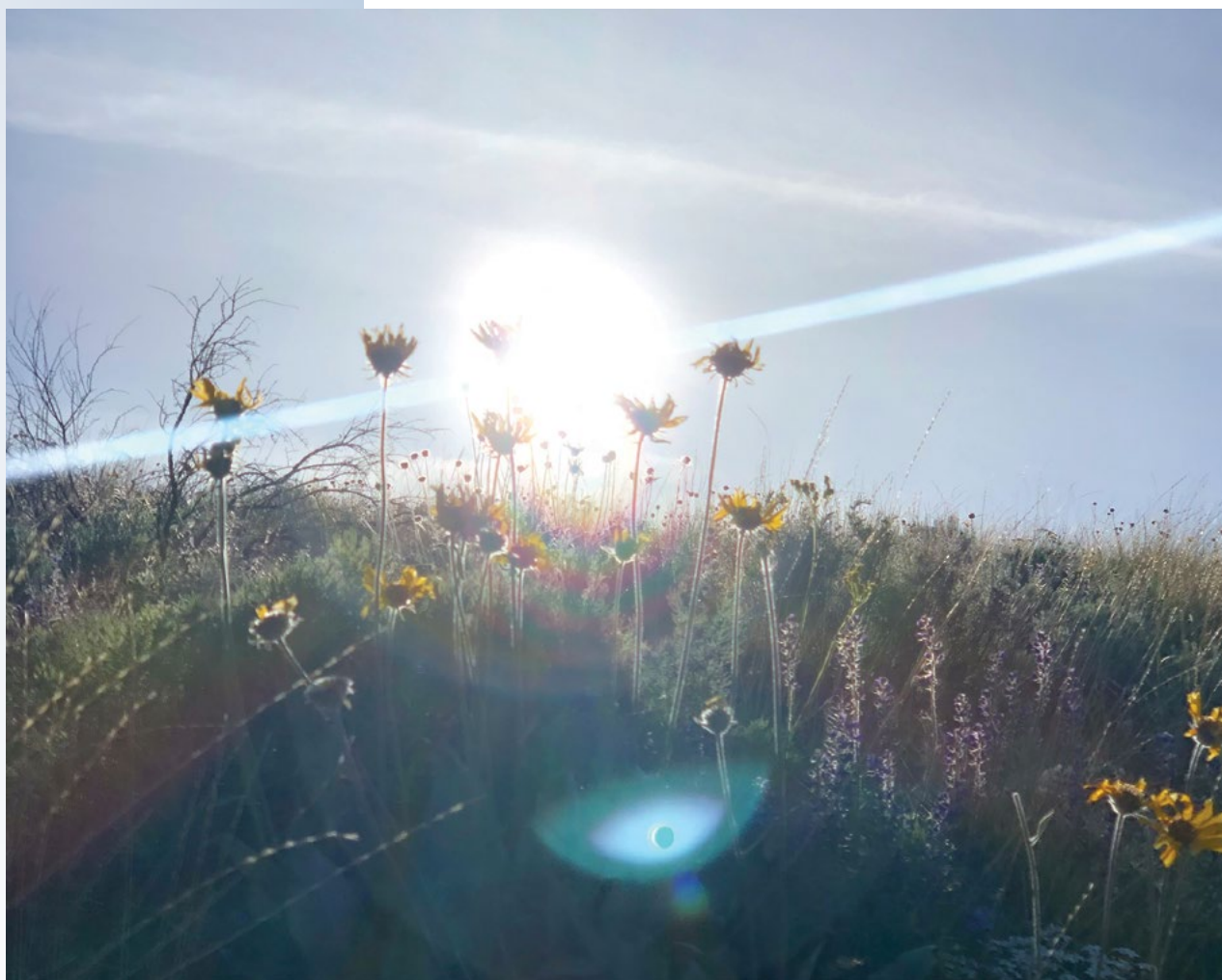# HOUSE

Journal of the University of Washington
Housestaff Quality and Safety Committee

UW Medicine

GRADUATE
MEDICAL EDUCATION

HOUSESTAFF QUALITY
& SAFETY COMMITTEE

HOUSE

In This Issue of HOUSE

Photo: Ankrom Moisan Architects

A Note from the Co-Chairs

Dear UW Medicine Reader,

We are proud to offer you the seventh edition of HOUSE! This year's edition coincides with HQSC's 10th anniversary. Included with this issue are reflections of our organization's development over the past decade in addition to submissions by our members highlighting their innovative quality improvement, patient safety, and curricular endeavors.

For the past two years, our world has been transformed by the pressures of the COVID-19 pandemic. External forces have exposed vulnerabilities in our healthcare systems, increasing barriers and revealing areas in need of growth. Residents and fellows continue to face new challenges caring for patients due to increased illness acuity, high hospital censuses, and elevated staff burnout. As patient care settles into this challenging "new normal" it has never been more critical for residents and fellows to engage in remaking and renewing our healthcare system.

Throughout this tempest of change, a constant has been the dedication of the UW housestaff to their patients. HQSC has been proud to support the vital work of our colleagues by providing educational, scholarship, and leadership opportunities.

We hope you enjoy this edition of HOUSE and join us in celebrating the incredible work that our residents and fellows are engaging in to create a safer healthcare system for our patients and providers.

Sincerely,

Madeleine Jackson, MD
Vincent Raikhel, MD
HQSC Co-Chairs
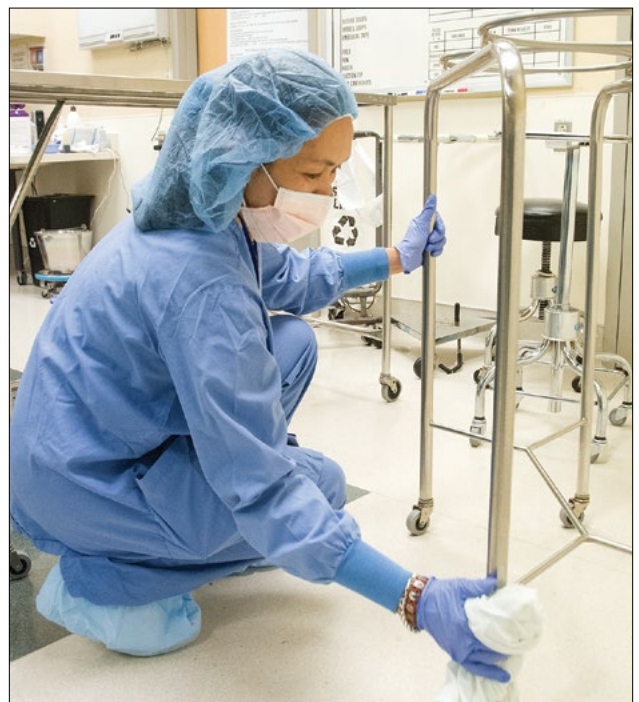
Celebrating 10 Years of HQSC

Ten years ago, patient safety and quality improvement (QI) leaders within UW Medicine established the UW Housestaff Quality & Safety Committee (HQSC). Recognizing the need to cultivate awareness of these important topics among physicians and educators, and spurred by similar awakenings taking place nationally throughout graduate medical education (GME), HQSC began to take shape. Founding sponsors of the group include:

- **Byron Joyner, MD MPA (now Vice-Dean of GME, UW School of Medicine)**

- **Gene Peterson, MD MHA PhD (ex-Chief Safety Officer, Virginia Commonwealth University Health System, who sadly passed away in 2015)**

- **Anneliese Schleyer, MD MHA (now Associate Chief Medical Officer, UW Medicine)**

- **Johnese Spisso, RN MPA (now President, UCLA Health, and CEO, UCLA Hospital System)**

Since its formation in 2011, HQSC has grown year-over-year and now counts more than 80 residents and fellows from across 37 clinical specialties among its members. It has progressively expanded the breadth and depth of its educational offerings and created novel platforms such as the HOUSE annual publication and the upcoming QI Match website to showcase QI accomplishments and connect like-minded change agents with one another. HOUSE, alongside its smaller companion newsletter BRICK (A Building Block of HOUSE), were launched during the 2015 to 2016 academic year, and QI Match has been in development for a similar duration. Below is a selection of past articles from HQSC publications covering a variety of quality and safety topics and involving many current health system leaders:

1. Shah A, McGauvran M, Nair B, Bollag L. Process improvements for timely initiation of epidural infusion for post-operative pain control. HOUSE. 2015:19. (Anesthesiology)

2. Walter K, Broussard E, Vindigni S. Improving colorectal cancer screening rates within Harborview Medical Center's primary care system. HOUSE. 2015:33. (Gastroenterology)

3. LaGrone LN, Parent BA, Keller JM, Gaskill CE, Serina PT, Albirair MT, UW-IPASS Consortium Authors, Langdale LA, Kritek PA. Standardized patient handoffs in the ICU: a resident-led clinically-integrated quality improvement program. HOUSE. 2016:6-8. (General Surgery)

4. Geyer J, Thomas A, Mirza S, Wipf J. Just take your meds! A Seattle VA medication adherence QI project. HOUSE. 2016:20-1. (Primary Care)

5. Domes C, Schleyer AM, McQueen JM, Pergamit RF, Beingessner DM. Appropriate use of venous thromboembolism prophylaxis in orthopaedic trauma patients with vascular and radiographic studies. HOUSE. 2016:22-4. (Orthopedic Surgery)

6. Esposito A, Kritek PA, Çoruh B. A bundled intervention to decrease the duration of mechanical ventilation: a quality improvement initiative in the Medical Intensive Care Unit. HOUSE. 2017:6-8. (Pulmonary & Critical Care Medicine)

7. Lebin JA, Murphy DL, Friedman BT. Improving frequency of on-shift resident didactic education in the Emergency Department. HOUSE. 2018:6. (Emergency Medicine)

8. Hicks KG, Klein JW, Schleyer AM. Engaging an untapped resource: introducing patient safety rounds into resident work flow. HOUSE. 2018:7-9. (Internal Medicine)

9. Johnson R, Westling E, Manos A. Developing a Health Equity Pathway for Internal Medicine residents. HOUSE. 2020:8-9. (Internal Medicine)

10. Yu JL, Cho DY, DeSanti RL, Kneib CJ, Friedrich JB, Colohan SM. Resident "Zoom Burnout" during the COVID-19 crisis. HOUSE. 2020:10-2. (Plastic Surgery)

Foundational programs created during the ten-year history of the HQSC include a Certificate pathway that recognizes residents and fellows who attend more than 70% of monthly meetings and complete the Institute for Healthcare Improvement Open School Basic Curriculum online. To better support trainee activities, HQSC began delivering its own home-grown QI Bootcamp in 2015 followed later by the establishment of a scholarship fund to help teams cover project costs such as software licenses, statistician time, conference and publication fees. The QI Bootcamp has now become an annual ritual, and grant funding has been augmented in recent years by the generous contribution of Dr. Aalap Shah, an HQSC alumnus who has decided to donate back to the group (see page 8 for expanded profile).

In addition to guest presenters, whose ranks have included technical experts from organizations such as the Institute for Health Metrics and Evaluation to nationally recognized academicians to the Chief Health System Officer of UW Medicine, HQSC has also convened focus groups on patient safety topics and organized workshops where local QI experts help trainees to refine their projects. In 2018, HQSC started exploring improvement practices outside of healthcare through field trips to Boeing and Nordstrom, and the group has forged a strong partnership with the UW Network of Underrepresented Residents & Fellows (NURF) to examine the intersections of healthcare quality, social justice, improvement methodology, and advocacy. Together, HQSC and NURF have held four annual health equity conferences, most recently in May 2021 when the theme was "care for the incarcerated patient" (see page 10 for full details), and additional collaborations are planned. Today, HQSC has its own spin-off group called SQuIRREL, the Subcommittee on QI Event Reporting and Resident-Engaged Learning, that meets once per month and invites trainees to review and provide input on patient safety reports filed by their peers at Harborview and UW Medical Center – Montlake. Lastly, to recognize the incredible mentorship of UW faculty, whose efforts complement and extend the reach of HQSC activities, the group in 2016 established the Gene Peterson Award for Excellence in Quality Improvement Mentorship. This annual award, named in honor of the late Dr. Peterson who was a founding sponsor of HQSC and towering figure within the healthcare quality space, is conferred to an outstanding QI educator selected by UW residents and fellows. Past Gene Peterson Award recipients have included:

- **Elizabeth Broussard, MD (Gastroenterology)**
- **Mark Snowden, MD MPH (Psychiatry)**
- **Anneliese Schleyer, MD MHA (Internal Medicine)**
- **Chloe Bryson-Cahn, MD (Infectious Disease)**
- **Zoe Taylor, MD MBA (Family Medicine)**

Throughout its history, the HQSC has enjoyed the unwavering support of UW Medicine and the UW GME Office. With their backing and the passion of our faculty and trainees, many doors have been opened, much has been done, and yet more remains to be accomplished. Onward to the next ten years!

Chenwei Wu, MD;
Faculty Director, Executive Faculty Sponsor

Photo: Grace Um, MD

Getting Involved in Quality Improvement and Patient Safety

There are many ways for University of Washington residents and fellows to become involved in quality improvement (QI) and patient safety projects.

Housestaff Quality and Safety Committee
Founded in 2011, the UW Housestaff Quality & Safety Committee (HQSC) is a trainee-led organization with members from a range of academic divisions. HQSC functions in partnership with the UW Patient Safety and Quality Coordinating Committee and the Graduate Medical Education Committee, with the goal of engaging members in the quality and safety work pursued throughout UW training sites. Members attend monthly meetings throughout the year to learn the skills needed to become future leaders in QI and patient safety. Recent programmatic focus has been on interdisciplinary work across trainee subspecialties as well as the application of QI to problems in Diversity and Inclusion. Grants are available and distributed biannually to support QI projects and travel to QI conferences. Our Leadership Board continues to serve our members in areas of publication, scholarship, diversity, and error reporting.

HQSC Certificate Program
Motivated HQSC members can earn a certificate in quality improvement and patient safety by consistently attending monthly meetings, completing the Institute for Healthcare Improvement (IHI) Open School online curriculum, and participating in a longitudinal project.

HQSC Project Grants
Residents and fellows with an interest in developing a QI project are welcomed to submit an application for a HQSC Project Grant. Funding of up to $1000 per project grant is available, with greater funding available to projects that address Diversity and Inclusion or span multiple different medical specialties. More information can be found at **https://sites.uw.edu/uwhqsc/grants/**.

SQuIRREL
Initially developed as an HQSC-sponsored quality improvement project aimed at increasing resident involvement in patient safety reporting at UWMC, SQuIRREL has evolved to become a standing HQSC sub-committee. It offers trainees the opportunity to review and prioritize resident-submitted PSN (Patient Safety Network) reports. Working in conjunction with the UWMC Patient Safety Office, SQuIRREL continues to produce meaningful systems change on issues most relevant to residents and fellows.

Medical Error Reporting Systems
Given that housestaff are on the frontlines of healthcare, it is important for residents and fellows to be able to report safety and quality issues. All the major hospitals in the UW system have an error reporting system. UWMC-Montlake, UWMC-Northwest, and HMC use the PSN, the VA Puget Sound uses Joint Patient Safety Reports (JPSR), and Seattle Children's Hospital uses eFeedback. Taking a few minutes to report quality and safety issues can add data to existing QI efforts as well as reveal unknown safety concerns.

Morbidity & Mortality Conference
While adopting unique formats in different specialty contexts, a morbidity and mortality review conference is nearly universal across the various subsets of the Graduate Medical Education community. Residents and fellows are often readily included in these conferences, which present a unique opportunity to reflect on medical errors, adverse events, and near misses. Several conferences have adopted built-in process improvement brainstorming, which provides fertile ground for the generation of QI projects.

UW Medicine Event Reviews
Several medical centers within UW Medicine sponsor intensive event reviews for serious or sentinel safety events. The goal is to achieve the best possible understanding of why an event occurred to prevent future errors. These event reviews welcome resident and trainee participation and eagerly encourage their attendance. To volunteer to participate in future event reviews, please email **uwhqsc@uw.edu**.

Leaf Data Retrieval System
Leaf is a self-service clinical data analytical tool that allows clinicians to independently run analyses on various patient populations in the UW system based on multiple different specified criteria. Please see **https://www.iths.org/investigators/services/bmi/leaf/** for more information.

UW Access to Excellence
This dashboard for visualizing current health system performance in quality and safety is available to residents and fellows. Information can be broken down by UW Medicine clinical entity, service line, and various measurement bundles. Metrics can also be reviewed through equity lenses including race, language, and housing status. Access requires AMC login credentials.

UW Patient Safety Innovations Program
The clinicians and researchers at UW Medicine have the insight to develop projects that enhance the quality and safety of patient care at UW Medicine, and those projects need guidance and funding. UW sought to tap this insight and support it, creating the Patient Safety Innovations Program (PSIP). This program provides pilot funding and expert guidance to innovative projects that improve patient safety and quality of care, reduce medical-legal expenses, and strengthen the academic environment around patient safety. For more information, and access to the 2020 Request for Proposals, please visit the PSIP website at **https://patientsafety.uw.edu/patient-safety-innovations-program**.

QI Match
Interested in a project but not sure where to start or who is doing what? Dr. Nicholas Meo has developed a website to match trainees to available QI projects. See **https://qimatch.com/** for more information.

HQSC Members and Awardees 2020-2021

GENE PETERSON AWARD

Dr. Zoe Taylor MD MBA is originally from New York and attended college, medical school, and business school at Columbia University. In medical school, she developed her quality improvement skills as Co-Chair of the student-run free clinic Columbia Student Medical Outreach (CoSMO) and as Founder and Co-Chair of the Systems, Leadership, Integration and Management (SLIM) Committee. In business school she was an associate intern at McKinsey & Co where she worked on developing bundled payment models and also tracking public health metrics. She came to believe that robust, high quality primary care is the answer to many of our healthcare system's problems, and moved to Seattle to join the University of Washington Family Medicine Residency Program. In residency, she was the Vice President of RFPU-NW and a member of HQSC and SQuIRREL. She stayed on for a Chief Resident year, during which she started the Task Force for the Care of Patients Experiencing Incarceration. She has had the opportunity to work with several remarkable residents and fellows to advocate for better care for these patients through more training and better policies. She recently left the University of Washington to join the Lummi Tribal Health Center in Bellingham, where she is a primary care physician and the physician lead for clinical informatics.

Alumnus Profile

This section features exceptional work conducted by the residents and fellows of UW Medicine in the field of quality improvement.

HQSC Alumnus Profile: Aalap C. Shah, MD

As part of its 10th Anniversary celebration, HQSC proudly presents the first alumnus profile in what we hope will become a recurring HOUSE fixture. The inaugural profile features Dr. Aalap C. Shah, who graduated from the UW Anesthesiology residency training program in 2015 and served on the HQSC from 2014-2016, both as a general member and as Chair of the Surgical Services Subcommittee. Incredibly, Dr. Shah extended his HQSC membership post-graduation and continued to participate in committee activities even as he traveled across the country to complete fellowship training at Boston Children's Hospital and Harvard Medical School.

During his time in HQSC, Dr. Shah was instrumental to the creation of a standardized procedure for patient handoffs between the post-anesthesia and intensive care units at Harborview Medical Center, a practice that—in an updated form—lives on today and one that has garnered national recognition from the Accreditation Council on Graduate Medical Education (ACMGE) in the form of its prestigious David C. Leach Award.

Dr. Shah is currently a practicing anesthesiologist and entrepreneur based in Southern California and continues to support the HQSC and trainee-led improvement efforts at UW through establishment and maintenance of the HQSC Surgical Services Fund, which is the source of all HQSC project grants. About his ongoing engagement with HQSC and contributions that endure long after his time on the committee has ended, Dr. Shah had the following to say:

WHAT DID HQSC MEMBERSHIP MEAN FOR YOU?

As an Anesthesiology resident at the University of Washington between 2011 and 2015, I appreciated our role in being a patient safety champion given the emphasis on the meticulous and vigilant care and communication needed to safely move our patients through the different phases of perioperative care. Through the UW HQSC, we were able to create proposals in multidisciplinary groups to assess and act on patient safety and quality improvement opportunities that were presented to us every day.

WHAT LED YOU TO ESTABLISH THE HQSC SURGICAL SERVICES FUND?

All projects have startup costs, whether it be in the data collection or implementation phases, and I strongly believe that this should be mitigated by this Fund. The ability to propose brief but focused projects, rally the resources and assistance of leaders in other departments or avenues of healthcare, execute a project and delegate responsibilities, incorporate routine feedback to bring about continuous quality improvement using tools and paradigms such as PDSA cycles, publish

and present and, finally, the foresight and dedication to sustain these projects after trainees have graduated from the program are the objectives for this Fund.

WHAT IS YOUR ULTIMATE VISION FOR THE FUND?

Patient safety and quality improvement projects, and even the experience gained in brainstorming these projects, are important milestones for physicians looking to attain a role in healthcare administration at an institutional or departmental level. Furthermore, quality improvement and patient safety benchmarks are being used to compare outcomes and standardize best practices, and these tools will empower graduates of the program to be effective leaders both in their clinical realms as well as their multidisciplinary initiatives to improve healthcare delivery. Overall, I believe that medical education should train physician and administrative leaders as early on as possible without requiring a significant additional amount of time or money (as in a separate [Master of Health Administration degree] or other program). I see this fund as an alternative way to crowd-fund projects that are directly run by residents and mentored by their programs. Most importantly, crowd funding helps spread awareness of the specific issues that we deal with and encourages patient safety advocates—even patients themselves—to become involved and spread awareness of the project, the problem at hand, and the dedicated people behind the cause to a wider audience.
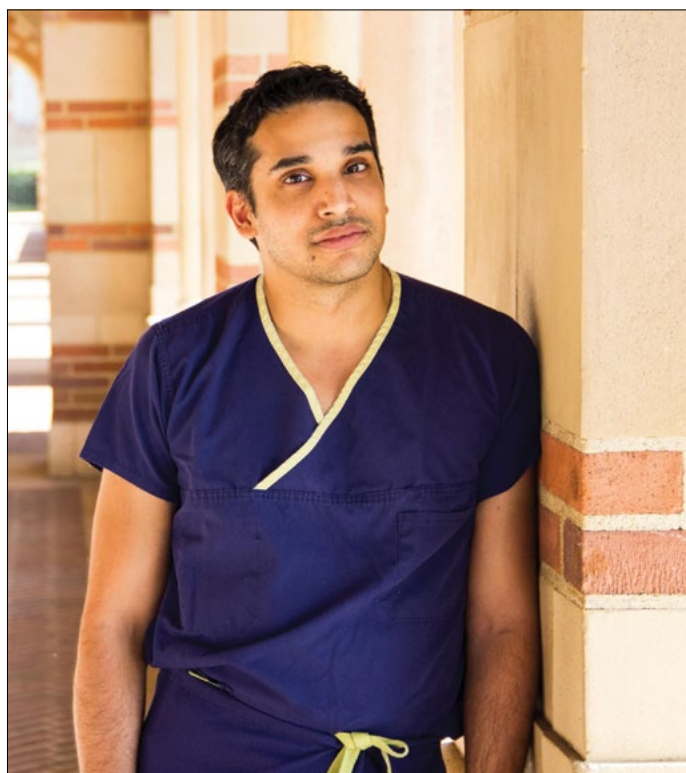
SQuIRREL

Author: Castrenze Fricano, MD

Affiliations: Department of Emergency Medicine, University of Washington, Seattle, WA

Our job is hard. Often, it's not the medicine but the logistics of patient care. Navigating our healthcare system is difficult. When working with patients you notice things that are not working and situations that are either unsafe or inefficient. It makes you wonder why this can't be fixed --not just for the patient in front of you but for all patients now and in the future. I remember filling out Patient Safety Network incident reports (PSNs) and thinking those things never went anywhere, just a place for residents to vent – like an electronic diary of the trial and tribulations of residency. Then I stumbled upon the Subcommittee for Quality Improvement, Reporting, Resident Engagement, & Leadership (SQuIRREL) as an intern.

I am Castrenze Fricano, a PGY-3 Emergency Medicine resident, initially just curious about where those PSNs went and now the co-chair of SQuIRREL, the resident PSN committee for UW Medicine. I have the distinct pleasure of working alongside Lauren Onofrey, a PGY-4 Internal Medicine Global Health Chief Resident and SQuIRREL co-chair, and with the many other residents who attend our monthly committee meetings. I want to make it clear to everyone that resident PSNs are taken very seriously.

Based on my experience, if you want to make our healthcare system better, I can think of no better way than to submit a PSN. Each month we come together to review resident submitted PSNs and work with hospital administration to address the problems we identify. For submissions that are particularly impactful they are selected for a Patient Safety Nut Award to acknowledge that resident's commitment to improving the care we provide patients at our hospitals. I encourage everyone to when they see something that is either not safe or could be improved upon, please think about writing a PSN. Then join us every second Tuesday of the month to discuss. Together we can help make UW Medicine better.

RESIDENT AND FELLOW AWARD WINNERS OF THE PATIENT SAFETY NUT AWARD

Paul Bordillon, MD

Shauna Dentler, MD

Deepthi Ennamuri, MD

Hiba Khan, MD, MPH

Michael Klaszky, MD

Mira John, MD

Noah Qualls, MD

Bryn Smith, MD

Katherine Wainwright, MD, MS

Improving the Reliability of Critical Inter-Facility Transfer Processes

Author: Chenwei Wu, MD

**Affiliation:** Veterans Affairs Puget Sound Health Care System, Seattle, WA

Following a patient safety event in 2017 and subsequent root cause analysis, VA Puget Sound embarked on a project to improve the reliability of critical inter-facility transfer processes on which emergency referrals for ST-elevation myocardial infarction (STEMI) depend whenever percutaneous coronary intervention (PCI) in not possible at the VA.

This effort involved stakeholders across three health systems (VA, Harborview Medical Center, and Swedish Cherry Hill peripherally) and benefited from the contribution of former VA Chief Residents in Quality & Safety who also served as HQSC co-chair (Drs. Stephanie Carr, Kailey Bolles, and Nikita Baclig).

The project provided a sandbox to explore advanced concepts in quality improvement including human factors design, procedural simulation, and behavioral "nudges" employing individualized provider feedback. It also tested various tools and models for project management intended to enhance sustainability.

Out of this effort was born an expedited transfer agreement between VA Puget Sound and Harborview Medical Center applicable to STEMI cases unable to be treated at the VA. The pathway was inaugurated in October 2019 and has been utilized eight times since, with six of those eight cases meeting the prescribed <45min timeliness goal. An additional five patients were referred to Swedish Cherry Hill during this same period.

The project was recently nominated for a national Veterans Health Administration High-Reliability Organization HeRO award, though it ultimately did not claim the top prize. Regardless, it delivers enhanced safety to critically ill veterans as well as greater piece of mind to healthcare teams thrust into crisis situations. These outcomes would not have been possible without the support of hospital, Emergency Medicine, and Cardiology leadership at both medical centers. The project team is grateful for the invaluable access and assistance provided by these key stakeholders.
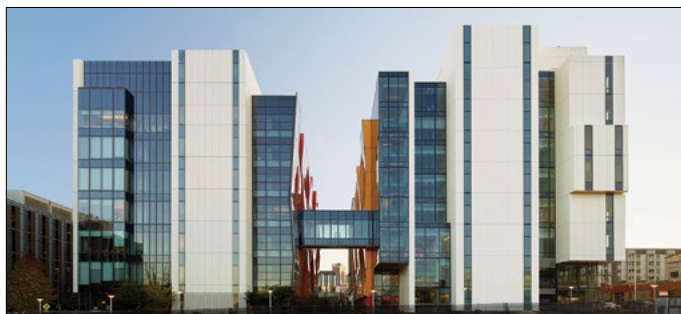
Residents/Fellows Information Technology Committee

Authors: Fima Macheret, MD[1,2]; Sarah Stewart, MD[2,3]

Affiliations 1. Division of Cardiology, University of Washington, Seattle, WA **2.** Department of Clinical Informatics, University of Washington, Seattle, WA **3.** Department of Pediatrics, Seattle Children's Hospital, Seattle, WA

The Residents/Fellows Information Technology Committee (RITC) is a diverse group of trainees interested in applying the electronic medical record to improve care for patients. RITC was started in 2021 for trainees to have a forum to network, develop and implement projects, have a direct connection to informatics at UW, and hear from leaders in the field. A secondary goal was to encourage members to consider a sub specialization in Clinical Informatics including but not limited to Clinical Informatics fellowship training and board certification through the American Board of Preventative Medicine. Members come from all areas of medicine, surgery, and the Clinical Informatics fellowship, and meet monthly to review projects and listen to guest speakers.

Leadership of the committee includes the UW Assistant CMIO, Dr. Angad Singh, the Clinical Informatics Fellowship program director, Dr. Mike Leu, and two co-chairs, Clinical Informatics fellow and Pediatrics attending Dr. Sarah Stewart, and 3rd year Cardiology fellow Dr. Fima Macheret.

RITC is lucky to have had a fantastic slate of speakers since its inception earlier this year. First, members heard from UW CMIO Dr. Todd Burstain and learned about the organization's efforts around D1 and beyond. He solicited input from trainees at the meeting about the implementation of D1 and continues to request feedback for iterative improvement. Next, members met with Dr. Suzinne Pak-Gorstein and learned how to incorporate digital health equity when designing new processes for patients. Finally, members hosted Dr. Bessie Young, the Medical Director and Associate Dean of the Office of Healthcare Equity, who guided our members in a discussion on how informatics projects could be best designed and implemented with equity in mind and how to utilize the EMR to assess for disparities in care. Their future speakers include experts in the fields of implementation and design of high-quality handoffs of care and provider dashboard utilization for fellow education.

The RITC membership comes with unique talents, experiences, and prior informatics projects. RITC has given members a forum to present microlectures on their work. For example, Dr. Philip Chung presented on natural language processing and Dr. Fima Macheret presented on personalized atrial fibrillation simulations.

Currently, RITC's members have begun working on collaborative projects, including on a procedure for obtaining and storing digital informed consent. The co-chairs themselves are also involved in informatics-related work. Dr. Stewart is currently studying the use of EHR physician usage metrics to improve physician EHR satisfaction at Seattle Children's and is involved in multiple operational projects throughout UWM IT and SCH IT. Dr. Macheret's current project overlaps with bioengineering and cardiac electrophysiology and involves the personalization of simulation of atrial fibrillation using 3D computer models derived from patient's cardiac MRIs before and after catheter ablation. RITC is beginning to collaborate with the HSQC to use informatics for their QI projects.

RITC is looking to grow and sustain its membership. The group meets on the first Wednesday of each month to go over outstanding projects and/or to hear from its guest speakers. If this is of interest to you, please reach out to the co-chairs directly at **fima@uw.edu** or **sarahst@uw.edu**. We would love to have you join our next meeting.
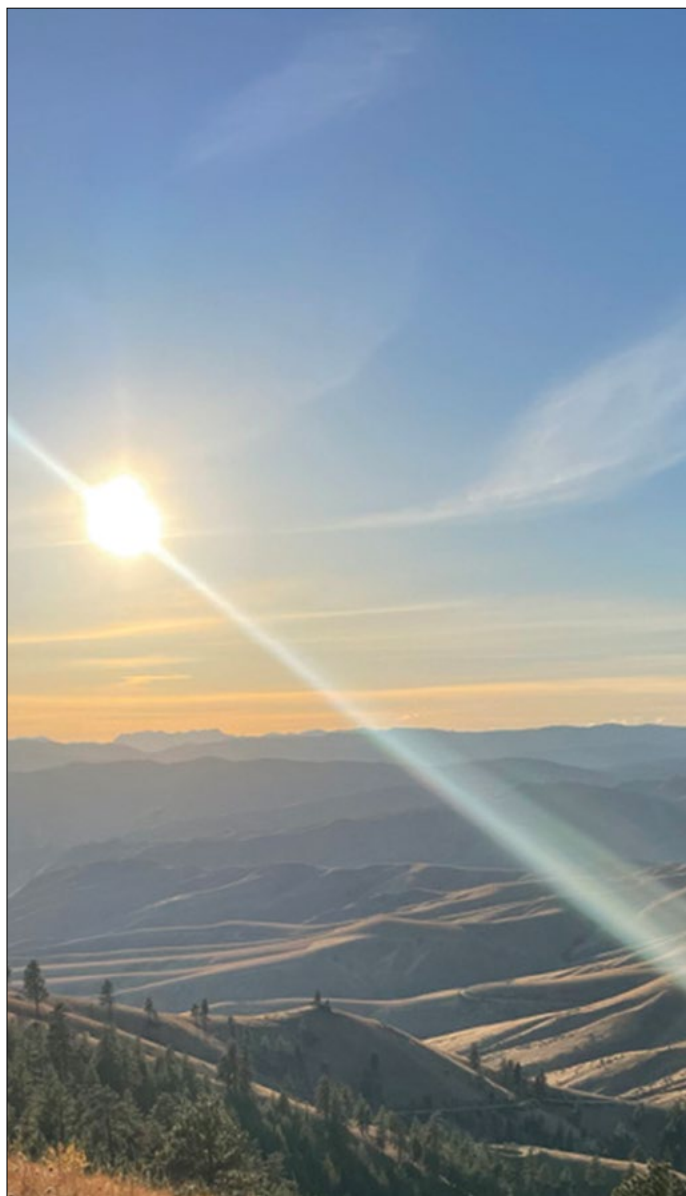
Photo: Kami Veltri, MD

University of Washington Network of Underrepresented Residents and Fellows (NURF)

Author: Joseph Nelson, MD

Affiliation: Department of Family Medicine, University of Washington, Seattle, WA

The University of Washington Network of Underrepresented Residents and Fellows is an organization that was founded in 2010 by a graduate of the UW Family Medicine Residency, Dr. Margaret Towolawi. This organization is dedicated to supporting and providing community for underrepresented residents and fellows throughout their medical training.

NURF also partners with UW Medicine Graduate Medical Education and the Office of Healthcare Equity to recruit and retain trainees and to provide education on a broad range of topics.

The focus of NURF is diversity, equity, inclusion, and most importantly, anti-racism and anti-discrimination. Most recently, we have held national virtual recruitment town halls, speaking to hundreds of applicants from underrepresented and underprivileged backgrounds. We have also developed a diversity lecture series focused around the concept of intersectionality and how that relates to medical education and training.

We are providing mentorship for medical students throughout the WWAMI-region and we have created an intern wellness series beginning in January 2022. We are also excited to once again partner with the Housestaff Quality & Safety Committee to host our annual Healthcare Equity Conference in May 2022.

Join our listserv by emailing **ncoronado@uw.edu** and follow us on Twitter at @UW_NURF for all upcoming events!

Articles
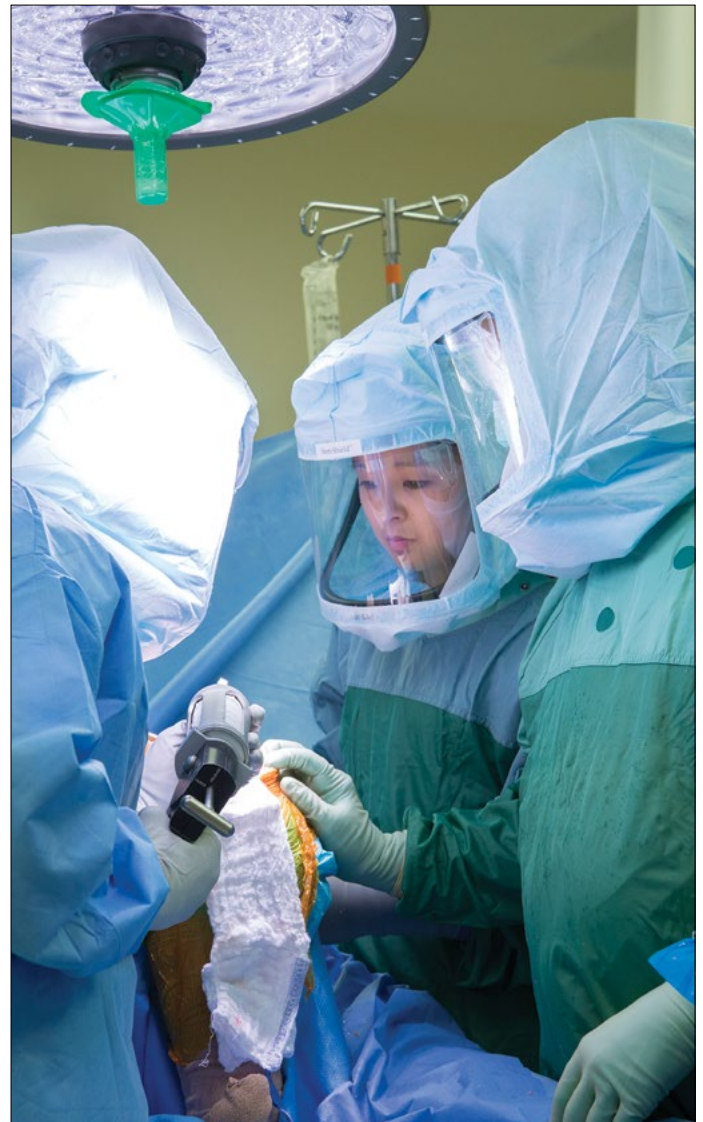
Collaborative Trainee-led Efforts to Improve Care for Patients Experiencing Incarceration

Authors: Colbey Ricklefs, MD, MPH[1]; Vinny Ervin[2]; Kami Veltri, MD[1]; Lyndsey Booker, MD[3]; Zoe Taylor, MD, MBA[1]; Heather Barnett, MD, PhD[3]

Affiliations: 1. Department of Family Medicine, University of Washington, Seattle, WA **2.** School of Medicine, University of Washington, Seattle, WA **3.** Department of Rehabilitation Medicine, University of Washington, Seattle, WA

INTRODUCTION

The events of 2020 have highlighted both the deeply entrenched racism in American society and the damage caused by mass incarceration and over-policing. In the summer of 2020 as national attention turned to the murder of George Floyd, one of many Black men and women killed by police, health care workers joined millions of people across the United States and the world protesting the profound injustice and racism in policing and criminal justice. In Seattle, an estimated 10,000 people joined a protest of health care workers organized by Edwin Lindo, JD, and Estell Williams, MD, in a march to City Hall to demand that public leadership declare racism and police violence as public health concerns.[1] At the same time, COVID-19 continued to spread, disproportionately affecting marginalized populations, essential workers, and those residing in congregate settings. Outbreaks of COVID-19 in correctional facilities have been devastating. The majority of the largest clustered outbreaks in the US have occurred in jails and prisons.[2] Mortality rates are three times greater than those among non-incarcerated populations,[3] likely due to overcrowding, poor sanitation, and limited medical care.

In this context, residents in the University of Washington (UW) system continued to frequently care for patients incarcerated at King County Jail, at other correctional facilities, and in police custody, particularly at Harborview Medical Center which is a primary teaching site for UW trainees. Patients incarcerated in King County's jails are a specifically identified mission population of Harborview Medical Center, but care for this population is challenging with significant structural limitations. Patients experiencing incarceration are some of the most vulnerable patients within the health care system. Compared to non-incarcerated patients, they are more likely to experience domestic violence, sexual assault, and substance use disorders. From an equity standpoint, the role of all health care workers is to advocate for patients involved with the criminal justice system. Furthermore, there is a strong health equity and racial justice component as people of color, especially those that identify as Black, are more likely to be involved in the criminal justice system as well as experience negative interactions with law enforcement officers. Due to the unique nature and marginalization of those experiencing incarceration, health care workers must mitigate harms to these patients.

In order to optimize care for these patients, trainees must be aware of their role, their rights, and their ability to advocate for their patients experiencing incarceration. Current policies at UW Medicine and Harborview inadequately support proper care for these patients, and trainees are often unprepared for these circumstances. To improve care of this patient population, a group of trainees create a designated Task Force to further investigate possibilities and targets for quality improvement.

TASK FORCE FORMATION

In July 2020, the Housestaff Quality and Safety Committee (HQSC) Subcommittee on QI Event Reporting & Resident-Engaged Learning (SQuIRREL) reviewed a submission to the patient safety network (PSN) in which a trainee expressed moral distress regarding the care of a patient from King County Jail (KCJ) who left the emergency department against medical advice despite their acute medical emergency due to the use of 4-point forensic restraints. Many members of SQuIRREL shared similar experiences of moral distress related to limitations in care for patients experiencing incarceration. Many of these experiences involved the use of restraints in unnecessary and sometimes unsafe situations, privacy violations during history and physical examinations, and limited communication with family. Residents discussed in union forums their discomfort in discharging patients back to KCJ during the height of the pandemic when the risk for infection in such a setting was known to be higher than in the hospital or community. A group of Internal Medicine residents struggled with the challenges of providing ethical care while attempting to navigate compassionate release for a patient who was incarcerated and diagnosed with a terminal illness while in the hospital, ultimately involving the hospital ethics team for assistance.

Discussions among residents led to the recognition that care for patients experiencing incarceration was a clinical area in need of further investigation and quality improvement. A task force of trainees involved in Network of Underrepresented Residents and Fellows (NURF), the UW Housestaff Quality and Safety Committee (HQSC), and the Resident and Fellow Physician Union, Northwest (RFPU-NW) formed to examine the factors involved in these situations. The task force explored how trainees can help improve care of patients and alleviate moral distress among health care workers. This trainee-led effort, the Task Force for Care of Patients Experiencing Incarceration, was supported through mutual involvement of leadership and membership, hosting related events and meetings, and information sharing. Group meetings are hosted approximately once a month and are ongoing.

Efforts and Interventions of the Task Force

Residents and fellows involved in the group were passionate about improving care for this patient population but faced barriers including limited knowledge related to the current circumstances, legal and system-wide policy ramifications, and attitudes toward this topic. With the overarching goal of improving care and equity to patients experiencing incarceration, the Task Force met with several key stakeholders (Table 1) to conduct a needs assessment. The Task Force also reviewed the UW and HMC policies on the intranet regarding these patients and identified areas for improvement.

After the key stakeholder meetings, the Task Force identified four key areas to target: (1) Research, (2) Education, (3) Policy, and (4) Community Involvement and Advocacy. The following are brief summarizations of each key area.

Research: The Task Force conducted a large-scale survey amongst UW Medicine health care staff, including residents, fellows, attending physicians, nurses, therapists, and others, receiving over 300 responses. The survey explored prior formal training, confidence in knowledge, interest in additional training, experiences in clinical settings, and opinions on policy and safety issues. While analysis of data obtained is ongoing, preliminary results suggest that few staff had formal training in working with this population. Confidence in caring for patients who are incarcerated and interacting with law enforcement varied. Most survey respondents felt that their lack of knowledge affected patient care. Respondents frequently noted their need for additional training.

Education: Based on survey data and information collected during the needs assessment, the Task Force worked to address the immediate knowledge gaps of the community. After extensive review of the hospital policies and discussion with correctional health care staff, the Task Force created educational materials for distribution among trainee and attending physicians. These educational materials included a 35-minute video providing an overview of the criminal justice system and mass incarceration in the US, basic information on caring for patients who are experiencing incarceration, top tips, case examples, and further contact information and resources. A one-pager for providers was created to highlight the main points of the video for easy reference during clinical care.These resources are available on the RFPU-NW website for residents and fellows.

Policy: The Task Force has been working with the Office of Healthcare Equity (OHEC) to plan for the creation of a committee to critically examine and revise current policies. The Task Force conducted a listening session with the members of the community that have interacted with the health care system while incarcerated to glean valuable insight.

Community Involvement and Advocacy: The Task Force has been collaborating with colleagues in San Francisco and Los Angeles on issues including policy revision, education of health care workers, and advocacy to reduce criminalization of patients in health care settings.

DISCUSSION AND NEXT STEPS

Although people incarcerated in King County's jails are a mission population at Harborview Medical Center, substantial challenges exist to providing optimal patient care to this population. Challenges include limited formal education and knowledge among health care workers, inadequate and often outdated policies, and interfacility communication difficulties. To truly serve this group of patients made vulnerable by overlapping injustices, ongoing efforts are needed to fully identify and understand the current barriers to care and design interventions to address these limitations. Improving the quality of care received by these patients is an issue of equity, ethics, and protection of the mental and emotional health of resident and trainee physicians.

The task force plans to continue investigating care of this patient population and working to improve the quality of care delivered. Next steps in each of the focus areas have been identified. The most critical focus at this time is formalizing the training module created and distributing these training materials to trainees and faculty. The Task Force is currently working with Graduate Medical Education to ensure the training materials meet UW standards. The training video will be shared on the task force website once all requirements are met. https://sites.uw.edu/cpeitaskforce The one-pager document will be optimized for sharing through UW's OCCAM resource page. In the interim, these resources can be shared with those interested and accessed by trainees through the RFPU-NW website. Feedback from health care workers and UW Medicine leadership will be collected. These resources are in the process of editing for non-UW affiliated health care workers and facilities. Regarding research, the data obtained from our survey will be thoroughly analyzed, shared with the UW Medicine community, and submitted for academic publication. We hope the results will inform health care workers both within and outside of our system. Hospital policies may be reviewed and revised in the future. We will continue to work with the OHEC to create a committee to review and update hospital policies. National groups continue to grow, and Task Force membership will continue to support nationwide efforts in addressing care of patients who are incarcerated, police presence in hospitals, and the various ways in which health care systems participate in criminalization of patients.

We hope that this is just the beginning of efforts to improve medical care, wellbeing, and overall outcomes for the increasing number of people incarcerated in the United States, who are disproportionately Black and brown men. Please contact the authors, HQSC, NURF, or RFPU-NW leadership if you have questions or would like to be involved in ongoing QI efforts in this area.

Table 1: Stakeholders

UWMC Nurse Care Managers
HMC ED Charge RN
HMC ED Attending
Jail Health Physician experts Drs. Lara Strick & Marc Stern
King County Jail Medical Director
Hospital leadership
Office of Healthcare Equity
Physicians/activists at other institutions in San Francisco/Los Angeles
Community members who received medical care while incarcerated

References

1.Weinberger, H. Seattle health workers march to expose racism as a health crisis. Crosscut. June 10, 2020. Accessed November 4, 2021. https://crosscut.com/2020/06/seattle-health-workers-march-expose-racism-health-crisis

2. Macmadu A, Berk J, Kaplowitz E, Mercedes M, Rich JD, Brinkley-Rubinstein L. COVID-19 and mass incarceration: a call for urgent action. Lancet Public Heal. 2020;5(11):e571-e572.

3. Novisky MA, Nowotny KM, Jackson DB, Testa A, Vaughn MG. Incarceration as a Fundamental Social Cause of Health Inequalities: Jails, Prisons and Vulnerability to COVID-19. Br J Criminol. 2021;61(6):1630-1646.

Articles

Engaging Physician Trainees in Quality Improvement: A Narrative Review of Residency QI Curriculum Development

Author: Daniel Pierce, MD[1,2]

Affiliations: 1. Department of Rehabilitation Medicine, University of Washington School of Medicine, Seattle, WA **2.** Rehabilitation Care Services, Veterans Affairs Puget Sound Health Care System, Seattle, WA

INTRODUCTION

Compared with other fields, innovation in medicine has traditionally required more time for implementation due to rigorous evidentiary standards set in place to "first do no harm."[1] There is growing pressure, however, for healthcare systems to deliver higher-quality care and to do so more efficiently. Physicians today are expected now, more than ever, to be key drivers in organizational pursuits of high-value care. Economic conditions, legislative agendas, and public perception lead to large scale healthcare changes, but physicians in any clinical setting can drive positive change through formal quality improvement (QI) activities. Formal training in QI methods is a new and expanding discipline for physicians and, to this end, much has been written on the creation and implementation of QI curricula both as continuing faculty education[2] as well as during medical training.[3-5] This paper presents a narrative review of one residency program's efforts to enhance its formal QI training and highlights the importance of engaging physician trainees in this process.

HISTORY OF QUALITY IMPROVEMENT

While the modern quality improvement and the separate, though closely aligned, patient safety movements have found a renewed prominence in twenty-first century healthcare, committed physicians have always strived to provide excellent care for their patients. Early champions such as Ignaz Semmelweis, Florence Nightingale, and Ernest Codman[6] recognized the importance of systematic, data-driven innovation in care. While their ideas were not always immediately adopted, they laid the foundation for others, such as Avedis Donabedian and W. Edwards Deming, to formalize many of the QI concepts that we use today.[7] Many factors, including high-profile patient injuries and frustration with the bureaucratization of healthcare[8] set the stage for a renewed interest in the quality and patient safety (Q/PS) movements with the Institute of Medicine's (IOM) 1999 document, "To Err is Human."[9] This, along with "Crossing the Quality Chasm,"[10] another seminal report by the IOM that was published shortly thereafter, reemphasized the prevalence of medical harm and advocated for a redesign of US healthcare to focus on providing quality care. Further growth was later fueled by financial incentives embedded within the American Recovery and Reinvestment Act of 2009 as well as the Patient Protection and Affordable Care Act of 2010 (ACA)11 leading to further focus on Q/PS research and implementation.[12]

Although hospital systems dedicate a significant amount of resources to QI work, physicians have traditionally been less involved with improvement initiatives than nurses and administrators in both US[13] and Canadian[14] hospital systems. The 2003 Commonwealth Fund National Survey of Physicians and Quality of Care found that only 34% of physicians reported having been involved in some form of QI.[15] Commonly reported barriers to physician involvement in QI initiatives include time prioritization and budgetary constraints.[14] This lack of physician participation provoked a concerted effort to require physician trainees to have structured QI education and prepare a new generation of clinicians dedicated to system improvement.

QI IN MEDICAL EDUCATION

The Accreditation Council for Graduate Medical Education (ACGME) included QI training within graduate medical education core competencies soon after the IOM reports were published. ACGME competencies for trainees, such as IV.B.1.d).(1).(d) "systematically analyzing practice using quality improvement methods, and implementing changes with the goal of practice improvement,"[16] were formed to guide programs' curriculum development. The ACGME also organized the Clinical Learning Environment Review (CLER) program to monitor residency and fellowship programs' implementation of these competencies. Although there was some longitudinal improvement since the inception of the competencies, the 2016 CLER report noted that "many teaching hospitals, medical centers, and ambulatory care practices were not consistently engaging residents and fellows in the beneficial practices implemented following the IOM reports."[17] They also warned, "if we are to produce physicians skilled in and able to lead quality and safety programs in their chosen specialty upon graduation, this engagement must systematically occur during their residencies and fellowships."[17] Although there was some improvement in the following (2018) reporting cycle,[16] it was still reported that at 55.1% of clinical learning environments (CLE), residents and fellows had limited knowledge or understanding of basic QI terminology and methods. They also reported that while at least some type of QI education was common as part of new resident and fellow orientation, only a limited number of centers aimed to provide ongoing education for all trainees. Often, resident and fellow participation was limited to planning and implementing a QI activity without a formal assessment the effectiveness of that intervention,[18] which led to a lack of understanding of the methodology.

There are many approaches to teach QI methods, including formal lectures, web-based modules, and small group learning sessions.[19] Medical training has traditionally been experiential in nature and trainees can effectively learn skills through designing and implementing a project of their own. This practical application of knowledge can also help improve quality and patient safety at the local institution as medical housestaff are uniquely suited to find inefficiencies in systems of care and can provide great insight into potential areas for improvement.[20]

CURRICULUM DEVELOPMENT AND IMPLEMENTATION

To both improve the education of our residents and more fully comply with ACGME requirements,[16] our residency program redesigned and expanded its QI curriculum in 2018. The program has 25 residents in the second through fourth Post Graduate Years of study (PGY2-4), as well as four clinical fellows (PGY5). The new curriculum was designed to be both didactic and experiential in nature and would encompass the entire academic year to provide longitudinal learning and allow senior trainees to finish a project before graduation. Prior to delivering formal didactic lectures, all residents completed the Institute for Healthcare Improvement (IHI) Open School Online Course: Basic Certificate in Quality & Safety and were invited to complete a pre-curriculum survey. A series of didactic lectures reinforcing QI language and methodology were given and small group breakout sessions focused on the application of IHI model of improvement, including Plan Do Study Act (PDSA) methodology. Five groups of five residents each chose a specific QI project to perform over the ensuing academic year. The groups were given monthly protected time during regularly scheduled academics to coordinate designing and implementing the projects. Each group initially presented their proposed project to the hospital quality committee and were assigned mentors from the hospital administration to facilitate interdepartmental collaboration. To reinforce IHI methodology, the groups were given two months for the project planning stage ("Plan") and then three months for implementation ("Do, Study, Act") of their intervention. At that end of the academic year, each group gave a formal presentation on their project's outcomes and a trophy was awarded to the most outstanding project of the year. QI projects included optimizing code blue responses, improving provider compliance to Clostridium Difficile practice guidelines, improving patient sleep during inpatient admissions, improving accuracy of admission medication reconciliation, and early identification of paroxysmal sympathetic hyperactivity.

Trainee feedback was elicited, leading to earlier implementation of the structured curriculum in the following academic year. As each group had only achieved 1 PDSA cycle in the previous year, more time was allocated for project implementation to facilitate multiple iterations of PDSA. The curriculum in the second year again culminated with a formal presentation of each project along with another trophy reward.

CURRICULUM EVALUATION

Prior to starting each iteration of the QI curriculum, each resident was invited to complete an anonymous pre-curriculum survey. The survey, modeled after Venugopal et al.,[21] measured previous experience with and attitude toward QI using five separate Likert-like scale questions and two yes/no questions. A post-curriculum survey repeated these questions, along with 11 additional questions, based on the Swedish Improvement Measurement Questionnaire,[22] to highlight barriers encountered throughout the project and provide feedback on the content and structure of the course. Comparison analysis was completed using STATA/MP version 16.1 and the level of significance was defined as .05. Pre- and post- Likert-like survey responses were compared using ANOVA and dichotomous variable (yes/no survey responses) were compared using Fisher exact test.

RESULTS

A total of 21 out of 25 residents (84%) completed the pre-curriculum survey prior to the initial implementation of the curriculum, of which 52.4% had participated in QI to some extent prior to starting. To maintain a consistent cohort across the two years, we limited our comparative analysis to the residents of the two academic classes that participated in both iterations of the QI curriculum (PGY2-3 during the first year). Of these 17 residents, 14 (82.4%) completed the pre-curriculum survey in 2018, eight (47.0%) completed the post-curriculum survey after year one (Y1), and 15 (88.2%) completed the post-curriculum survey after year two (Y2) (Figure 1). After completing two full iterations of the curriculum, knowledge in QI increased, which was assessed through survey questions on understanding and confidence in using QI. Resident enthusiasm, as measured in questions 5-7 (Figure 2), did not increase, however. The primary barriers to completing the QI projects were felt to be lack of administrative attention, lack of available personnel, and resident time constraints.

DISCUSSION

In "Crossing the Quality Chasm," the IOM described six domains

Figure 1: Survey responses (number %)

		Pre-Y1	Post-Y1	Post-Y2	p
1. Have you participated in Quality Improvement (QI) in the past?	Yes No	42.9% 57.1%	100% 0%	100% 0%	<.001
2. Are you aware of current QI projects in our institutions?	Yes No	21.4% 78.6%	62.5% 37.5%	86.7% 13.3%	<.001

Figure 2: Survey responses (Likert-like scale 1-5)

	Pre-Y1 Likert Mean [Likert SD]	Post-Y1 Likert Mean [Likert SD]	Post-Y2 Likert Mean [Likert SD]	p
3. What is your understanding of QI methods?	2.9 [0.7]	3.3 [0.5]	3.7 [0.7]	.02
4. How confident do you feel in undertaking/leading a QI project?	2.8 [1.3]	3.5 [1.2]	3.9 [0.6]	.03
5. To what extent do you think that physicians should be involved in QI	3.2 [0.7]	2.9 [1.4]	3.7 [0.6]	.15
6. How interested are you in initiating a QI project?	2.7 [1.0]	2.5 [0.8]	2.8 [1.2]	.81
7. How much do QI projects contribute to improving your work as a resident?	2.5 [0.6]	2.6 [0.9]	2.1 [0.9]	.21

of health care quality: safety, effectiveness, patient-centeredness, timeliness, efficiency, and equity.[10] A decade after its publication, there was still little improvement in national benchmark quality measures tracked by the Agency for Healthcare Research and Quality (AHRQ).[23] This lack of progress was thought to be due to innovation implementation failure.[1] Innovation can come from a top-down approach with changes in policy and organizational structure, or they can be developed through provider-driven QI initiatives. This bottom-up approach is dependent, however, on physicians competent and willing to engage in QI work.

Physician quality improvement experts must be developed while in training. On QI education, ACGME states, "The intention of this Competency is to help a physician develop the habits of mind required to continuously pursue quality improvement, well past the completion of residency."[16] The quality and quantity of QI training available for physician trainees has been steadily increasing for the past two decades. To ensure physician adoption and application of this knowledge after completion of medical training, there will need to be an improvement in trainee attitudes toward QI throughout the learning process. While the residents in this program felt more capable in leading a project, their enthusiasm for the further QI involvement was largely neutral and unchanged. Participation in improvement projects to "check off a box" required for graduation from residency would be suboptimal motivation to promote meaningful change, just as would be for practice improvement solely for maintenance of board certification of attending physicians. Malhotra et al. suggested six steps to increase resident participation in quality improvement: establish a formal curriculum, optimize instructional methods, address institutional culture and values, support faculty QI champions, integrate and align with the hospital system, and celebrate successes and make QI efforts visible.[24] While our curriculum did not initially designate faculty QI champions as suggested, it made a concerted effort to address each of the other five recommendations. The lack of improvement seen in enthusiasm following our curriculum implementation is multifaceted and not likely limited to our program.

A recent qualitative study demonstrated that much of the tension residents experience regarding structured QI education is that they are "unclear, unsure, and not in agreement about the purposes and meaning of QI initiatives as part of the training."[25] While there is still a perceived gap in QI knowledge,[26] there is a large focus in residency training programs to teach this knowledge. However, as residency and fellowship programs develop and improve their QI curricula, a greater effort should be placed on helping trainees internalize the purpose behind and benefits of quality improvement.[27] Other interventions have included dedicated QI rotations and practice utilizing standardized QI knowledge assessment tools.[28,29] One unique idea was to use a murder mystery theme to teach the QI/PS tool of a root cause analysis (RCA).[30] Another potentially useful way to increase participation is to emphasize publication of QI projects upon completion, such as is routinely expected with trainee-led research. Residents that take research and

quality improvement projects through to publication can improve fellowship and job application status[31] but, more importantly, will develop skills necessary to become well-rounded clinicians. Finally, in a time where burnout and dissatisfaction are prevalent among healthcare workers,[32] improved efficiency in healthcare delivery processes will decrease clinician burden and lead to improved long-term physician sustainability. QI projects often prioritize interventions to address the safety and effectiveness of medical care,[33] but trainees should also be encouraged to develop new ways to deliver quality care in a more efficient manner.

Residents and fellows can be empowered to utilize QI processes throughout their career through mastery of skills during residency training. As this is a narrative review of one program's curriculum implementation, it cannot necessarily be generalized across all training programs. However, as was seen here, medical education programs must concentrate on helping trainees develop enthusiasm for QI for it to be fully internalized. Residents that are confident implementing quality improvement methods during their clinical training will be uniquely positioned to continue driving innovation in healthcare in the future.

References

1. Nembhard IM, Alexander JA, Hoff TJ, Ramanujam R. Why Does the Quality of Health Care Continue to Lag? Insights from Management Research. Academy of Management Perspectives 2009;23:24-42.

2. van Schaik SM, Chang A, Fogh S, et al. Jump-Starting Faculty Development in Quality Improvement and Patient Safety Education: A Team-Based Approach. Acad Med 2019;94:1728-32.

3. Bartlett CS, Huerta SA. Creating Change: An Experiential Quality Improvement and Patient Safety Curriculum for Medical Students. MedEdPORTAL 2018;14:10660.

4. Potts S, Shields S, Upshur C. Preparing Future Leaders: An Integrated Quality Improvement Residency Curriculum. Fam Med 2016;48:477-81.

5. Shelgikar AV, Priddy C, Harrison RV. Meeting ACGME and ABMS Quality Improvement Requirements in a Sleep Medicine Fellowship Program. J Clin Sleep Med 2017;13:1177-83.

6. Marjoua Y, Bozic KJ. Brief history of quality movement in US healthcare. Curr Rev Musculoskelet Med 2012;5:265-73.

7. Harolds J. Quality and Safety in Health Care, Part I: Five Pioneers in Quality. Clin Nucl Med 2015;40:660-2.

8. Sutcliffe K, Wears R. Still Not Safe: Patient Safety and the Middle-Managing of American Medicine. Oxford: Oxford: Oxford University Press; 2019.

9. Medicine Io. To Err Is Human: Building a Safer Health System. Washington, DC: The National Academies Press; 2000.

10. Medicine Io. Crossing the Quality Chasm: A New Health System for the 21st Century. Washington, DC: The National Academies Press; 2001.

11. Rosenbaum S. The Patient Protection and Affordable Care Act: implications for public health policy and practice. Public Health Rep 2011;126:130-5.
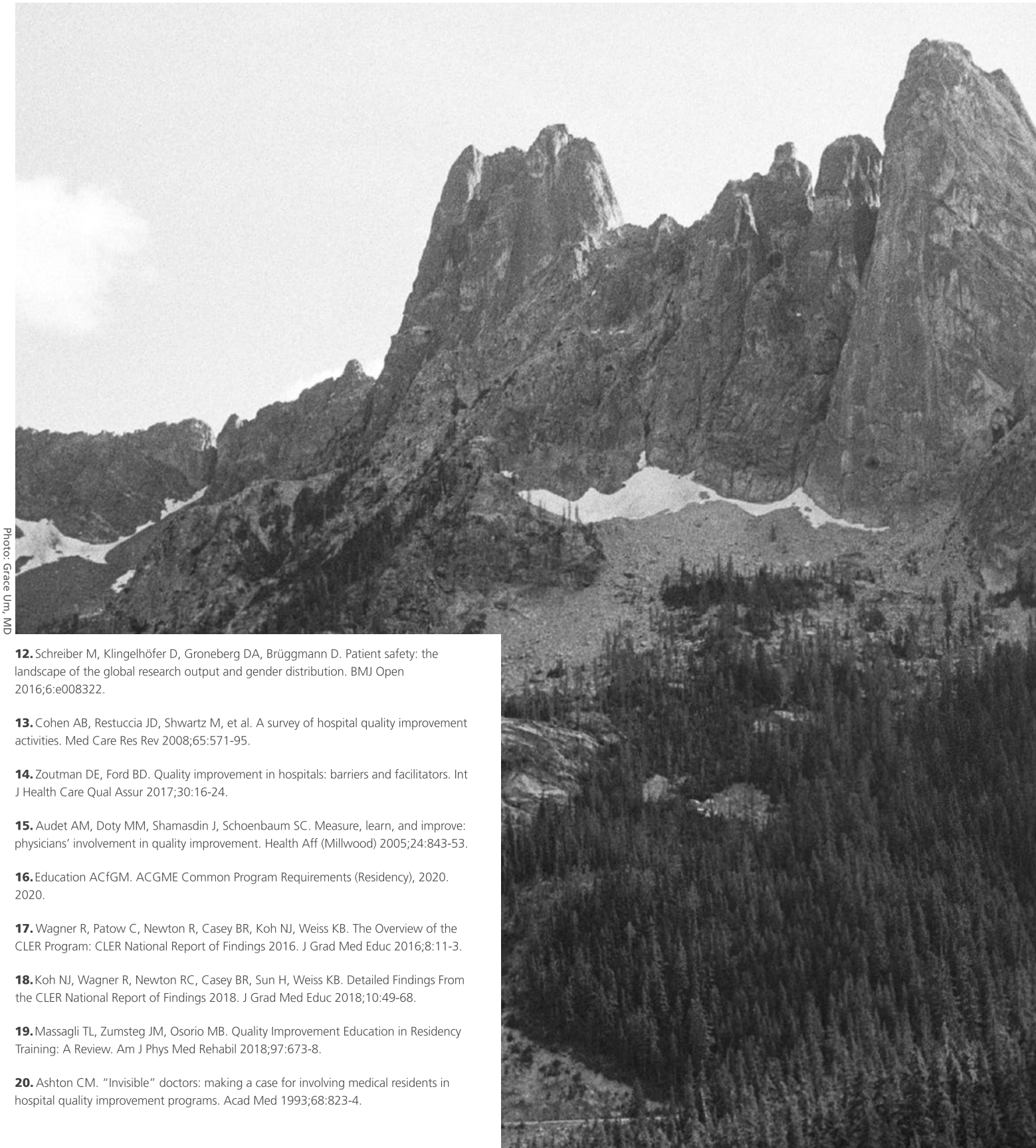
Photo: Grace Um, MD

12. Schreiber M, Klingelhöfer D, Groneberg DA, Brüggmann D. Patient safety: the landscape of the global research output and gender distribution. BMJ Open 2016;6:e008322.

13. Cohen AB, Restuccia JD, Shwartz M, et al. A survey of hospital quality improvement activities. Med Care Res Rev 2008;65:571-95.

14. Zoutman DE, Ford BD. Quality improvement in hospitals: barriers and facilitators. Int J Health Care Qual Assur 2017;30:16-24.

15. Audet AM, Doty MM, Shamasdin J, Schoenbaum SC. Measure, learn, and improve: physicians' involvement in quality improvement. Health Aff (Millwood) 2005;24:843-53.

16. Education ACfGM. ACGME Common Program Requirements (Residency), 2020. 2020.

17. Wagner R, Patow C, Newton R, Casey BR, Koh NJ, Weiss KB. The Overview of the CLER Program: CLER National Report of Findings 2016. J Grad Med Educ 2016;8:11-3.

18. Koh NJ, Wagner R, Newton RC, Casey BR, Sun H, Weiss KB. Detailed Findings From the CLER National Report of Findings 2018. J Grad Med Educ 2018;10:49-68.

19. Massagli TL, Zumsteg JM, Osorio MB. Quality Improvement Education in Residency Training: A Review. Am J Phys Med Rehabil 2018;97:673-8.

20. Ashton CM. "Invisible" doctors: making a case for involving medical residents in hospital quality improvement programs. Acad Med 1993;68:823-4.

Articles

Implementation of An Interactive COVID-19 Vaccine Hesitancy Workshop for Internal Medicine Residents and Medical Students

Authors: Vince Raikhel, MD[1,2]; Kevin Blau, MD[1,2]; Katherine Albery, DO[1,2]

Affiliations: **1.** Department of Medicine, University of Washington, Seattle, WA **2.** Department of General Internal Medicine, Veterans Affairs Puget Sound Health Care System, Seattle, WA

INTRODUCTION/ NEEDS AND OBJECTIVES

Since being first identified in December 2019, infections from SARS-CoV-2 have resulted in millions of hospitalizations and hundreds of thousands of deaths worldwide. A significant development to counter these outcomes has been the creation of vaccines for SARS-CoV-2. Currently, three COVID-19 vaccines are available in the United States. Despite wide accessibility and robust protection from severe COVID-19 infection, a sizable minority of the US population remains unvaccinated. Individuals' reasons for vaccine hesitancy vary depending upon their social, cultural, and media environments. Internal Medicine trainees at the University of Washington have received little formal training related to engaging patients with COVID-19 vaccine hesitancy. We aimed to create and implement a workshop that empowers learners with a framework for understanding vaccine hesitancy subtypes and discussing patients' reservations around receiving a COVID-19 vaccine with the goal of increasing vaccine acceptance among this population.

SETTING AND PARTICIPANTS

The participants were 3rd year medical students and Internal Medicine residents in their PGY1 and PGY2 years who were rotating onto medicine ward teams at the VA Puget Sound in Seattle, Washington. This intervention was part of a broader strategy to increase inpatient engagement with patients on COVID-19 vaccination status.

DESCRIPTION OF PROGRAM/INTERVENTION

Residents have received little training in addressing specific concerns of patients regarding COVID-19 vaccine hesitancy. To address this, we created and implemented a vaccine hesitancy workshop. The workshop is offered every four weeks at the beginning of residents' and medical students' hospital medicine rotations. The 60-minute interactive workshop provided learners with a framework for understanding four major subtypes of COVID-19 vaccine hesitancy: cost-anxious, system distruster, watchful, and COVID-denier. Learners were broken into groups of 3 and given 3 patient/provider scenarios – each of which highlighted a different vaccine hesitancy subtype. Learners engaged in role play, practicing understanding the patient subtype presented in each scenario and tailoring their counselling to that specific patient's concerns. Each role play was debriefed in a large group.

EVALUATION - MEASURES OF SUCCESS

Learners were given a pre-assessment survey before participating in the workshop (Table 1). The assessment asked questions relating to learner perspective on the importance of engaging patients on their COVID-19 vaccination status while admitted, as well as their confidence and previous experience in having these discussions. Learners were given a post-implementation assessment at the end of their inpatient rotation, 2 weeks after participation in the workshop.

100% of learners reported feeling as though counselling patients who were unvaccinated for SARS-CoV-2 is an especially important task to complete during an inpatient admission. 60% of participants felt as though they could tailor their counselling to the specific concerns of a patient before the workshop, which increased to 80% in the post implementation assessment survey.

Learners were asked to record administered vaccinations as well as the number of patients who were counselled but declined vaccination. In the 4-week rotation prior to the implementation of this intervention, resident teams reported 20% of patient engagements on COVID-19 vaccination resulted in a patient declining vaccination. The cohort of residents who participated in the intervention reported 11% of patient engagements on COVID-19 vaccination resulted in a patient declining vaccination.

DISCUSSION / REFLECTION / LESSONS LEARNED

We observed a reported increase in learner confidence in tailoring discussions regarding COVID-19 vaccine hesitancy to specific patients after this intervention. There was also a correlation between the implementation of the vaccine hesitancy workshop and a decrease in number of patients on VA medicine ward teams who declined COVID-19 vaccination. While we are encouraged by these results, the decrease in the number or reported patient who declined COVID-19 vaccine administration is likely the result of multiple factors including the effects of the recent delta surge and vaccine mandates. As we seek to engage all members of the healthcare team, we have noticed that medical students can have a primary role in initial vaccination counseling. Further work is needed to better characterize what impact this intervention is having on COVID-19 vaccine hesitancy engagement for internal medicine residents. One consideration would be to look at the number of COVID-19 vaccinations administered as an inpatient per number of total admissions in comparison to a different VA location in a city with similar demographics. While this intervention was developed and employed for patients in the inpatient setting, there is room for further exploration of this intervention with providers in the outpatient setting. Further work is needed in developing effective communication frameworks between patients and medical providers on COVID-19 vaccine hesitancy.

Internal Medicine Residents and Medical Students taking part in the vaccine hesitancy workshop at the VA Puget Sound.

Medical teams tally their progress in counselling patients for COVID 19 vaccination. Vaccine Hesitancy was encountered by the medical teams.

Table 1: Participant responses to pre workshop survey.

Level of training	
Medical Student	45%
Intern	45%
Senior Resident	10%

Counselling vaccination for COVID 19 is an important task to accomplish for an unvaccinated patient while they are admitted as an inpatient.		I feel as though I can identify the subtype os vaccine hesitancy in a patient who is resistant to obtaining a COVID 19 vaccination.		I feel as though I can tailor my counselling for COVID 19 vaccination to the specific concerns of my patient.		How many unvaccinated patients have you successfully counselled to obtain a COVID 19 vaccine (in the inpatient or outpatient setting)?	
Yes	100%	Yes	47%	Yes	71%	0	45%
No	0%	No	53%	No	29%	1-2	27%
						3-5	22%
						5-10	4%
						10+	0%

Photo: Kami Veltri, MD

Articles

Implementation of a Quality Improvement Gamification Intervention for COVID-19 Vaccination Task Engagement in the Inpatient Setting

Authors: Vince Raikhel, MD[1,2]; Kevin Blau, MD[1,2]; Katherine Albery, DO[1,2]; Chenwei Wu, MD[1,2]

Affiliations: 1. Department of General Internal Medicine, VA Puget Sound Health Care System, Seattle, WA **2.** Department of General Internal Medicine, Veterans Affairs Puget Sound Health Care System, Seattle Division

INTRODUCTION

Infections from COVID-19 have resulted in many hospitalizations and deaths. The rapid development of COVID-19 vaccines has been significant paradigm shift for public health. Currently three COVID-19 vaccines are available in the United States. Many outreach campaigns have been aimed at persuading unvaccinated individuals to accept a COVID-19 vaccine. Most of this work has been pursued in ambulatory and community settings with significant impact. Despite these efforts, a minority of the population remains unvaccinated. While hospitalized, many patients who have not been vaccinated for COVID-19 have an opportunity to be offered vaccination and have their concerns discussed with a health care team. Despite this opportunity to engage with hospitalized patients on vaccination status, competing interests take clinicians' time and attention away from this issue. We sought to create a quality improvement projected aimed at increasing the rates of COVID-19 vaccination in patients admitted to acute care medicine teams at VA Puget Sound Health Care System (VAPSHCS).

METHODS

An analysis of patients admitted to acute care medicine teams at VAPSHCS found that on average over the month of July 2021 there were 10 individuals who are either unvaccinated or whose vaccination status has not been verified. Staffing limitations precluded the development of a nurse-driven protocol to screen COVID-19 vaccination status upon admission; consequently, a provider-driven protocol was required. VAPSHCS acute care medicine service is comprised of four teams staffed by residents from the University of Washington Internal Medicine Program who rotated on four-week blocks. Taking advantage of this continual staff turnover, we implemented a "Vax the Max" competition between the four resident teams.

Resident teams were awarded points for patient engagement regarding COVID-19 vaccination. Patients could be administered any of the three currently available COVID-19 vaccines (Pfizer, Moderna, Johnson and Johnson), and the same number of points was allocated per injection regardless of manufacturer. Points were also awarded for confirming previous COVID-19 vaccinations status, scheduling COVID-19 vaccination after discharge, and counselling patients who were expressing vaccine hesitancy.

Resident teams tallied their engagement with patients on COVID-19 on scorecards placed in team rooms. Score cards were collected weekly. The team with the highest score at the end of the week was given a trophy for their team room. The trophy rotated location depending on the weekly "Vax the Max" team winner. Weekly winners were also announced at Morning Report conference and displayed on the chief resident office door. At the end of each four-week block the cumulative score for all the teams was tabulated. The team with the highest number of total block points received a congratulatory certificate signed by VAPSHCS and Internal Medicine Residency program leadership.

RESULTS

We observed an increase in inpatient COVID-19 vaccination administration at VAPSHCS since implementation of the "Vax the Max" competition. At the time of submission, 3 groups of residents have participated in the competition. The number of COVID-19 vaccines administered have increased with each round of participating residents with 9 being administered with the first group, 21 with the second, and 47 in the third group of residents. We have also observed significant documentation relating to previous COVID-19 vaccination status. Previous COVID-19 vaccination administration was captured with 86 patients in the first group, 79 patients in the second group, and 37 in the third group. COVID-19 vaccination was scheduled after inpatient hospitalization for 3 patients.

DISCUSSION

We noted an increase in the administration of COVID-19 vaccination to patients admitted to medicine ward teams at VAPSHCS since launching the "Vax the Max" competition. We also noted an increase in engagement with patients on COVID-19 vaccination including increased confirmation of previous vaccination status as well as more attention paid to counselling on vaccine hesitancy. This intervention took advantage of the fact that the medicine ward teams at VAPSHCS are staffed by a rotating group of trainees every 4 weeks. While high staff turnover normally makes practice sustainment more challenging, the gamification of COVID-19 vaccine-related tasks empowered a high degree of engagement by residents, possibly due to the limited timeframe preserving a sense of novelty.

Our intervention has limits. Challenges could be encountered while scaling this intervention to larger areas of practice. The intervention would face challenges if implemented in the context of a more stable workforce as interest in the gamification of COVID-19 vaccination tasks may wane over time. Further work is needed to continue efforts to maintain provider engagement with patients on COVID-19 vaccination status in the inpatient setting.

The Top Banana trophy rotates location based on the team with the most points awarded through COVID-19 vaccination task engagement.

The block 5 'Vax the Max' champions holding their trophy and certificates signed by VA and Internal Medicine leadership.

Photo: Sheila Attaie, DO

Quality and Safety of Sedation and Monitoring in Patients Undergoing Transesophageal Echocardiography at Harborview Medical Center

Authors: Andrew M. Pattock, MD[1]; Cooper B. Kersey, MD[1]; Matthew Johnson, MD[2]; Abhijit V Lele, MBBS, MD, MS, FNCS[2]; Younghoon Kwon, MD, MS, FACC[3]

Affiliations: **1.** Department of Medicine, University of Washington, Seattle, WA **2.** Department of Anesthesiology & Pain Medicine, University of Washington, Seattle, WA **3.** Division of Cardiology, University of Washington, Seattle, WA

ABSTRACT

Transesophageal Echocardiography (TEE) is a common cardiac imaging procedure used for a variety of indications. Current echocardiographic practice guidelines offer no specific recommendations or guidance on whether the performing cardiologist or an anesthesiologist should provide sedation for TEE. Several studies have reported on complications for patients undergoing TEE, but none have investigated factors influencing sedation status. Intra-procedural complication rates and safety across trends in sedation practices have not been studied robustly. We reviewed cases of patients who had undergone complete, clinically indicated TEE from 10/30/2015 through 12/31/2019 at Harborview Medical Center. A total of 914 TEEs were analyzed with cardiology providing procedural sedation in 52% of cases. Patients undergoing anesthesiology-administered sedation were of similar age, more were male (74.9% vs 67.2%, p=0.0119), and had a higher mean body mass index (29.8 vs 26.9, p<0.001). Left ventricular ejection fraction of less than 30% (p<0.001), moderate to severe dysfunction of the right ventricle (p=0.005), and pulmonary artery pressure of more than 40 mm Hg (p=0.19) were all significantly associated with anesthesiology-administered sedation. Significant discrepancies between the local moderate sedation screening tool and actual sedation practices were noted. Large differences existed in intra-procedure documentation between anesthesiology and cardiology administered sedation. More work is needed in analyzing procedural outcomes and costs between the two services to inform practice guidelines on determining optimal sedation practices for TEE.

INTRODUCTION

Transesophageal Echocardiography (TEE) is a common cardiac imaging procedure used for a variety of indications: assessing for endocarditis, identifying an intracardiac source of thrombus, visualizing native or prosthetic valve pathologies, or evaluating for aortic dissection.[1-3] Moderate sedation, which is defined as purposeful response to verbal or tactile stimuli with spontaneous ventilation, is the typical form of sedation according to the 2013 guidelines for performing TEE from the American Society of Echocardiography and the Society of Cardiovascular Anesthesiologists. Moderate sedation is most commonly achieved using benzodiazepines and opioids. Deeper sedation can be obtained with propofol; however, this is not typically used by non-anesthesiology providers (NAPs) due to high risk for apnea and need for airway management.[4] Deep sedation has not been well studied in TEE. More evidence is available in gastrointestinal endoscopy where a meta-analysis showed no increase in cardiopulmonary complications when using propofol compared with a benzodiazepine and opioid combination.[5] In contrast, other large studies show increased risk of aspiration and other cardiopulmonary events in lower risk patients receiving deep sedation administered by anesthesiology compared to moderate or minimal sedation from NAPs. In endoscopy and colonoscopy, anesthesiology service involvement has been noted to be rising despite mixed evidence regarding safety.[6] No significant safety evidence or trends in sedation practices exist for TEE.

Current echocardiographic practice guidelines offer no specific recommendations or guidance on whether the performing cardiologist or an anesthesiologist should provide sedation for TEE on a given patient[4]. To our knowledge, there is currently no research on how frequently the anesthesiology service provides sedation for patients undergoing TEE or what factors influence the clinical decision to involve the anesthesiology. TEE guidelines also mention that the cost effectiveness of cardiology administered sedation versus coordination with anesthesiology services for deeper sedation has not been well studied.

The question of which sedation type and which service provides sedation has important clinical implications due to the different levels of sedation able to be delivered. Sedation practices and safety has been studied in other cardiology procedures, such as electrophysiology (EP) studies, where a single-center retrospective study found that cardiologist-directed moderate sedation only required anesthesiology assistance for intubation 0.02% of the time and reversal of sedation in 1% of cases.[7] Certain unique aspects of TEE, such as the relationship of the TEE probe to the airway, present sedation and procedural challenges. Several studies have reported on complications for patients undergoing TEE, but none have investigated factors influencing sedation status (cardiology vs. anesthesiology).[3,8,9] More studies are needed within the practice of moderate sedation during TEE, as some research has noted fewer hemodynamic and respiratory complications with lower dose ranges of midazolam during TEE when compared to higher dose ranges, which must be balanced with patient comfort and study quality.[10]

Harborview Medical Center has a screening tool for moderate sedation anesthesia consultation (Figure 1). This tool has overall risk prediction with the American Society of Anesthesiologists (ASA) classification as well as more specific clinical risk factors. The protocol applies to all procedures considering moderate sedation, not only TEE. The protocol includes absolute contraindications for moderate sedation by NAPs, mandatory anesthesiology consults for moderate sedation with relative contraindications, and broad risk factor screening to help assess need for anesthesiology consult.

Figure 1. Current screening tool for anesthesiology consult for moderate sedation at Harborview Medical Center and the University of Washington Medical Center.

Screening Tool for Moderate Sedation Anesthesia Consultation

ABSOLUTE CONTRAINDICATIONS for Moderate Sedation by Non-Anesthesiology Providers: (check all appropriate boxes)

☐ ASA class V
☐ Pulmonary HTN with PAS >40 or cor pulmonale
☐ Neurological or neuromuscular disorders compromising respiratory or swallowing function
☐ Not NPO for > 6 hours
☐ Previous adverse reaction to sedation/anesthesia
☐ Morbid obesity (BMI >45)

☐ Pregnancy >16 weeks gestation
☐ Unintubated TBI with GCS <10
☐ Cardiomyopathy with EF <30%
☐ Known difficult airway
☐ Severe aortic/mitral stenosis (≤ 1 cm^2)
☐ Complex congenital heart disease

MANDATORY CONSULTS for moderate sedation RELATIVE CIs : (check appropriate boxes)

☐ AICD or Pacemaker (involving electrocautery) — Consult Cardiology / device manufacturer
☐ OSA patients non-compliant with CPAP treatment — Consult Anesthesiology
☐ BMI 40-45 with STOP-BANG score of >4 — Consult Anesthesiology
☐ Advanced lung disease on home O2 – except bronchoscopy by Pulmonary/Critical Care Physicians — Consult Anesthesiology
☐ End-stage Liver Disease – with encephalopathy requiring treatment OR 2 of the following: Child's C, MELD>15, Na<128 — Consult Anesthesiology
☐ End stage renal failure – with any of the following: known OSA non-compliant with CPAP, obesity (BMI 40-45 with STOP-BANG score of >4) or diabetes on insulin infusion — Consult Anesthesiology
☐ Unintubated TBI (GCS <15 may proceed with caution, GCS 10-12 – seek anesthesia advice) — Consult Anesthesiology

RISK FACTOR SCREENING for moderate sedation: (if 2 or more boxes are √, consider anesthesia consult)

☐ History of Difficult Intubation
☐ History of sleep apnea
☐ Obesity – BMI > 30
☐ Beard +/or receding jaw
☐ Edentulousness/loose or broken teeth
☐ Enlarged tongue or tonsils – non-visible uvula
☐ Limited mouth opening (less than 5cm vertical gap)
☐ Unable to bite upper lip with lower incisors
☐ Cervical Spine collar or neck rigidity

☐ Head or neck mass
☐ Hemodynamic instability
☐ Chemical dependence
☐ Inability to cooperate
☐ Extreme anxiety/agitation/intoxication/confusion
☐ Claustrophobia
☐ History of problems with similar procedure
☐ Prone position
☐ History of allergy or significant intolerance of local anesthetic, sedatives/analgesics

ANESTHESIA CONSULTS: Contact Anesthesiologist-in-Charge (AIC) on 8-9607 (UWMC) or 4-8800 (HMC)

☐ Cleared for moderate sedation by RN/non-anesthesia provider
☐ Anesthesia to provide care

PROVIDER SIGNATURE	PRINT NAME	PAGER	NPI	DATE	TIME

PT.NO

NAME

DOB

UW Medicine
Harborview Medical Center – UW Medical Center
University of Washington Physicians
Seattle, Washington
SCREENING TOOL FOR MODERATE SEDATION ANESTHESIA CONSULTATION

U3186
U3186

WHITE - MEDICAL RECORD
CANARY - ANESTHESIOLOGY

The goal of this project is to:

1. describe the overall trend in anesthesia service utilization over time at Harborview Medical Center (HMC) between 2015-2019,

2. determine which patient-specific factors are associated with involving the anesthesiology service in sedation and compare to the established HMC protocol,

3. assess the quality of procedural documentation for patients undergoing TEE,

4. propose a workflow for triaging the involvement of the anesthesiology department in TEE with an emphasis on patient safety and study quality, and

5. analyze the cost effectiveness of sedation approach

METHODS

The Intellispace Cardiovascular imaging database was used to identify all adult patients who had undergone complete, clinically indicated TEE from 10/30/2015 through 12/31/2019 at Harborview Medical Center.

Individuals undergoing limited or intraoperative TEE were excluded. The data collected was stored in REDCap, a HIPAA compliant and highly secure online database. The TEE cases were categorized as either cardiologist- or anesthesiologist-administered sedation. Patient and procedural data was abstracted including age, sex, body mass index (BMI), indication for TEE, and echocardiographic evidence of systolic heart failure, valvular abnormalities, or pulmonary hypertension. Multivariate analysis was undertaken to assess for factors associated with involvement of the anesthesiology service.

Additionally, intra-procedure records were analyzed for patients undergoing TEE with anesthesiology. Comparisons were made for patients who experienced more than a 20% reduction in mean arterial pressure or who required a vasoactive agent.

RESULTS

A total of 914 TEEs were analyzed. Cardiology provided procedural sedation in 52% of cases (Table 1). Pre-cardioversion TEEs were nearly a third of cases with anesthesiology-administered sedation. When excluding pre-cardioversion TEEs, the proportion with cardiology-administered sedation increased to over 61% of cases. This proportion remained relatively stable over the study period without significant variation year-to-year. Overall, the most common indication for TEE was endocarditis evaluation (57.5%) for which anesthesiology provided sedation in a significant number of cases (43%). This indication was also predictive of anesthesiology involvement. Assessment for source of thrombus and ischemic stroke evaluation (17.5%) was the next most common indication other than pre-cardioversion.

Patients undergoing anesthesiology-administered sedation were of similar age, more were male (74.9% vs 67.2%, p=0.0119), and had a higher mean body mass index (29.8 vs 26.9, p<0.001). Left ventricular ejection fraction (LVEF) of less than 30% (p<0.001), moderate to severe dysfunction of the right ventricle (RV) (p=0.005), and pulmonary artery (PA) pressure of more than 40 mm Hg (p=0.19) were all significantly associated with anesthesiology-administered sedation.

Table 1. Characteristics of patients undergoing Transesophageal Echocardiography at Harborview Medical Center between 2015-2019 by type of service (Anesthesiology or Cardiology.

	Anesthesiology (N=439)	Cardiology (N=475)	P-value
Age (years)			
Mean (SD)	52.9 (14.8)	51.4 (16.2)	0.136
Median [Min, Max]	54.0 [18.0, 89.0]	52.0 [16.0, 90.0]	
Gender			
Female	110 (25.1%)	156 (32.8%)	0.0119
Male	329 (74.9%)	319 (67.2%)	
BMI			
Mean (SD)	29.8 (9.29)	26.9 (6.98)	<0.001
Median [Min, Max]	27.3 [14.8, 74.6]	25.7 [14.3, 75.2]	
BMI > 45			
No	409 (93.2%)	466 (98.1%)	<0.001
Yes	30 (6.8%)	9 (1.9%)	
Indication for TEE			
Assess TTE findings	4 (0.9%)	13 (2.7%)	<0.001
Endocarditis	226 (51.5%)	300 (63.2%)	
Other	4 (0.9%)	14 (2.9%)	
Pre DCCV	137 (31.2%)	0 (0%)	
Source of Thrombus	49 (11.2%)	111 (23.4%)	
Valve Assessment	19 (4.3%)	35 (7.4%)	
Aortic Dissection	0 (0%)	2 (0.4%)	
ASA			
1	1 (0.2%)	12 (2.5%)	<0.001
2	52 (11.8%)	208 (43.8%)	
3	293 (66.7%)	82 (17.3%)	
4	85 (19.4%)	6 (1.3%)	
5	1 (0.2%)	0 (0%)	
Not documented	7 (1.6%)	167 (35.2%)	
Meeting Cardiac/BMI/ASA Trigger			
No	326 (74.3%)	410 (86.3%)	<0.001
Yes	113 (25.7%)	65 (13.7%)	
Moderate-Severe RV Dysfunction			
No	386 (87.9%)	444 (93.5%)	0.00535
Yes	53 (12.1%)	31 (6.5%)	
LVEF < 30%			
No	402 (91.6%)	465 (97.9%)	<0.001
Yes	37 (8.4%)	10 (2.1%)	
PA pressure > 40			
No	381 (86.8%)	436 (91.8%)	0.019
Yes	58 (13.2%)	39 (8.2%)	
Total Procedure time (minutes)			
Mean (SD)	56.4 (24.6)	34.1 (15.5)	<0.001

Cardiology provided sedation for 80% of ASA class II patients. ASA III underwent sedation performed by anesthesiology at a similar rate (78.1%). Nearly all ASA IV patients (93.4%) had anesthesiology administered sedation. ASA class was not documented per chart review in 35.2% of TEEs with cardiology administered sedation. Of patients with an absolute contraindication for moderate sedation by non-anesthesiology providers due to ASA class, BMI, or cardiac factors per the screening tool (Figure 1), 36.5% of patients had TEE sedation administered by cardiology.

Mean procedure time was significantly lower in cardiology administered sedation cases (34.1 vs 56.4 minutes, p<0.001). Differences in intra-procedural documentation between cardiology and anesthesiology were also noted. For those patients undergoing anesthesiology administered sedation, comparisons were made for patients who experienced more than a 20% reduction in mean arterial pressure (MAP) or who required a vasoactive agent. This drop in MAP was also associated with longer procedure time (51.4 vs 60 minutes, p<0.001). This additional analysis is ongoing.

DISCUSSION

Over the study period, nearly half (48%) of all TEEs were completed with anesthesiology providing sedation. Even when excluding pre-cardioversion TEEs, this number remains close to 40% of TEEs. This proportion has not significantly increased over the five-year time course.

Evaluation for endocarditis was significantly associated with anesthesiology provided sedation. This is likely due to the high incidence of comorbid opioid use disorder in this population. Patients with opioid use disorder develop tolerance to opioid-based agents and thus require higher doses to reach appropriate levels of analgesia and sedation compared to patients with lower tolerance.[11] However, this indication for TEE was not significantly associated with a greater than 20% reduction in MAP. Chemical dependence is listed as a risk factor on the screening tool, however more work is needed in this population to validate the need for anesthesiology involvement in such a high proportion of patients undergoing TEE.

Factors associated with anesthesiology-provided sedation for TEE included male sex, higher BMI, LVEF less than 30%, moderate to severe RV dysfunction, and PA pressure of greater than 40 mm Hg. Other than the patient-identified sex, these are all listed as absolute contraindications for moderate sedation by NAPs. However, more than a third of patients with absolute contraindications still had sedation administered by cardiology. For example, nine patients with morbid obesity (BMI > 45) underwent cardiology administered sedation despite being one of the absolute contraindications for moderate sedation by NAPs according to the screening tool. A significant opportunity for education around current recommendations and contraindications to moderate sedation by NAPs exists. Also, further analysis to validate this screening tool for TEE specifically may be helpful.

Patients of ASA class II underwent sedation given by cardiology

far more often (80% of cases) while many more patients of ASA III underwent sedation performed by anesthesiology (78.1%), as did nearly all ASA IV patients (93.4%). According to endoscopy guidelines[6], minimal or moderate sedation can safely be delivered by NAPs to patients who are ASA class I, II, or III in most cases. Further analysis of patient characteristics and procedural complications for those designated ASA II and II may be enlightening. The difference between lack of documentation of ASA class (35.2% of TEEs with cardiology administered sedation vs 1.6% for anesthesiology) requires additional investigation.

Mean procedure time was significantly lower in cardiology-administered sedation cases (34.1 vs 56.4 minutes, p<0.001), but this could be explained by differences in the measuring and documentation of procedure duration including definitions procedural start and stop time. Anesthesiology procedure time was measured as time-out through probe removal, whereas cardiology was measured from probe insertion. Much less documentation in general existed in cardiology administered sedation procedures which made direct objective intra-procedure comparisons between anesthesiology and cardiology challenging. Further analysis of complications such as hypoxia, hypotension, and other adverse events in this study is in process.

CONCLUSION

Nearly half of patients undergoing TEE received sedation from an anesthesiologist. Procedure indications and patient-level factors, as well as local practice patterns, may play an important role. Future research should focus on differences in procedural outcomes and costs between the two services to inform practice guidelines on determining optimal sedation practices for TEE. Opportunities for education and improved documentation around moderate sedation exist based on these findings.

References

1. Cheitlin MD, Armstrong WF, Aurigemma GP, et al. ACC/AHA/ASE 2003 guideline update for the clinical application of echocardiography: summary article: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (ACC/AHA/ASE Committee to Update the 1997 Guidelines for the Clinical Application of Echocardiography). Circulation. Sep 2 2003;108(9):1146-62.

2. Puchalski MD, Lui GK, Miller-Hance WC, et al. Guidelines for Performing a Comprehensive Transesophageal Echocardiographic: Examination in Children and All Patients with Congenital Heart Disease: Recommendations from the American Society of Echocardiography. J Am Soc Echocardiogr. Feb 2019;32(2):173-215.

3. Côté G, Denault A. Transesophageal echocardiography-related complications. Can J Anaesth. Sep 2008;55(9):622-47.

4. Hahn RT, Abraham T, Adams MS, Bruce CJ, Glas KE, Lang RM, Reeves ST, Shanewise JS, Siu SC, Stewart W, Picard MH. Guidelines for performing a comprehensive transesophageal echocardiographic examination: recommendations from the American Society of Echocardiography and the Society of Cardiovascular Anesthesiologists. J Am Soc Echocardiogr. 2013 Sep;26(9):921-64.

5. Qadeer MA, Vargo JJ, Khandwala F, Lopez R, Zuccaro G. Propofol versus traditional sedative agents for gastrointestinal endoscopy: a meta-analysis. Clin Gastroenterol Hepatol. 2005 Nov;3(11):1049-56.

6. ASGE Standards of Practice Committee, Early DS, Lightdale JR, Vargo JJ 2nd, Acosta RD, Chandrasekhara V, Chathadi KV, Evans JA, Fisher DA, Fonkalsrud L, Hwang JH, Khashab MA, Muthusamy VR, Pasha SF, Saltzman JR, Shergill AK, Cash BD, DeWitt JM. Guidelines for sedation and anesthesia in GI endoscopy. Gastrointest Endosc. 2018 Feb;87(2):327-337.

7. Sawhney V, Bacuetes E, Wray M, Dhinoja M, Earley MJ, Schilling RJ, Sporton S. Moderate sedation in cardiac electrophysiology laboratory: a retrospective safety analysis. Heart. 2017 Aug;103(15):1210-1215.

8. Daniel WG, Erbel R, Kasper W, et al. Safety of transesophageal echocardiography. A multicenter survey of 10,419 examinations. Circulation. Mar 1991;83(3):817-21.

9. Mathur SK, Singh P. Transoesophageal echocardiography related complications. Indian J Anaesth. Oct 2009;53(5):567-74.

10. Leeson P, Raza S, Rayner J, et al. Conscious sedation for transoesophageal echocardiography (TOE): Impact on procedure and patient of titrated low dose sedation. European Journal of Echocardiography. 2007;8(3):s33-s34.

11. de Wit M, Wan SY, Gill S, Jenvey WI, Best AM, Tomlinson J, Weaver MF. Prevalence and impact of alcohol and other drug use disorders on sedation and mechanical ventilation: a retrospective study. BMC Anesthesiol. 2007 Mar 14;7:3.

Articles

Transmission of Bias via Language in Physical Medicine and Rehabilitation Residents: A Pilot Study

Authors: Evelyn Qin, MD, MPH[1]; Alicia Seeds, MD[1]; Allison Wallingford, MD[1]; Andrew Humbert, PhD[1]; Cherry Junn, MD[1]; Amy Starosta, PhD[1]

Affiliations: 1. Department of Rehabilitation Medicine, University of Washington, Seattle, WA

ABSTRACT

Objectives

To assess whether stigmatizing language in patient medical records can impact physical medicine and rehabilitation (PM&R) physicians in trainings' attitudes towards patients with disabilities and clinical decision-making.

Design

A survey was conducted at a single academic site as part of a quality improvement assessment in which PM&R residents (n=29) were randomized to read one of two vignettes involving stigmatizing versus neutral language to describe the same hypothetical patient. Questions were asked regarding attitudes and assumptions towards the patient described, pain medication management based on the vignette, and general views regarding individuals with disabilities.

Results

Participants age ranged from 26-36 years (mean 31 years). Thirteen (44.8%) were female, 15 (51.7%) were white. Thirteen residents received the stigmatized vignette and 16 received the neutral vignette. On average, participants exposed to the stigmatizing language vignette scored 6.34 points lower on the Provider Attitude Towards Patient Scale (PAPS) compared to those exposed to the neutral language vignette (p<0.001). The stigmatizing language group had greater odds of being more conservative in treating the patient's pain (giving one-time dose of oxycodone over increasing the frequency of oxycodone) compared to those in the neutral language group. There was no significant difference in the Disability Attitudes in Healthcare

Scale (DAHS) scores between the two groups (p = 0.1632). DAHS scores were also high in both groups indicating overall positive attitudes towards patients with disabilities.

Conclusions

PM&R trainees have generally positive views towards individuals with disability, but stigmatizing language may negatively affect attitude towards patients and clinical decision making. Quality improvement trainee education initiatives can focus on reducing use of stigmatizing language in the patient medical records.

INTRODUCTION

Bias, stereotyping, and prejudice have all been identified by the National Academy of Medicine, as factors that can propagating healthcare disparities among patients1. Language in medical records can reflect provider bias, and may also serve to spread individual bias, affecting other clinicians' attitudes towards patients and ultimately affecting clinical care and outcomes2 3. Prior studies have evaluated the role of language and clinician attitudes in regards to factors such as race4 and substance use5, however, these studies focused on primary care and emergency medicine setting.

We recognized that at our institution, providers' biases about patients were disseminated throughout patients' charts, often across various specialties' medical documentation, from initial presentation in the emergency room through admission to the rehabilitation unit. The bias language included not only race and substance use history, but homelessness status, infection status, obesity, and mental health

Table 1: Descriptive characteristics of physiatrists-in-training who participated in the survey.

	Total (n=29)	Neutral (n=13)	Stigmatizing Language (n=16)	P-value
Age in years (SD)	30.9 (3.1)	30 (2.9)	31.7 (3)	0.14
Sex (%)				0.69
Female	13 (44.8)	5 (38.5)	8 (50)	
Male	14 (48.3)	7 (53.8)	7 (43.8)	
Other	1 (3.4)	0 (0)	1 (6.2)	
Prefer not to answer	1 (3.4)	1 (7.7)	0 (0)	
Ethnicity (%)				0.45
Asian	6 (20.7)	2 (15.4)	4 (25)	
Black	2 (6.9)	0 (0)	2 (12.5)	
Hispanic	1 (3.4)	1 (7.7)	0 (0)	
White	15 (51.7)	7 (53.8)	8 (50)	
Other	3 (10.3)	1 (7.7)	2 (12.5)	
Prefer not to answer	2 (6.9)	2 (15.4)	0 (0)	
Training				0.62
Medical student	3 (10.3)	2 (15.4)	1 (6.2)	
PGY-1	7 (24.1)	4 (30.8)	3 (18.8)	
PGY-2	4 (13.8)	2 (15.4)	2 (12.5)	
PGY-3	6 (20.7)	1 (7.7)	5 (31.2)	
PGY-4	8 (27.6)	4 (30.8)	4 (25)	
Other	1 (3.4)	0 (0)	1 (6.2)	
DAHS (SD)	72.2 (6.2)	70.3 (7.5)	73.8 (4.6)	0.1632

Abbreviations:
SD: Standard deviation   PGY: Post-graduate year   DAHS: Disability Attitudes in Health Care Scale

diagnoses as part of patient identifying factors. Therefore, we acknowledged the bias and created an opportunity to evaluate the impact of the language used in medical documentation on medical decision making in our specialty. No studies have evaluated the effect of biased language on physiatrists' attitudes in the rehabilitation medicine setting.

The primary objective of this pilot study was to assess whether stigmatizing language in patient medical records impacts physical medicine and rehabilitation (PM&R) resident' attitudes towards patients and clinical decision-making. The long-term goal of this quality improvement project is to reduce bias and/or negative attribution towards patients and improve patient-centered language both in written and verbal communication in the field of PM&R.

METHODS

Study population

Current PM&R residents at the University of Washington were considered eligible for the study. Individuals who were not current rehabilitation medicine trainees were exempt from the study. This study was considered exempt by our Institutional Review Board (IRB)

Survey Design

A survey was administered at a single academic site in which PM&R residents were randomized to one of two vignettes involving stigmatizing versus neutral language describing the same hypothetical patient.

The survey vignettes were written in the format of a physician note and described a hypothetical patient with spinal cord injury (SCI) who was experiencing pain while on the rehab unit. The survey with stigmatizing language included verbiage that fell within the five negative language domains outlined by Park et al3. The second survey included neutral language without any negative language. Three attending rehabilitation medicine physicians reviewed the neutral vignette for neutrality. Both surveys were then evaluated for readability and grade level using the Flesch Kincaid calculator. The stigmatized vignette (10.9 grade level with an ease score of 46.4) and the neutral vignette (10.0 grade level and ease score of 48.5) were relatively comparable as the scores were within one grade level.

Follow-up questions were divided into three categories: medical decision making, providers' perception of the patient, and the participant's general view of patients with disabilities. Medical decision making was assessed by asking participants how they would treat the hypothetical patient's pain (given 4 options), factors impacting their decision, and overall comfort with pain medication prescribing. Provider perception of the patient was adapted from the Positive Provider Attitudes toward Sickle Cell Patients Scale (PASS)[6]. This 7-item survey has been found to be a measure of provider attitudes towards patients with sickle cell disease and vaso-occlusive crisis. This measure focuses on the provider's attitude toward an individual patient. All items were scored on a five-point Likert scale, with items

1-3 were scored from 1 to 5 and items 7-10 are reverse scored. Total scores range from 5 to 35 with higher scores indicating more positive attitudes. For the current study, the items were adapted to focus on a patient with SCI. We will refer to this scale as the Provider Attitudes towards Patient Scale (PAPS). Disability attitudes was evaluated using the Disability Attitudes in Health Care Scale (DAHS)[7]. As opposed to the PAPS, this scale focuses on global attitudes towards patients with disability in general. This included 17 questions on a 5-point Likert scale. Items 1-7 were scored from 1 to 5 and items 8-17 were reverse scored. Total scores ranged from 17-85 with a higher score implying a more positive attitude toward providing care to patients with disability.

Analysis

Descriptive statistics for demographic variables and outcome measures were examined and stratified by vignette type (stigmatizing or neutral language vignette). Differences in baseline characteristics were tested using Fisher's Exact test for categorical variables and two-sample t-tests for continuous variables. Impact of the vignette condition on PAPS scores and clinical decision making was examined using linear regression and multinomial models. Sensitivity analyses were used to assess the impact of potential confounders. All analyses were performed using R statistical software.

RESULTS

Participants age ranged from 26-36 years (mean 31 years). Thirteen (44.8%) were female, 15 (51.7%) were white (Table 1). Thirteen residents received the stigmatized vignette and 16 received the neutral vignette. There were no significant demographic differences between the conditions. DAHS scores were also high in both groups indicating overall positive attitudes towards patients with disabilities, with no significant difference between the two conditions. Participants exposed to the stigmatizing language vignette scored, on average, 6.34 points lower on the Provider Attitude Towards Patient Scale (PAPS) compared to those exposed to the neutral language vignette (p<0.001), reporting more negative attitudes toward the patient even after controlling for the demographics of the provider (age, sex, and race) (Table 2). Additionally, stigmatizing language was associated with treatment decisions for managing the patient's pain (p-value=0.023). Of note, the stigmatizing language group had greater odds of being more conservative in treating the patient's pain (giving one-time dose of oxycodone over increasing the frequency of oxycodone) compared to those in the neutral language group (Table 2). These results were consistent with those from models adjusting for age, sex, or race.

DISCUSSION

This pilot study evaluated the impact of stigmatizing language in patient medical records on physiatrists-in-trainings' attitudes towards patients with disabilities and clinical decision-making. It found that trainees among a group with relatively positive attitudes toward providing care for patients with disabilities, those providers who reviewed the vignette with stigmatizing language had a more

negative attitude towards the hypothetical patient compared to the trainees who received the neutral vignette. Those who received the vignette with the stigmatizing language were in general more conservative in treating the hypothetical patient's pain. But overall, the trainee's attitudes towards individuals with disabilities was similar between the two groups. This is consistent with Goddu et al[2] where exposure to stigmatizing language was associated with more negative attitudes towards the patient.

Table 2: Unadjusted and adjusted linear regression models assessing the association between stigmatizing language for PAPS score. Multinomial models were used to assess the association between stigmatizing language and clinical decision making (giving one time oxycodone vs increasing the frequency of oxycodone to 15mg every 3 hours).

	Unadjusted		Age adjusted		Sex Adjusted		Race Adjusted	
	coefficient	p-value	coefficient	p-value	coefficient	p-value	coefficient	p-value
PAPS score	-6.36	<0.0001	-6.32	<0.0001	-6.06	0.0001	-6.82	<0.0001
Clinical decision making								
Increase frequency of oxycodone	Ref	0.023	Ref	0.049	Ref	0.016	Ref	0.03
One time oxycodone dose	9.95		7.94		10.47		10.89	
Continue with current pain regiment	0.25		0.39		0.55		0.50	
Switch to hydromorphone	-0.69		-0.65		-0.63		-0.94	

Abbreviations: PAPS: Provider Attitude Towards Patient Scale

It is important to note that the goal of the project is not to change the implicit bias of trainees, but to minimize the likelihood that communication may trigger or perpetuate these individual biases. Thus, the next step for this quality improvement project will be providing education regarding the use of neutral language in the medical record in order to help trainees at a minimum acknowledge their biases and remove stigmatizing language from their medical documentation.

This study has a few limitations. Due to the inherent nature of the specialty of PM&R residents frequently care for individuals with disabilities and thus likely skews the general attitudes towards this patient population. The study was also limited by its sample size and may not be generalizable to all rehabilitation medicine residents. More research is needed to assess these trends in a larger group of rehabilitation medicine trainees.

There appears to be a need to increase rehabilitation medicine clinicians' awareness when writing and reading medical records to prevent negative bias and stigmatization in medical care. By using more neutral and person-centered language, we may be able to prevent the perpetuation of healthcare disparities, negative stereotypes, decrease the blame on a patient for their symptoms, and stop casting doubt on the patient's reports and experience. The goal outcome would be improved healthcare experience and interactions for providers and more importantly, for patients.

CONCLUSIONS

Rehabilitation medicine trainees have generally positive views towards individuals with disability, but stigmatizing language may negatively affect attitude towards patients and clinical decision making. Quality improvement trainee education initiatives can focus on reducing use of stigmatizing language in the patient medical records.

References

1. Smedley BD, Stith Butler A, Bristow LR. In the Nation's Compelling Interest: Ensuring Diversity in the Health-Care Workforce. Washington (DC)2004.

2. A PG, O'Conor KJ, Lanzkron S, et al. Do Words Matter? Stigmatizing Language and the Transmission of Bias in the Medical Record. J Gen Intern Med 2018;33(5):685-91. doi: 10.1007/s11606-017-4289-2 [published Online First: 2018/01/28].

3. Park J, Saha S, Chee B, et al. Physician Use of Stigmatizing Language in Patient Medical Records. JAMA Netw Open 2021;4(7):e2117052. doi: 10.1001/jamanetworkopen.2021.17052 [published Online First: 2021/07/15].

4. Haider AH, Schneider EB, Sriram N, et al. Unconscious race and social class bias among acute care surgical clinicians and clinical treatment decisions. JAMA Surg 2015;150(5):457-64. doi: 10.1001/jamasurg.2014.4038 [published Online First: 2015/03/19].

5. Ashford RD, Brown AM, Curtis B. Substance use, recovery, and linguistics: The impact of word choice on explicit and implicit bias. Drug Alcohol Depend 2018;189:131-38. doi: 10.1016/j.drugalcdep.2018.05.005 [published Online First: 2018/06/19].

6. Ratanawongsa N, Haywood C, Jr., Bediako SM, et al. Health care provider attitudes toward patients with acute vaso-occlusive crisis due to sickle cell disease: development of a scale. Patient Educ Couns 2009;76(2):272-8. doi: 10.1016/j.pec.2009.01.007 [published Online First: 2009/02/24].

7. Chadd EH, Pangilinan PH. Disability attitudes in health care: a new scale instrument. Am J Phys Med Rehabil 2011;90(1):47-54. doi: 10.1097/PHM.0b013e3182017269 [published Online First: 2010/12/21].

Diagnostic Digital Database Diagram (D4): A Visual Tool to Organize Outcomes Data Registries

Authors: Madonna E. Lee, MD[1]; Aarti Bhat, MD[2]; Titus Chan, MD[3]; Kenneth Rudberg[2]; Terry Chun, MD[2]; Jessica Colyer, MD[2]; D. Michael McMullan, MD[1]

Affiliations: 1. Division of Congenital Cardiac Surgery, Seattle Children's Hospital, Seattle, WA **2.** Division of Pediatric Cardiology, Seattle Children's Hospital, Seattle, WA **3.** Division of Pediatric Intensive Critical Care, Seattle Children's Hospital, Seattle, WA

DISCLOSURE

UW Housestaff Quality and Safety Committee Fall 2020 Grant Recipient.

OBJECTIVE

Using LucidChart (diagramming web-based application) to create a "Diagnostic Digital Database Diagram" (D4) creation will allow a centralized, visual platform to decrease redundancy, increase efficiency, and facilitate development of quality improvement (QI) initiatives by identifying relevant clinical areas for congenital heart disease patients at Seattle Children's Hospital.

METHODS

5S model and LEAN principles were used to guide intervention tool invention, including waste of information. Creation of D4 was designed with outline/categories already collected in PC4 (Pediatric Cardiac Critical Care, participation since 2018) and STS (Society of Thoracic Surgeons) existing databases. Comparison to benchmark data with other institutions was graphically represented using PC4 with definitions.

RESULTS

The most recent STS Report was from 2019 over the previous five years. PC4 participation was considered more recent, accessible, and granular so was the preferred database for tool development. Basic metrics such as volume, surgical mortality, and case mix were included. In PC4, post-operative complication metrics identified four areas of potential clinical improvement: low cardiac output syndrome, pulmonary hypertension, vocal cord paralysis, and paralyzed diaphragm ($p < 0.01$). These rates appeared to be statistically significant compared to the 60 participating congenital cardiac institutions (versus 118 institutions participating in STS). D4 was also successfully used as a presentation tool for quarterly congenital cardiac surgery QI meetings.

CONCLUSIONS

D4 was created with STS and PC4 data registries to focus on benchmarking for congenital cardiac surgery patients. Successful mapping, cataloging, and inventory of relevant clinical areas was achieved using PC4. Incorporation of other registries, using benchmark data to inform ongoing QI projects in these targeted categories, identifying sub-categories of patients, and evaluating risk-adjusted PC4 metrics will be the next developmental stage of D4's efficacy in facilitating QI and outcomes research initiatives.

Reflections:

Reflection of a Complex Family Planning Fellow
Jennifer Chin, MD, Obstetrics & Gynecology

"This is so unfair," my patient cried out as she drifted off before her abortion procedure. My patient, I'll call her SL, explained that she had been diagnosed with multiple severe problems with her pregnancy after her state's cutoff for abortion care, necessitating her to travel across several state lines during a global pandemic to our clinic. Due to COVID restrictions, her fiancé was not allowed in the clinic to talk to us or to hold her hand during the procedure. This made an already isolating experience even scarier for this young woman. As we performed her procedure, I felt grateful that we were able to finally give her the care she needed but resonated with the anger and frustration she felt from being abandoned by her own doctors.

I went into obstetrics and gynecology so that I could care for patients in their happiest and saddest moments. I love the joy of delivering a couple's first child into the world just as much as I cherish the conversations I have with patients who decide to terminate their pregnancy. As a complex family planning fellow, the patients I see everyday are from all walks of life. Some are barely adolescents. Some are nearing the end of their reproductive years. Some have a support person waiting for them in the car. Some have to take a taxi back to a hotel before flying home alone. For some, it is not the right time because they want to finish school or their partner is unemployed. For others, they already have a full, loving family and know that if they added another member, it would take away from what they already have. We are trained medical experts who are willing to listen to our patients and trust what they tell us. We are their agency to help them realize the full potential of their lives, break out of abusive relationships, care for their beautiful children, or start a family when they are ready.

Laws that restrict abortion care harm both patients and their providers. When patients are not able to obtain safe, accessible abortions, they will travel further, have to seek more funding, or resort to dangerous alternatives. When providers are not allowed to practice evidence-based medicine, we are forced to go against the oath we took to do no harm to our patients and place their priorities first. Abortion restrictions do not decrease abortions; instead, they increase unsafe abortions and force patients to choose high risk options. I advocate so that we can continue providing compassionate, comprehensive care to our patients. My daily work allows me to share powerful stories of what can happen when patients are not empowered to make decisions about their own bodies. My advocacy allows me to respond to patients' frustration in a productive, meaningful way. When we as women's health experts remain silent, others eagerly fill the void with inflammatory language and misinformation. We will keep on fighting until all people everywhere are able to decide if, when, how, and under what circumstances to be pregnant.
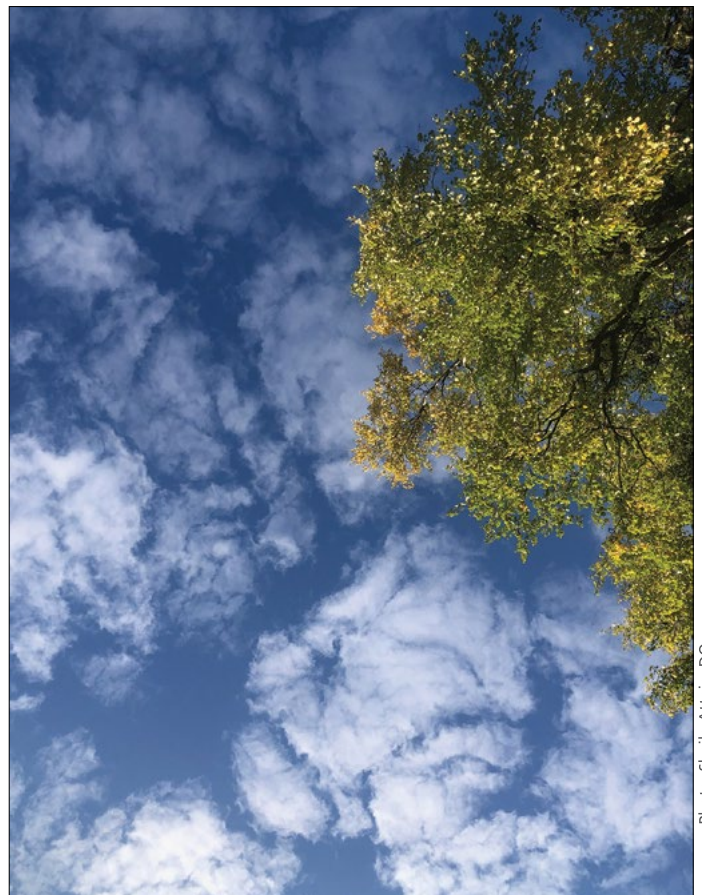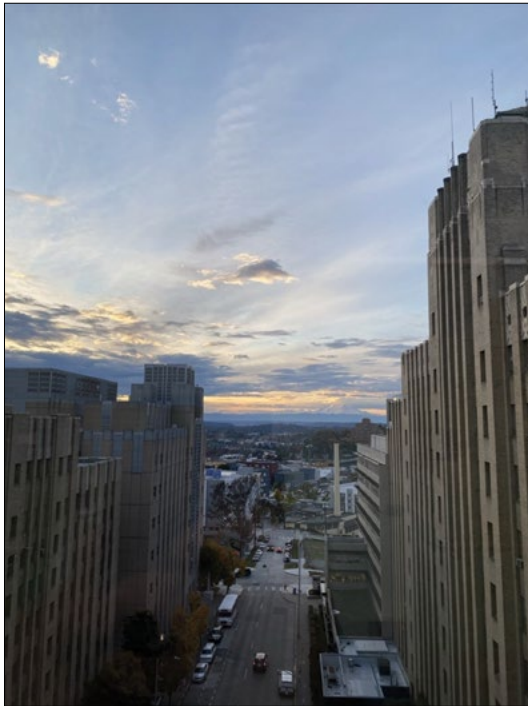
Call on Harborview Cardiology/CCU

Nic Baddour, MD, Internal Medicine

Call Day - 6:48 AM
Each morning, I'm proud to walk by this mission statement and serve besides our hospital's custodians, care coordinators, food service workers, social workers, nurses, medical assistants, therapists, physicians, sonographers, and other staff. Harborview is everybody's hospital in the region and each day I witness the staff's dedication to it's mission and passion for empowering the people they serve.

7:53AM
One of the perks of having patients on the 9th floor is walking by this sunrise view of Mt. Rainier.

10:44PM
During the busy and relentless solo long-calls on the Harborview Cardiology ICU, my coresidents on the paired on-call Medical ICU team are a huge pillar of support. We see each other at codes, occasionally run clinical plans by each other, and also make late night takeout orders and runs to the café for ice cream. I am lucky to work with such brilliant and thoughtful doctors.

The Next Day, 8:14AM
There is nothing like the balm of having your coresidents arrive to relieve after being awake for more than 24 hours, admitting and taking care of some of the most critically ill patients in the state, solo. Also – bagels!

The Next Day, 10:34AM
This rainbow that popped up on my way home is both an indicator that it rained all night, and also a marker of the sleep that is waiting at home.

Reflections:

Love and Light
David Mitchell, MD

This is a piece I made in medical school titled "Love and Light." I think it encompasses the highs and lows I've felt in residency. I think the lows help me to appreciate the good times more when they do come.

In the wise words of Bob Ross, "Gotta have opposites, light and dark and dark and light, in painting. It's like in life. Gotta have a little sadness once in awhile so you know when the good times come. I'm waiting on the good times now."

COVID Nights

Tiffany Rose Jenkins, MD

Darkness fills
my view through
hospital windows
as I sit down to eat
is it dinner or breakfast?
who knows, time has
become warped during
this 28 hour shift

It's 2AM and I finally
found time to eat
to breathe   even though
I won't have time to sleep

Between bites the sound of
raindrops fills the quiet corridor
and I watch as the tear drops
on my mind flow without end
down streetlights and sidewalks

I remember the way his
family pictures hung on the walls
of the ICU as I listened
to his lungs   inhale   with each
course ventilated breath

I remember the wooden cross
that poked itself up
between the layers
of his gown
and the terror
in his wide open
delirious eyes,
mirroring
the terror hidden behind
each question they ask
as I call to update his
daughter and son
I hated giving them bad news

"Just so you know,
our patient passed away
yesterday. I wasn't here,
but I've heard it's because of
his overall slowly worsening course.
His son was able to be there"
My co-intern's message reads
garishly bright on my phone

Even though I'm onto
a new service

in a new hospital
the virus has followed me
I think of the young man
I admitted tonight with
"COVID pneumonia with
new oxygen requirement"
and hope he will be spared
the same fate. I'm hopeful
but I've been wrong before

How many more
of my patients will die
during this pandemic?
How many more will live
with wounds both visible
and invisible? I think of my
many clinic patients struggling
with depression, anxiety, isolation
And the comment from one of my
seniors rings in my ears
"COVID has been bad for livers,
we've seen an increase in people
admitted for liver failure from
alcohol use. COVID isn't just bad
for lungs" I finish my food
and get back to work