019 academic year, the DOM QPS leveraged the data infrastructure that was built in the last academic year to develop new QI activities, implemented and advanced novel QI educational programs in partnership with the Graduate Medical Education Office and Insititute for Healthcare Quality, Safety, and Efficiency, and created opportunities to further disseminate these activities beyond DOM oftentimes in collaboration with UCHospital. A broad overview of ongoing efforts includes the following activities:

SAFETY	QUALITY	VALUE
•M&M Steering Committee	•Quality dashboards	• Annual Shark Tank competition
•Quality Safety Academy in collaboration with GME Office and IHQSE	•Annual Quality Symposium in collaboration with UCHospital	•Support of GME Office quality and safety bonus program
•Standardized M&Ms across Divisions		

In this annual report, we describe the progress we have made in these endeavors in the domains of safety, quality and value for the academic 2018-2019 year.

Making Patient Care Safer

The DOM has been a campus leader in the implementation of an evidence-based, systems-oriented M&M model as an educational tool for trainees and faculty. This M&M model provides a forum for comprehensive, team-based event analysis and continuous learning from adverse events, which are crucial elements of a patient safety program and requirements for all graduate medical education (GME) training programs.[1].

The DOM QPS team continued to focus on three elements of our patient safety program this year: 1) ensuring a consistent approach to the Morbidity and Mortality (M&M) Conference across the DOM Divisions, 2) facilitating the translation of adverse events reported in division M&M conferences to quality improvement (QI) projects, and 3) initiating the Quality and Safety Academy.

1) *Dissemination of DOM M&M Model*

In 2017, we conducted an audit of our Divisions' M&M practices by attending Divisional M&Ms, populated the newly formed DOM M&M SteeringCommittee (MMSC) with representatives from each Division and implemented a new QI curriculum for fellows to teach them the M&M process. These steps formed the infrastructure needed for widespread adoption of a standardized M&M model. Since that audit and due in part to the mentorship of the DOM QPS team, 8 out of 13 Divisions in AY2018-2019 now conduct M&Ms within their divisions using a systems-based template. In June 2019, we will administer a survey to all divisions that will globally assess the current DOM M&M process and obtain feedback from each division on additional needs to conduct the standardized M&M model.

As part of this initative, we also created an electronic log for the Divisional M&M leaders to record information related to the case analysis during the M&M conference. Since implementation, 43 cases have been logged. Most of the cases have been logged from the Divisions of Cardiology and Hospital Medicine. Based on feedback from Divisional M&M leaders, the DOM QPS streamlined the M&M log to target it towards systems issues. The new M&M log went live in May 2019, and we are now tracking usage for AY 2019-2020, with plans to continue to modify the log as needed.

We have also continued our efforts to disseminate this best practice to *other* Departments by conducting joint M&Ms with Neurology and Emergency Medicine Departments as well as coaching the Departments of Pediatrics and Psychiatry with whom we had jointly presented Grand Rounds in the last academic year. Through this work, both of Pediatrics and Emergency Medicine Departments have transitioned their M&M conference to our model.

In addition to dissemination, we have continued our efforts to innovate our M&M practices. This year, we partnered with the quality department at UCHospital to conduct a M&M conference during UCHospital's Patient Safety Week, highlighting a multidisciplinary, interprofessional adverse event. Lastly, while M&M conference has traditionally been a forum to discuss and analyze clinical adverse events, this year, we employed our M&M model to bring attention to the issue of harassment faced by trainees. The event generated significant discussion amongst faculty, trainees and staff and gave rise to several new initiatives within the department related to addressing implicit bias and harassment.

2) *Bridging M&M to Improvement*

The second major focus for our safety program this year has been to translate the "lessons learned" from our M&M conferences to quality improvement actions. Here, we provide an example. On February 28, 2018, the Division of Cardiology reviewed a M&M case in which a STAT electrocardiogram

(ECG) took 25 minutes to complete in a high-risk inpatient with crushing substernal chest pain. The M&M was attended by a multi-disciplinary team including Allen Wentworth (Director of Allied Health Technicians (AHTs)), Larry Allen (Clinical Chief for Cardiology) and Ernesto Salcedo (Clinical Director of Electrocardiography). As a result of the M&M, a quality improvement (QI) project was initiated to understand the root-cause of the delay. The QI project was conducted in collaboration with the NavLab, which is an evaluation team that is part of one of the Dean's Transformational Grant programs. Initial evaluation, much of which was done with the assistance of medical students on Sub-Intership rotation at the University of Colorado Hospital, revealed that basic data about ECG completion times was not readily available, and the focus of the project shifted to obtaining this data for problem evaluation.

As part of the evaluation, we found that STAT priority for ECGs is used for 40% of all ECGs. STAT ECG use is variable across providers with some providers using it 7% of the time and others using it 95% of the time. Significantly, we also found that 35% of STAT ECGs are delayed (>15 mins) as compared to less than 10% of non-stat ECGs. ECG delays are strongly correlated with STAT ECG volume, likely due a "cascade" effect. The volume of ECGs varied by the time of day, however, the staffing (allied health technicians (AHTs)) to complete the ECGs did not necessarily match the variability in demand.

Figure 1: 95th Percentile of ECG Volume over 24 hours by Priority and AHT Assignment
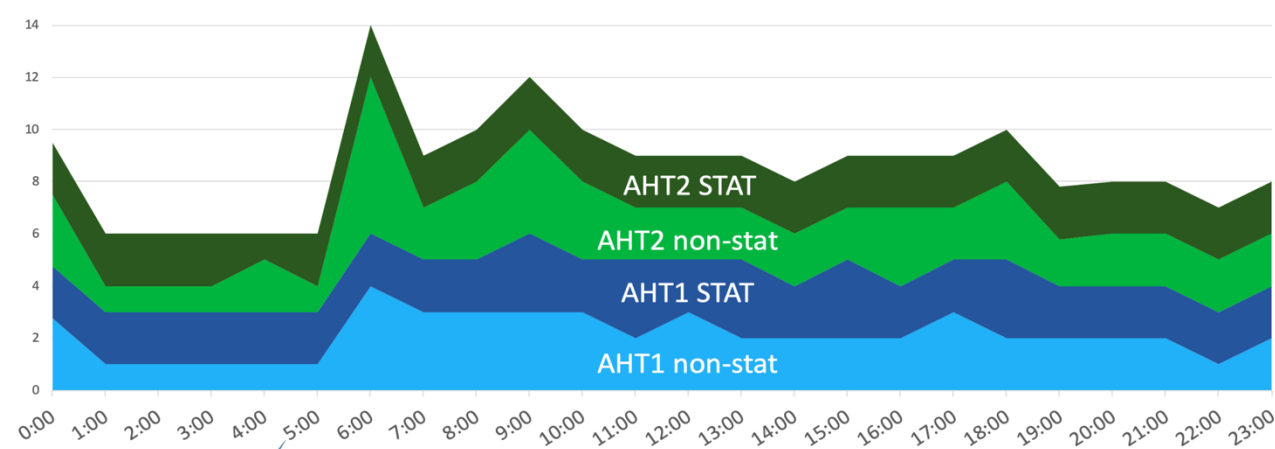
We conducted a series of discrete event simulations to identify the ideal staffing that would reduce the delays to stat ECGs. Our simulations suggest the following:
   a) If only 1 AHT is available to cover ECGs collection, delay rates double. Notably, the negative effect of this experiment was more powerful than the positive effect of any intervention.
   b) b) Adding AHT hours during the day outperforms reducing the number of STAT ECGs.
   c) c) Short shifts (4-8 hours) may be a cost effective way to add personnel.

These results were presented to Karen Lovett, Director of Operations UCHospital, who will implement some of the recommendations resulting from the discrete event simulation. We will continue to work with her to assess the impact of these changes. This work highlights the power of simulation as we were able to estimate the relative effectiveness of multiple interventions without expending resources to actually implement the changes in the work environment.

The Morbidity and Mortality Steering Committee (MMSC)
Another mechanism for bridging M&M to Improvement was the creation of the Morbidity and Mortality Steering Committee (MMSC). The MMSC is composed of provider representatives from each Division, as well as key UCHospital representatives from the quality and nursing arenas. The mission of the MMSC is

to bring forth action items identified during Divisional and DOM M&M conferences to discuss with different UCHospital (UCH) clinical and operational stakeholders. The MMSC meets monthly with the goal of developing shared action plans and quality improvement strategies.

During this past year, the MMSC discussed the following projects:
- Reducing the time to complete a stat ECG through changes in Ancillary Health Tech workflows and through changes in equipment (see above).
- Analysis of DOM mortalities and determination of preventable causes
- Medication reconciliation improvement
- Standardization of docline calls on the part of the physician
- Development of an outpatient dashboard

Furthermore, the MMSC worked with the QPS team to develop monthly reports of in-hospital mortality so that each Division could review these events to identify any potential gaps in quality of care leading to patient death. For the upcoming year, we will work with each Division to develop formalized review, triage, and response processes for reported cases. In addition, we are working with UCHospital to integrate our mortality report into a hospital mortality dashboard and develop shared plans for case reviews. Finally, each of the Divisional representatives on the MMSC will continue to guide and facilitate the adoption and implementation of the departmental model of M&M within their Divisions.

3) Quality and Safety Academy (QSA)

Based on feedback from our quality training program, we created the Quality and Safety Academy (QSA), co-sponsored with the Department of Surgery, the Office of GME and the IHQSE. Launched in the Fall of 2018, the QSA offered 3 levels of training for residents, fellows and faculty. The Resident and Fellows series each were composed of 4 half-day workshops covering topics in quality, safety, and health systems function while the Faculty workshop was designed to "train the trainers" to teach and develop quality and safety programs and to coach trainees in quality/safety projects. This work was synergistic with the work of Dr. Anna Neumeier, one of the 2018 Program for Clinician Educators (PACE) awardees, to evaluate how educating trainees in quality and safety might lead to sustained improvement and leadership advancement.

For the 2018-2019 academic year, across all learner groups a total of 106 different participants from 45 different programs or units attended the QSA. 19% (17/96) attended each session in either the resident or fellows series and received a certificate of completion. For the Fellows series, the Quality and Safety Academy offered three seminar sessions in both the fall and spring titled: "Foundations in Patient Safety," "Turning Adverse Events into Quality Improvement," and "Quality Improvement in Academics." There were 62 attendees total. The majority of participants attended two or more sessions and nearly one-third of participants attended all three sessions (29% (18/62)). Fellows from 27 different adult and pediatric subspecialties attended.

Quality and Safety Academy Program Evaluation Data
Session 1) Foundations of Patient Safety
In the Foundations of Patient Safety Course, through a 4-hour workshop particpants learn to conduct an adverse event analysis and to facilitate a systems-based Morbidity and Mortality conference. This work aligns with the Dissemination of DOM M&M described earlier. Evaluation of this seminar demonstrated improvement in self-reported knowledge and skills as well as objective improvement in knowledge (Figures 2 and 3).
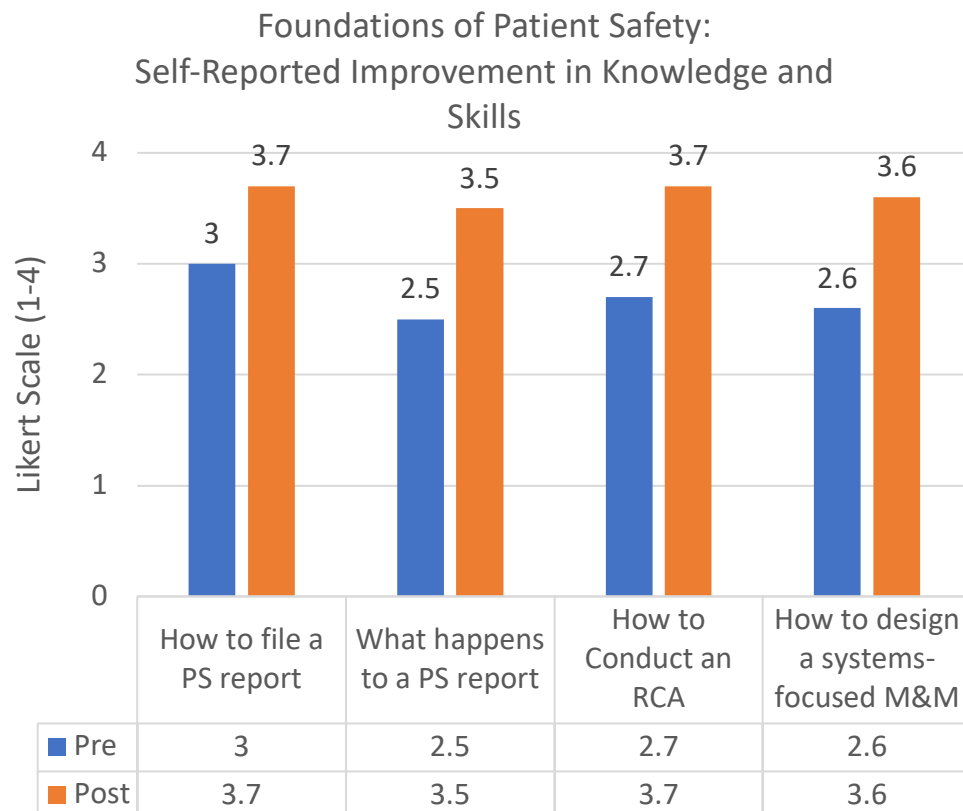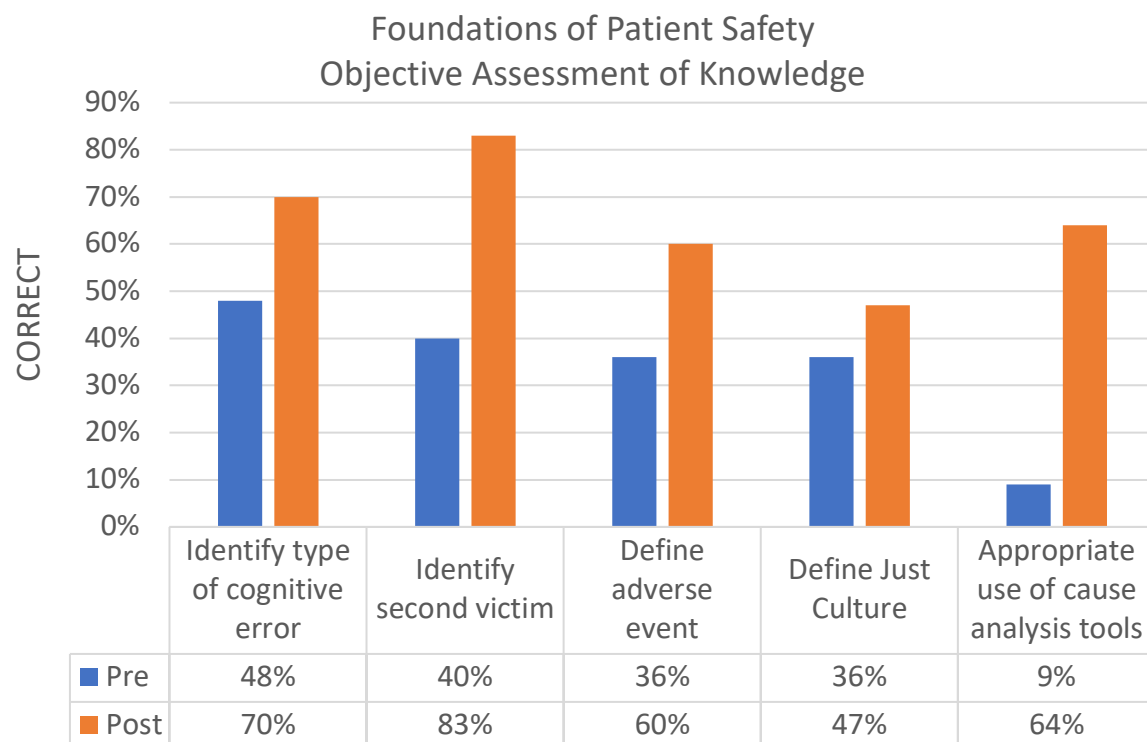
Figure 2

Foundations of Patient Safety:
Self-Reported Improvement in Knowledge and Skills

	How to file a PS report	What happens to a PS report	How to Conduct an RCA	How to design a systems-focused M&M
Pre	3	2.5	2.7	2.6
Post	3.7	3.5	3.7	3.6

Figure 3:

Foundations of Patient Safety
Objective Assessment of Knowledge

	Identify type of cognitive error	Identify second victim	Define adverse event	Define Just Culture	Appropriate use of cause analysis tools
Pre	48%	40%	36%	36%	9%
Post	70%	83%	60%	47%	64%

Session 2) Turning Adverse Events into Quality Improvement
In the second seminar, trainees learn and apply tools of QI methodology including approaches to data collection to guide QI practice. Trainees rated the session highly with 100% respondents reporting satisfaction with the session and that the session met the learning objectives. Evaluation of these sessions showed improvement in self-reported attitudes and skills but minimal change in objective knowledge when using a validated assessment tool, the QIKAT (Figures 4-6). One possible explanation is resultant from attrition in survey responses as only 50% of participants took the post-assessment test. Future qualitative assessment is needed to guide future learner evaluation.
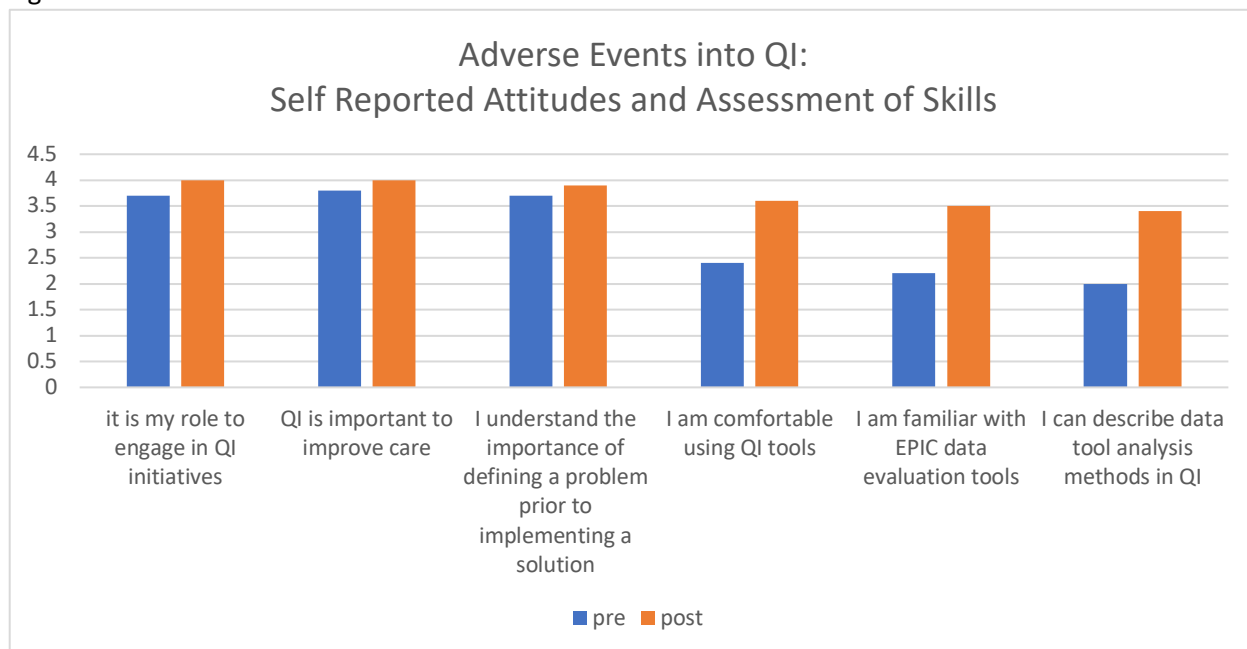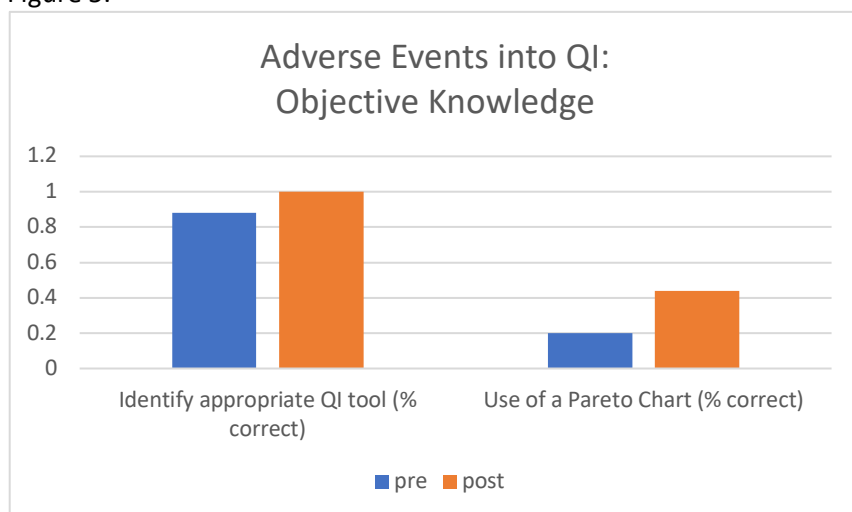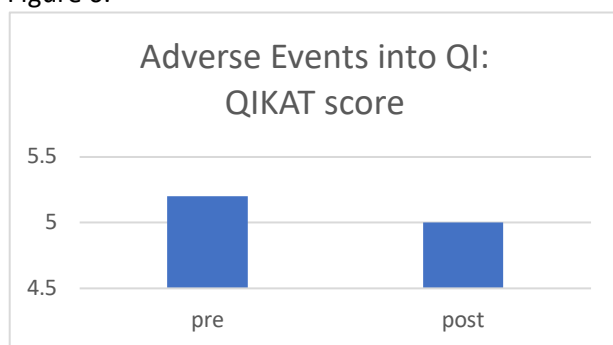
Figure 4:

Figure 5:

Figure 6:

Adverse Events into QI: QIKAT score

	pre	post
score	~5.2	~5.0

Session 3) Quality in Academics

During the third session, "Quality in Academics," trainees learn and apply principles of change management to promote sustainability of their QI projects as well as the role of the institutional review board in QI work and how to approach manuscript publication. Similar to prior sessions, they rated their satisfaction levels high and evaluation showed improvement in self-reported knowledge without change in objective knowledge. For future evaluation, the assessment strategy will be modified to better capture change in leaner performance.
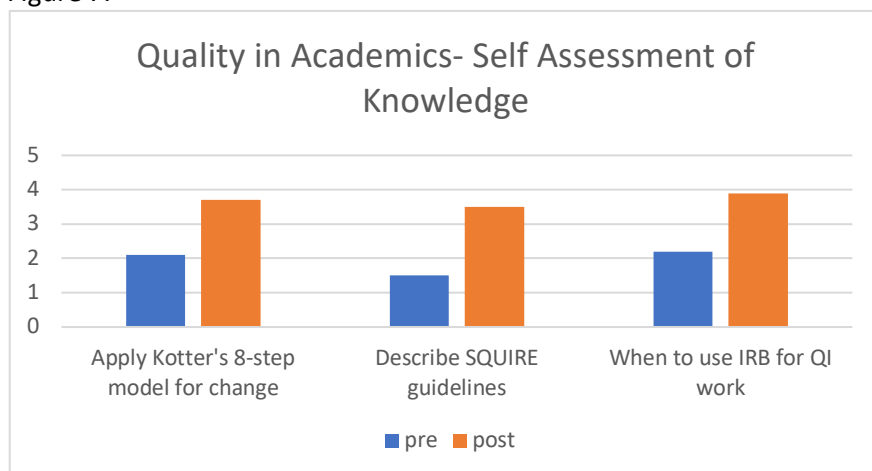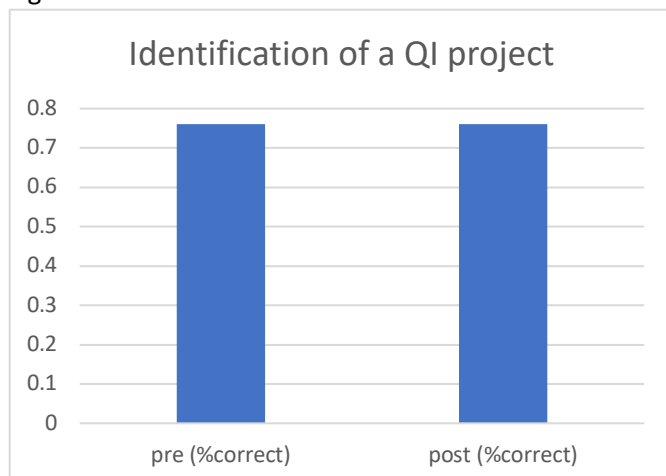
Figure 7:

Quality in Academics- Self Assessment of Knowledge

	pre	post
Apply Kotter's 8-step model for change	~2.1	~3.7
Describe SQUIRE guidelines	~1.5	~3.5
When to use IRB for QI work	~2.2	~3.9

Figure 8:

Identification of a QI project

	% correct
pre (%correct)	~0.76
post (%correct)	~0.76

Improving Quality of Care

Our key activities for quality improvement (QI) this year have been to 1) build a robust infrastructure for data management, 2) support QI efforts within the Department, and 3) create a venue for sharing QI succcesess.

1) *Data Management Infrastructure*

With the support of DOM, we have assembled a data analytics team capable of harnessing clinical performance data that will inform and provide monitoring of ongoing quality improvement initiatives. With access to Health Data Compass, Epic electronic health record data, and Vizient, we have created a process through which data requests can be submitted through an online portal (http://www.ucdenver.edu/academics/colleges/medicalschool/departments/medicine/DataRequest/Pages/form.aspx).

Figure 9. DOM Data Request Portal and Log page

Our data team triages requests for data and determines the best source for the requested data. To date, we have successfully provided needed data to several Departmental projects or initiatives, as shown in Table 1 below.

2) Support QI efforts within the Department

The DOM's quality project this past year focused on reducing opioid medication use. As part of this effort, we developed a dashboard displaying opioid medications at hospital discharge. The report displays the morphine equivalent dose by patient, ordering provider, discharge service, and hospital. The report pulls retrospective data from Epic that includes inpatients across UCHealth Hospitals. This dashboard was presented to the UCHealth Opioid Steering Committee. In addition, we have presented this dashboard to the CMOs of UCHealth, Metro Denver region, Colorado Springs region, and Northern Colorado region.

Furthermore, given the utility of the dashbaoard, we are working with UCHealth to transition the dashboard into a clinical operations tools with UCHealth oversight for the entire health system. Screenshots of the dashboard are provided next.

Screenshots of the opioid dashboard

As a result of this work, we have worked with others in the area of opioid reduction. Dr. Anstett has worked with the internal medicine residency to reduce new opioid prescriptions at hospital discharge. In 2017-2018, internal medicine residents prescribed 479 opioid prescriptions at hospital discharge. Their QI project focused on reducing the number of opioid prescriptions $\geq$ 7 days to zero. The internal medicine residents achieved this goal over the past year.

In addition, Dr. Caitlin Dietsche spearheaded an effort to reduce the amount of opioids prescribed during the inpatient medical visit and at the time of discharge for hospital medicine providers. In partnership with the Colorado Hospital Association (CHA), the Rocky Mountain Chapter of the Society of Hospital Medicine and Dr. Tad-y, Dr. Dietsche gathered a task force to create novel prescribing pathways for five pain diagnoses frequently treated by hospitalists that provide alternatives to opioids (ALTOs). Dr. Dietsche will lead the pilot implementation of these new pathways at UCHospital, providing input to CHA for a larger, statewide roll out of the pathways. The project aims to decrease opioid prescribing by 30% in the inpatient setting and at the time of discharge.

Table 1. Brief description of DOM projects with Data requests and requesting division or partner

1. Inpatient Volumes Report (All DOM Divisions)
The purpose of this report is to track inpatient clinical volume as measured by inpatient notes and billing. We started this project by working with the Infectious Disease (ID) Division and are working with each of the clinical Divisions to develop a Division-specific report. . We developed a weekly report which was designed to track billing, volume, and productivity, allowing each Division to provide individual feedback on performance and enhance billing and revenue.

2. American Heart Association (AHA) Cholesterol Management Pilot (General Internal Medicine)
1) We assessed implementation of the ASCVD risk estimation tool. To assess baseline implementation of the risk calculator, we analyzed 31,359 encounters using natural language processing and found 49% (15,312) of encounters were ineligible for calculator use while the remaining encounters, 51% (16,047), were eligible for calculator use. The risk calculation was used appropriately in 3.8% (609) of eligible encounters and was used inappropriately in 2.6% (398) of ineligible encounters.
2) To assess and improve secondary prevention among high risk groups we have hired two clinical pharmacists in both practices to outreach high risk patients not on a statin. We also provide the AHA data on our MIPS measure for both of our practices.

3. Treatment Team Usage in Epic (Hospital Medicine)
The goal of this project is to change workflow (RN, MD/APP, Rads, Labs, Rx) such that Epic treatment teams are used, with specific attention to the "First Call" provider role and Registered Nurse contact. By using the Treatment Team function, all care team members will have one source of truth for who is currently caring for the patient.

4. Opioids: Medication orders at inpatient discharge (Hospital Medicine and UCHealth)
This project developed a dashboard to identify the amount of of opioid prescription at discharge from the hospital. We have partnered with UCHealth on this and the UCHealth opioid steering committee. In addition, we have interest from the Departments of Orthopedics Surgery and General Surgery to use these data for QI.

5. Length of Stay Analysis (UCHospital)
The goal of this project is to develop a prediction model which will predict LOS based on preliminary factors and interventions. The goal is to identify patients with long lengths of stay so that care management iat UCHOpsital can work with these patients towards an early hospital discharge. As part of this proiect, we are helping the Department of Pyschiatry with trying to understand if patients with psychiatric co-morbidities have longer LOS.

6. Troponin Analysis (Cardiology)
This is a project to understand the frequency and variability in which troponin labs are ordered in the hospital. In addition, the goal is to understand the extent to which MI is diagnosedand the impact of troponin elevation on downstream healthcare utilization.

7.   Venipuncture Reduction (Hospital Medicine and UCHospital)

The goal of this project is to decrease the number of venipunctures performed on hospitalized adult patients at UCH by focusing on the system in which labs are ordered and drawn, not focusing on provider practice habits. The team identified via formal and informal patient complaints that patients admitted to the University of Colorado Hospital (UCH) experience an excessive number of venipunctures for laboratory blood sampling which results in overuse of resources, patient discomfort, and contributes to iatrogenic blood loss.

8.   STAT ECG: from Order to Completion for All Inpatient, Observation and ED (Cardiology)

The goal is to create a comprehensive report describing time-to-completion of ECGs in a hospital non-outpatient context.

9. Mortality Data (All DOM Divisions and MMSC)

The goal is to create a mortality dashboard on a monthly basis of all mortalities at UCHosptial that occur on the various medicine services. Divisions will be able to see patients who were on their services or patients in which they were consulted on.

10. Rheumatology Clinic Vaccination (Rheumatology)

Proposed intervention is to provide education on vaccination recommendations via ACR and ACIP guidelines, enhance use of EPIC to more effectively document vaccinations.

11. Hospitalization and Mortality following clinic visit (General Internal Medicine)

The goal is to create a report to capture patients who were admitted to the hospital or die within 2 weeks of a general medicine clinic visit. Report should include clinic and hospital dates as well as primary diagnosis code and clinic provider name.

12. Outpatient Antimicrobial stewardship in Seniors clinic (Infectious Diseases)

To assess inappropriate antibiotic use in the outpatient setting and monitoring antimicrobial use after launching stewardship initiatives. The pilot project will be performed at the Seniors clinic at UCH with plans to expand system wide to other clinics.

13. Pulmonary Dashboard (Pulmonary and Critical Care)

Create a Pulmonary Dashboard for administrative/operational use by leadership and members of the Pulmonary Division. Initial metrics include: 1) Pneumovax and influenza vaccinations, 2) Smoking cessation, 3) Pulmonary Rehab referrals.

14. 5 year mortality prediction model (General Internal Medicine)

The goal is to improve high value care for patients in GIM practices and potentially across UCHealth.
1) Implement a 5 year predictive mortality model to identify patients unlikely to benefit from medical interventions with lag time to benefit that are greater than 5 years.
2) Determine potential overuse or low value care for cancer screening services for patients with life expectancies of less than years identified with the predictive model.

15. Renal Data Request (Renal)

1. Identify patients with GFR (lab test) <35; among those patients, did they have hep b vaccine, get referred to vascular surgery clinic or have home therapy referral (for peritoneal dialysis)
2. Among patients with GFR<60, are they prescribed statin medication
3. How frequently is cystatin C lab drawn and what is corresponding GFR value

16. Resident Admission Numbers in 24 Hour (Internal Medicine Residency Program)

We are interested in determining how many patients each resident is admitting in a 24 hour period on each service that is covered by our internal medicine residents.

3) Venue for Sharing QI Successes

The 2019 Annual Quality Symposium was held jointly with UCHospital as part of Patient Safety Week. The week's activities included a showing of the movie, *To Err is Human* a system-wide patient safety culture survey, unit-based team training sessions and "great save awards." The DOM and UCHospital also conducted a joint M&M led by Dr. Emily Gottenborg, which featured a multidisciplinary, interprofessional adverse event.

The poster session started with a presentation by the new UCHospital CEO, Christopher Gessner. This was followed by presentation of the top abstracts which are listed below. Finally, there were 42 posters presented highlighting QI projects conducted by trainees, faculty and staff from DOM and other Departments. The projects ranged from QI and implementation research studies to descriptions of innovations designed to improve the safety of care that we provide across our Department and affiliated sites. Awards for "Best Team Project" and " Best Tainee Project" were given.

- **Kimberly Olson and Frank Merritt**: Outstanding Team Project: 'Successful Transition & Education for Patients'
- **Alexandra Kovar**: Outstanding Trainee Project: 'Variability in Surgical Site Prep Technique and Adherence to Technical Guidelines'

Pursuing High Value Care

Today, the United States health care system is the most expensive in the developed world with costs continuing to rise despite sweeping changes in national policy. The DOM QPS recognized that in order to optimize the value of care provided, we must continue to provide high quality, safe care, and reduce or eliminate care that does not make our patients or our health care system better. With that in mind, we hosted a Shark Tank competition for the third year. Six teams submitted project ideas and 4 were seleted to pitch to a panel of Quality Leaders (aka *Sharks*) from the DOM, SOM and UCH. The ICU liberation project was selected as the winning project along with 3 other finalists that the DOM QPS team will support. A description of the projects and their progress to date are provided below.

Shark Tank Winner and Finalist Projects

ICU Liberation with Epic Partnership (AY 2019 Shark Tank Competition Winner)
Arun Kannappan, MD (Pulmonary & Critical Care)

By incorporating a multi-disciplinary team and instituting standardized protocols with the use of EPIC's robust data collection and processing capabilities, we can improve the care for ICU patients through reduction of ICU days, reduction of ventilator associated complications and reduction in neurocognitive and psychiatric morbidity.

In collaboration with the DOM QPS data team, Dr. Kannappan and his team have developed new Epic and Power BI report functionality to go-live in July, 2019 that will facilitate Unit/Manager level documentation of compliance focused on measures previously shown to improve care for patients intubated in the ICU including daily Spontaneous Breathing Trials, central line days, delirium days, and time to extubation.

Dr. Kannappan and the Shark Tank trophy

Blood Utilization QI Project
Tyler Anstett, DO (Hospital Medicine), Sam Porter, MD, Neelam Mistry, MD (IMRP)

Excessive blod transfusions have been consistently shown to increase morbidity and mortality. UCH is an outlier amongst similar academic medical centers for transfusing large amounts of blood products. The project team, which consists of residents in the Hospitalist Training Program and DOM faculty mentorship, proposed conducting a single site (University of Colorado Hospital) QI project with the goal of decreasing inappropriate packed Red Blood Cell (pRBC) transfusions. The target measures include getting UCH to be more compliant with transfusion guidelines including reducing the percent of pRBC transfusions occurring when pre-transfusion hemoglobin are greater than 7g/dL and multiple pRBC units transfusions. The team intends to improve value in blood product utilization by using models from other institutions as a springboard to accelerate change at our institution.

In collaboration with multiple departments, leadership within UCH, as well as the NavLab and the DOM QPS Data team, the project is moving forward with robust data collection and analytics. Interventions either under way or completed including updating local UCH transfusion guidelines and redesigning transfusion CPOE order-sets so guide providers to more restrictive blood transfusion strategies. The results of this project wil be used to inform transfusion ordering practices across the UCHealth system.

Closing the Loop
Emily Bowers, MD (Rheumatology)

Patients hospitalized with Rheumatologic conditions have higher rates of complications including readmissions to the hospital. This project is targeted at improving the quality of post-discharge follow up for patients followed by the Rheumatology clinic here at UCH who are admitted to the hospital. In collaboration with the DOM QPS Data team, the project is moving forward with data collection and have implemented an intervention focused on improving collaboration between inpatient and outpatient rheumatology teams.

PREPOSTERUS (PREvention of Pneumocystis jirovecii pneumonia in patients On STERoids at UniverSity of colorado hospital).
James Maloney, MD (Pulmonary & Critical Care)

 PJP pneumonia in non-HIV/BMT hosts is often viewed as uncommon. However, after observing numerous cases in the UCH MICU over 2013-18 (some who died) our team performed a COMPASS search and identified approximately 18 cases/yr in the UCH system, of which 75% are among non-transplant patients. A mortality rate of 20-30%, higher than HIV-related PJP, is typical of such cases. We have engaged a multidisciplinary team to address this lapse in patient safety. The DOM QPS Data team is providing data acquisition support.

Scholarship

Academic products from this past academic year from the QPS team.

- Manuscripts (2 submitted and are currently under review at journals)
  - Levy AE, Hammes A…Ream KS, Ho PM. Acute MI Cohorts Defined by ICD-10 versus DRG: Analysis of Diagnostic Agreement and Quality Measures in an Integrated Health System. Under review: *JAMA Cardiology*
  - Levy AE, Anstett T, Simon S, Carter J, Allen LA, Ho PM. Association of a Systems-Based Morbidity and Mortality Conference with Shorter Completion Times for In-hospital ECGs. Under Review: *Circulation: Cardiovascular Quality and Outcomes*

- Abstracts
  - Neumeier A, Levy A, Gottenborg E, Anstett T, Pierce R, Tady-Y D. "Expanding Training Opportunities in Patient Safety for Pulmonary and Critical Care Fellows Through a Multispecialty Graduate Medical Education Curriculum". University of Colorado Educational Scholarship and Innovation Symposium, Denver CO. May 13, 2019.
  - Levy AE, Anstett T, Simon S, Osman S, Wentworth A, Carter J, Allen LA, Ho PM. "Association of a Systems-Based Morbidity and Mortality Conference with Shorter Completion Times for In-hospital ECGs." American College of Cardiology CV Summit. Orlando, FL. February 2019.
  - Levy AE, Ream K, Hammes A, Anoff DL, Raines JD, Beck N, et al. "Abstract 243: ICD-10, DRG and ACTION: Poor Agreement Between Diagnoses of Acute Myocardial Infarction Results in Significant Differences in Process and Outcome Measures." AHA Quality of Care and Outcomes Research. Washington, DC. April 2019.
  - Levy AE, Ream KS, Hammes A, Rudofker E, Beck N, Raines JD, et al. "Abstract 20: Are We Ready for High(er) Sensitivity Troponin Assays? The Positive Predictive Value of a Contemporary Troponin Assay for Acute Myocardial Infarction." AHA Quality of Care and Outcomes Research. Washington, DC. April 2019.

- Workshop at AAMC Integrating Quality Conference
  - Gottenborg E, Neumeier, A, Levy A, Anstett T, Tad-y D. "Train the Trainer: QI and PS Program for Fellows Across Departments and Subspecialties." 2019 Integrating Quality Conference: Getting on Track to Achieve Health Equity. Minneapolis, MN. June 5, 2019

Future Plans

Looking ahead to the next academic year, we are enthusiastic about continuing to expand and innovate our current programs, diversify faculty and trainee participation in our QPS program efforts and to increase our scholarly output. In the next year, we will be starting the DOM Leaders in Informatics, Quality and Safety (LInQS) fellowship program**.** The objective of the LInQS program is to cultivate future Department of Medicine leaders in the areas of quality improvement (QI), clinical system design, clinical informatics, and/or patient safety. We are partnering with Division of Hospital Medicine to support a medical student externship, to educate the next generation of leaders in QI and to support project work within the DOM.

We will continue our partnership with UCHealth to deliver a more inclusive Quality Symposium, and to forge new partnerships with other Departments and training sites (e.g., Denver Health and VA) to highlight the incredible innovations happening across our campus that improves the care we provide to patients. For the upcoming year, the DOM QPS team will focus on in-hospital mortality and work with each Division to develop formalized review, triage, and response processes for cases as well as develop shared plans for case reviews with UCHosptial through the MMSC. Additionally, we anticipate that many of our current initiatives will continue to translate into successful publications and generalizable knowledge.

We would also like to thank Darlene Tad-y, MD for all of her work as the Associate Vice Chair for Quality. She led the development of many new quality educational programs (e.g., Quality Safety Academy) and continued to innovate the M&M conferences. She will be transitioning to a new role at the Colorado Hospital Association as the Vice President for Clinical Affairs. In the next academic year. Tyler Anstett, DO will be assuming the role as one of the Associate Vice Chairs for Quality and leading implementation of the LinQS program.

References:

1. Tad-Y, D. B., Pierce, R. G., Pell, J. M., Stephan, L., Kneeland, P. P., & Wald, H. L. (2016). Leveraging a Redesigned Morbidity and Mortality Conference That Incorporates the Clinical and Educational Missions of Improving Quality and Patient Safety. Academic Medicine, 91(9), 1239–1243.