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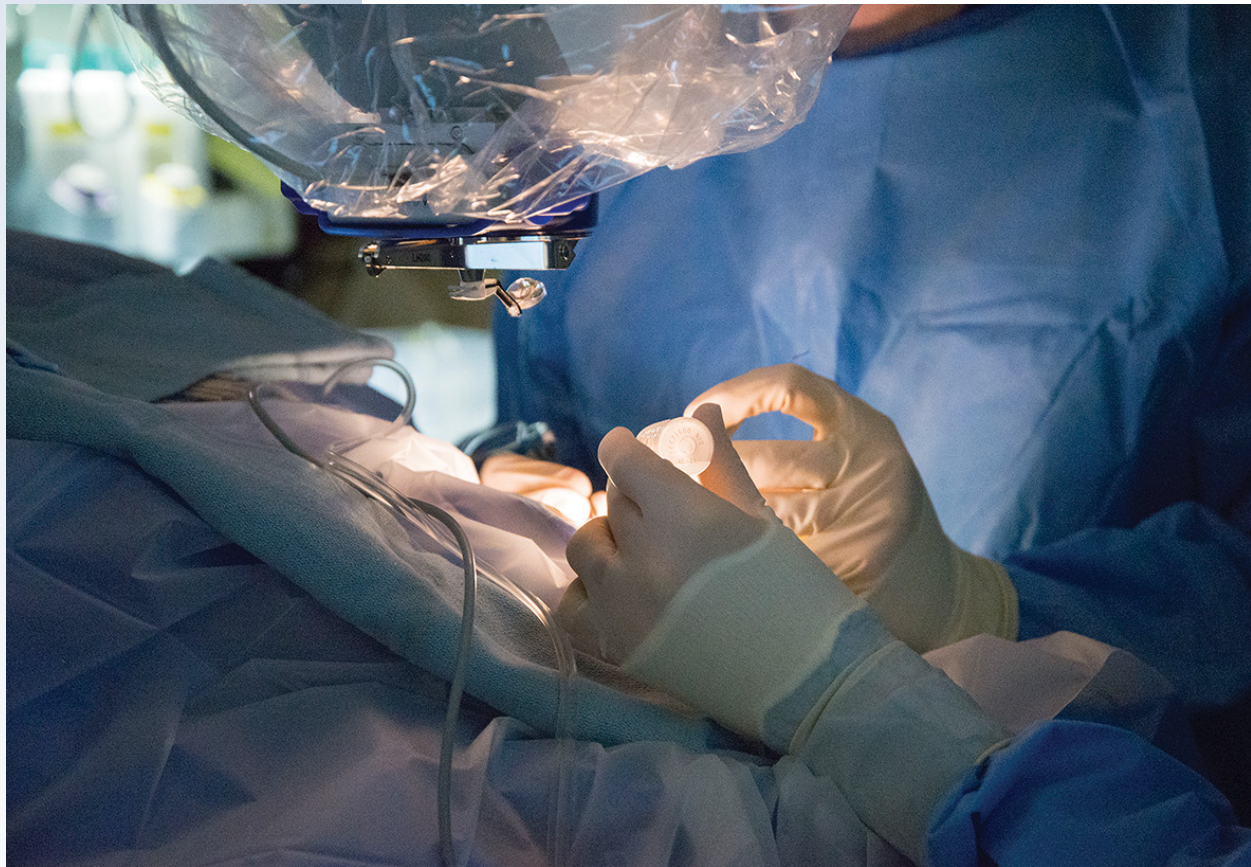
Journal of the University of Washington
Housestaff Quality and Safety Committee

UW Medicine

GRADUATE
MEDICAL EDUCATION

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In This Issue of HOUSE

A Note from the Editors

The 2020s began with a pandemic bang and continues to confront us with relentless challenges in the form of climactic, economic, and sociopolitical upheaval whose consequences flow into our communities and through the front doors of our teaching hospitals. The only constant, it seems, is change. In times of great stress, self-awareness and adaptability often prove essential to the success of any organism or organization, and here within UW Medicine, residents and fellows are some of the best-positioned to sense both problems and potential. With a rich history of impactful trainee-led improvement efforts, perhaps best exemplified by the CORES electronic health record plug-in developed by Dr. Erik Van Eaton when he was a surgical resident, UW-affiliated housestaff continue to embrace the quality and safety missions of healthcare and remain some of the strongest advocates for these and complementary social justice initiatives occurring throughout medicine, which together herald a brighter future.

As in prior academic years, the 2022 edition of HOUSE, an annual publication of the UW Housestaff Quality & Safety Committee, presents but a glimpse of the myriad safety- and quality-related undertakings in which our residents and fellows continually engage. Since 2016, we have produced HOUSE with the express purpose of connecting the brilliant work of our trainees to departmental and enterprise leaders. In the process, we hope to recognize housestaff contributions which might otherwise go unsung and to encourage individual initiative—as well as institutional support—for similar endeavors in the future.

As you flip through these pages, we hope that your heart swells with pride for the hard, thoughtful work put in by our talented housestaff and their dedicated mentors. This is a community fully dedicated to the quality, safety, and educational missions of our institution. In an ever-changing and ever-challenging world, our residents and fellows represent the motive force for our constant adaptation and ultimate success.

Jessica Pinto, MD
Editor in Chief

Karly Williams Silva, MD, and Vicki Hau, MD
Executive Editors

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 $1,000 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.

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GENE PETERSON AWARD

Dr. Chen Wu completed medical school at Duke University before starting his Internal Medicine Residency at the University of Washington. After residency Dr. Wu was the Chief Resident for Quality and Safety at the VA Puget Sound, as well as one of the co-chairs for the UW Housestaff Quality and Safety Committee. Dr. Wu currently works at the VA Puget Sound Seattle Division hospital as a hospitalist, as well as the Director of Transformation. Dr. Wu also serves as the faculty advisor for the Housestaff Quality and Safety Committee and the Internal Medicine Residency Quality Improvement Curriculum. Through all these roles. Dr. Wu has been a tireless champion of Quality Improvement integration into resident education. Dr. Wu has mentored many resident projects, and trainees have hailed his ability to "make himself available to support the learning and growth of trainees who work with him." Trainees praised his dedication, mentorship, and knowledge as deserving reasons for his selection as the 2022 Gene Peterson Award winner.

Providing Language Concordant Discharge Instructions for Obstetrics and Gynecology Care

Authors: Rachel Budker, MD; Lindsey Cheu, MD

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ABSTRACT

At the time of discharge, it is critical that patients have a clear understanding of their care plan including instructions regarding follow-up, pain management and wound care. Multiple studies have shown that language concordance between patients and providers improve medical outcomes as well as patient satisfaction and understanding. We aspired to improve care for obstetrics and gynecology patients with limited English proficiency at the University of Washington through the translation of our most utilized discharge instructions into the eight top spoken languages of our patient population.

BACKGROUND

Many systemic and institutional barriers exist in providing compassionate and quality care to patients with limited English language proficiency. Use of professional interpreters and having providers who speak the same language and share the same culture can improve patient satisfaction2,8. However, many challenges exist surrounding quality and consistency in the use of interpreter services, bias, and general communication gaps and errors that can occur between patients and their providers5,6,7,9. Providing written translated discharge instructions is an important aspect of addressing these gaps in care and has been shown to be in line with patient preference and more effective than verbal instructions alone1,3,4 and is in fact encouraged by federal policy in Title VI1. Currently, in the University of Washington Medical system, translated discharge instructions for common obstetrics and gynecology (OBGYN) clinical scenarios are not available. We sought to take a step towards bridging these communication and care gaps with our patients by creating language-concordant discharge instructions with the hope of increasing understanding, adherence, satisfaction, and equitable care.

INTERVENTION

Our division has existing discharge instructions (Epic dot phrases) for common clinical situations ranging from post-operative care after gynecologic surgery to healing and care instructions after a perinatal loss. These are commonly distributed by providers to patients after surgery or hospital admission. To our knowledge, in circumstances where patients primarily spoke a language that was not English, these patients were not being provided these written instructions at all. At best, they were being given these written instructions in English, with the hopes that they were being reviewed by the care team prior to discharge with the assistance of an in-person, video, or telephonic interpreter. Collaborating with the Harborview Translations Department we worked to have 12 of these discharge instruction dot phrases translated into the eight most spoken languages of our patient population: Spanish, Vietnamese, Somali, Amharic, Tigrinya, Chinese, Russian and Arabic. The provided translated text was then used to create new dot phrases with the English version of the instructions provided below for reference. These dot phrases were then distributed to the division of OBGYN for use among faculty and trainees. Initial response from OBGYN providers was overwhelmingly positive with many expressing excitement and need for this type of resource. Anecdotally, these translated instructions are already being provided to patients on a regular basis.

DISCUSSION

Providing patients with written instructions in their native language is a simple step towards improving understanding, retention, and adherence to medical plans. Our hope would be to continue to provide this service to patients in a wider array of languages and clinical scenarios. For example, next steps may include translation of informed consent forms, preoperative instructions and obstetric after visit summaries. In the future, one could envision written translation services that could be done in real-time to more nimbly provide information tailored to individual patients' needs and clinical scenarios. We also support and hope to see further efforts in providing more equitable care for non-English speaking patients such as having greater numbers of in-person interpreters and cultural navigators and hiring more staff and providers who are fluent in the languages that reflect our patient populations.

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Validation of the PCPLC Database Using NSQIP-P: A Patient Matched Comparison of Surgical Complications Following Repair of Anorectal Malformations

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BACKGROUND

Congenital pediatric colorectal diseases are rare and heterogeneous making this group of patients particularly challenging to study. The Pediatric Colorectal and Pelvic Learning Consortium (PCPLC) aims to improve the health of children affected by colorectal conditions. It includes 17 children's hospitals with a registry of more than 3800 patients. PCPLC sites identify patients and upload specific data variables to a national registry. To date, there has been no external validation of the data entered into the PCPLC registry. We sought to validate the data within the PCPLC registry by performing a patient matched analysis of 30-day outcomes with The American College of Surgeons National Surgical Quality Improvement Program-Pediatric (NSQIP-P) database for patients undergoing surgical repair of anorectal malformation (ARM).

METHODS

After approval from the IRB, all patients captured in the PCPLC database at institutions also participating in NSQIP-P who underwent ARM repair younger than 12 months of age were reviewed for 30-day complications and matched to their NSQIP-P record via retrospective pairing with their hospital identification number. Complications within 30 days of the primary surgical procedure were compared.

RESULTS

180 patients met inclusion criteria. Complications in the PCPLC database and NSQIP-P database were 7.8% and 10.0% respectively. Complications recorded in both databases demonstrated relative concordance.

CONCLUSION

The 30-day complication rate captured within the PCPLC registry for pediatric patients undergoing surgical repair of ARM appears to have relative concordance with a matched NSQIP-P population when accounting for complications not tracked by the PCPLC and normal margin of error.

Articles

EQuIP: Helping Residents Change the Future

Author: Juri de Jong, MD

Affiliation: University of Washington Department of Internal Medicine

I was introduced to the concepts of healthcare quality improvement (QI) and patient safety (PS) during my second year of internal medicine residency at the University of Washington through the program's annual QI/PS curriculum, titled "Experiential Quality Improvement Project," or EQuIP. Briefly, EQuIP is a structured course for internal medicine and family medicine residents to learn QI/PS principles, but more importantly, allows residents to apply these concepts to real medical errors and patient safety events that occurred in our hospitals and were reported via the Patient Safety Net (PSN) event reporting system. The PSNs used in the EQuIP course originated from UWMC-Montlake (UWMC) and Harborview Medical Center (HMC). The purpose of this article is not to describe EQuIP, though if you would like more information, please read the 2021 article by Chen et al. titled "Creating a Framework to Integrate Residency Program and Medical Center Approaches to Improvement and Patient Safety Training."[1] Rather, the primary objective of this piece is to highlight the instrumental role UW Medicine's trainees play in both identifying and advocating for change in our hospitals, especially as it relates to patient safety and workflow process improvements.

Now, imagine it's August of 2021 and you are about to embark on a four-hour zoom session to discuss nebulous terms like "patient safety" and "quality improvement measures." To be perfectly transparent, any type of research, even into patient safety and process improvement, seemed like too grand a gesture to undertake amid residency and a global pandemic. More so, I didn't see how four four-hour-long sessions over the course of a month would allow residents to really effect change. As the future QI/PS chief resident at the Seattle VA next year, I am embarrassed to admit that an overwhelming sense of "eye-rolling, here we go again" filled me as I sat in front of my computer screen that first early morning. However, these concerns were quickly quieted when the wonderful Dr. Vince Raikhel, former QI/PS Chief at the Seattle VA and current VA hospitalist, began to speak about the Apollo 13 mission. Orating with obvious energy and excitement, Dr. Raikhel used the example of Apollo 13 to introduce concepts of QI/PS, and how we would use the next month to apply these principles to real issues in our hospitals. I was hooked. As a future hospitalist, I now could see the intrinsic value of this work–these would be the same issues I would struggle with as a healthcare professional in the current system, and that change would not occur unless the drivers/participators of said change spoke up. Over the next month, we split into smaller groups and each group focused solely on the issues in one PSN.

As an aside, after an intern year dominated by COVID and difficulty interacting with my peers due to social distancing, it was wonderful to work in these intimate groups with my co-residents–to see how much my peers cared about their patients and how dedicated they were to improvement of our workplace. Again, the article referenced above provides details about EQuIP, but for my purpose, I would like to highlight that the course culminates in resident-lead presentations to UW Medicine hospital leadership, specifically to suggest QI/PS interventions based on the PSNs each group worked on. That is, the EQuIP curriculum is designed such that there is a protected space and time for residents to be heard by hospital leadership!

I was fortunate to be asked to facilitate the EQuIP course in August of 2022 and was delighted to do so. As someone who was inspired to do a QI/PS chief resident year based on my experience in EQuIP as an R2, I hoped to convey my passion about QI/PS work. But perhaps more importantly, I wanted to help the residents truly understand how instrumental their efforts are in this realm, both for patients but also for the hospital environment in which we work. The remaining portion of this piece will serve to highlight the amazing work our R2 residents did in 2022, and to remind the residents that they are the true drivers and implementers of change in our hospitals.

An intervention proposed by one of the resident groups from EQuIP is the use of colored bracelets for patients at HMC to indicate code status. Currently, there is no physical marker (only what is documented in the EHR) that indicates a patient's wishes in the event of a cardiopulmonary arrest. As one could imagine, this unfortunately results in instances in which patients are resuscitated against their prior stated wishes. The idea to use a physical marker, plastic bracelets of different colors in this case, which clearly and immediately communicates code status was borne of a PSN analysis in EQuIP. I believe that trainees are uniquely positioned to identify QI/PS issues and then propose interventions given their day-in day-out role of being the primary caregiver for hospitalized patients and therefore being exposed to the daily processes and workflows of the hospital. Thus, it is the residents' role as an intrinsic part of the medical machine, which then gives them a unique perspective to make potential changes that may be missed by those more peripherally involved in the day-to-day mechanisms like attending physicians.

Another change made in 2022 as a result of the EQuIP projects reflects the growing opioid epidemic in the USA, and the increasingly large role played by residents, especially medicine residents, in recognizing and treating opioid withdrawal. The mixed popularity and success of buprenorphine-naloxone formulations and methadone have further complicated these decision points, and thus made it more difficult for residents, often on the front line, to know when and which medications to use. Therefore, it is not surprising that there have been issues with correctly identifying patient opioid withdrawal symptoms and knowing when and which medications to use. As a result, residents in this year's EQuIP course argued for the creation of an order set in our EHR, specifically Epic, which would allow nursing to monitor for patient

opioid withdrawal symptoms and document this in a specific location in the EHR. Prior to this order set creation and input from the trainees, there was no single specific location where nursing could document these withdrawal scores, and it was exceedingly difficult for residents to order monitoring in the first place. Again, these seem like obvious changes to be made, and further emphasizes the role residents have in identifying and implementing these changes.

I hope this piece has highlighted not only the impressive problem-solving skills UW Medicine's trainees possess in identifying and solving QI/PS issues, but that real change is possible in our hospitals. However, this change cannot and will not occur unless the people who are intimately involved speak up. The EQuIP course, then, provides this opportunity for residents to learn and then apply these concepts to real medical errors and patient safety events in our hospitals. Perhaps most importantly, it also provides an opportunity for residents to present these suggestions to UW leadership who are then in a position as the champions of change to implement these suggestions. The two examples discussed earlier perfectly capture what happens when trainees are given the tools to identify QI/PS issues and are then heard by hospital leadership.

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Narrative Medicine and Pediatric Rheumatology: Addressing Burnout and Bias

Authors: Aviya Lanis, MD; Natalie Rosenwasser, MD; Esi Morgan, MD, MSCE

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ABSTRACT

Background

Burnout, a syndrome of emotional exhaustion and depersonalization, adversely impacts healthcare and results in depression/anxiety, poor patient and provider satisfaction and high turnover. Burnout also plays a critical role in physician bias, with increased bias among those with higher burnout rates. Narrative medicine incorporates stories of human experience into medicine, building relationships and strengthening empathy. Limited data investigates narrative medicine's impact on burnout and bias. This pilot study aims to utilize narrative medicine as a tool to address burnout and explore bias amongst healthcare professionals.

Methods

Individuals in a single-center pediatric rheumatology department participated in six monthly 1-hour live video-based sessions. A Plan-Do-Study-Act approach was implemented with post-participation surveys that guided intervention adjustments. Pre-, intra- and post-participation questionnaires were administered to monitor impact. Descriptive analyses were used for participant demographics, and questionnaires were assessed for differences with a Wilcoxon signed rank test.

Results

Twenty-four participants were assigned to 6 narrative medicine groups. No statistical significance was seen when evaluating the Mini Z Burnout, Copenhagen Burnout Inventory, or Patient Health Questionnaire-9 from baseline to 3 months. Implicit Association Testing showed a statistically significant shift towards positive association with African Americans (AA) (p-value=0.012), while the Feeling Thermometer showed a possible explicit bias shift away from positive association with European Americans (p=0.096).

Conclusion

Narrative medicine is a feasible intervention that warrants further study as a means to address bias. Additional long-term analysis is needed to understand if these changes are durable.

BACKGROUND

Burnout, a syndrome of emotional exhaustion, depersonalization and a lack of sense of accomplishment, adversely impacts the delivery of high-quality and compassionate healthcare. Burnout has resulted in critical individual and organizational costs, with consequences such as fatigue, depression, suicidal ideation, anxiety, sleep disturbance, irritability and substance abuse, as well as poor patient and provider satisfaction, missed work days, diminished job performance and high turnover.[1,2] Studies have shown that burnout also plays a critical role in physician implicit and explicit biases, with increased bias among those with higher rates of burnout. SARSCOV2 has caused healthcare providers and trainees to experience higher levels of stress and burnout than an already elevated baseline.[3] The pandemic has similarly highlighted the prevalence of racial bias in healthcare, revealing a need for further work in the field.

Narrative medicine incorporates the stories of human experience into the medical realm, and has been proven to build relationships, strengthen empathy, and enrich pedagogical and clinical skills.[4-6] There is currently limited data investigating the impact of narrative medicine on burnout and bias. One recent study demonstrates the use of learner and patient narrative-based story writing workshops as a tool to open communication and offer a space for understanding varied experiences and approaches to mitigate bias.[7] Another study demonstrates use of artistic-narrative presentation given by a woman with sickle cell disease as a mechanism to help medical students acknowledge their own bias and create a space for dialogue on the impact that assumptions and bias can have on patient care.[8] The current pilot study aims to expand upon these prior studies and address the gap of knowledge around narrative medicine as a tool among pediatric rheumatology team members in an attempt to address burnout and implicit and explicit bias.

METHODS

Physicians, nurses, medical assistants and administrative staff at a single-center pediatric rheumatology department participated in six live monthly 1-hour video-based sessions led by the principal investigator (AL) and a Narrative Medicine-trained co-facilitator. Sessions utilized poetry, photography, paintings, and spoken word to inspire writing prompts around the medical experience. Five out of the six sessions included participants divided by training and work roles. Groups were divided into two groups of pediatric rheumatologists, one group of pediatric rheumatology fellows, one group with nurses and medical assistants, and two groups of ancillary staff.

The study implemented a Plan-Do-Study-Act (PDSA) approach, with post-participation surveys that guided intervention adjustments. The interventions included sending reminders, resources and teachings between sessions. During the sessions, topics were announced, prompts were offered, time was allotted for reflection and writing, breakout groups were used as needed, and groups reconvened at the end of each session where they were offered a space to share their writings and reflections.

Questionnaires included demographic data, Mini Z Burnout, Copenhagen Burnout Inventory (CBI), and Patient Health Questionnaire-9 (PHQ-9) as well as Implicit Association Testing (IAT) and explicit bias Feeling Thermometer (FT). The Mini Z burnout survey is a 10-item scale with 5-point Likert scales and one open ended question

assessing burnout, stress and satisfaction, which takes approximately 1-2 minutes to complete.[9] Mini-Z Burnout Total score ≥20 represents joyful work environment, Satisfaction Score ≥20 represents highly supportive environment, and Stress Score ≥20 represents low stress environment. The CBI is a 19-item scale that assesses personal burnout, work-related burnout, and client-related burnout, which takes approximately 5-7 minutes to complete.[10] CBI Score of 50-74 represents moderate burnout, 75-99 represents high burnout, and 100 represents severe burnout. The PHQ-9 is a 9-item questionnaire that screens for depression, which takes approximately 3-5 minutes to complete.[11] PHQ-9 score of 1-4 represents minimal depression, 5-9 represents mild depression, 10-14 represents moderate depression, and 20-27 represents severe depression. Explicit bias was measured with the FT, in which participants moved a slider along a scale from 0 to 100 points, ranging from very cold or unfavorable (lowest score) to very warm or favorable (highest score) to document feelings towards both black individuals and white people. The IAT measured implicit bias towards black people compared with implicit bias towards white people.[12] Questionnaires were administered at baseline, and following the third and sixth sessions, with plans to administer questionnaires six months following completion of the intervention to monitor for sustained impact.

Descriptive analyses were used for participant demographics, and surveys results were assessed for differences with a Wilcoxon signed rank test given data was not normally distributed.

RESULTS

Twenty-four participants (21 females, 2 males and one person identifying as non-binary) were divided amongst 6 narrative medicine groups, 3 of whom completed 2 or fewer of the sessions. Figure 1 depicts the recruitment strategy with the number of sessions completed. Self-identified race included 18 White, 4 Asian, 1 Black or African American, and 1 who preferred not to answer. Participants included 8 attendings,
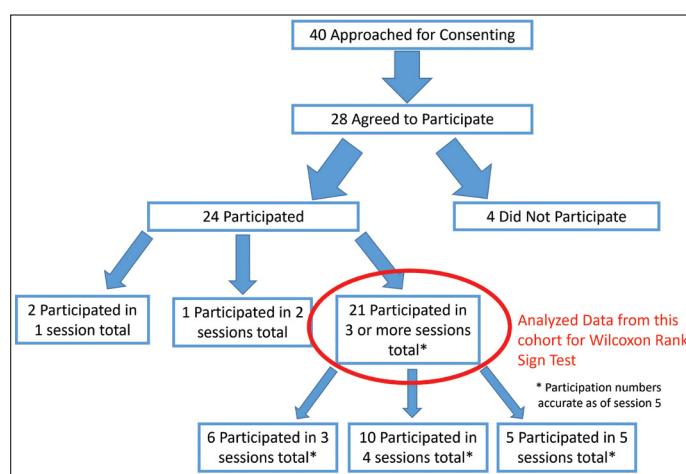

Figure 1: Participant responses to pre workshop survey.

4 fellows, 2 nurses, 2 medical assistants, and 8 staff members.

Preliminary analysis was completed based on results through the fifth narrative medicine session. Table 1 depicts pre- and intra-participation questionnaire outcomes. The Mini-Z Total mean scores of 29.2 and 29.5 indicate a joyful work environment, while the Satisfaction scores of 12.5 and 12.9 suggest absence of a highly supportive work environment and Stress scores of 13.7 and 13.5 indicate a stressful work environment. The mean CBI score of 42.8 and 38.6 indicate mild burnout, and mean PHQ-9 scores of 6.0 and 4.6 indicate mild and minimal depression respectively. No statistical significance was seen when evaluating questionnaires for the Mini Z Burnout, CBI, or PHQ-9, when comparing questionnaires prior to and 3 months into participation (Table 1). IAT showed a statistically significant shift towards positive association with African Americans following participation (p-value= 0.012), while FT showed an explicit bias shift away from positive association with European Americans (p=0.096).

Table 2 depicts PDSA cycles with changes made to programming in response to feedback received.

Table 1: Pre- and intra-participation questionnaire results including observations, mean, standard deviation (SD), median, range, and Wilcoxon signed-rank test p-values.

	MINI Z BURNOUT						COPENHAGEN BURNOUT INDEX		PHQ-9	
	Total Pre	Total Intra	Satisfaction Pre	Satisfaction Intra	Stress Pre	Stress Intra	Pre	Intra	Pre	Intra
Observations	21	20	21	20	21	20	21	19	21	18
Mean	29.2	29.5	12.5	12.9	13.7	13.5	42.8	38.4	6.0	4.6
SD	6.4	6.2	3.3	2.9	2.6	3.0	13.2	16.7	5.0	3.8
Median	30	30	14	13.5	14	14	39.5	34.2	5	3.5
Range	15-38	18-38	5-17	7-17	7-18	8-19	25-75	17.1-84.2	0-17	0-13
Wilcoxon signed rank test p-value	0.7754		0.43342		0.48933		0.25825		0.72723	

Table 2: PDSA Cycle changes made in response to feedback received.

Session Number	Session Theme	Post-Participation Feedback	Changes Made of Future Sessions
1	The Wounded Healer	Request for additional information and background on narrative medicine.	Narrative medicine-related information was shared with participants prior to each future session.
2	Grief and Loss	Request for awareness of the topicprior to the session. Request for less guided discussions and more free-flowing conversations within the sessions.	Participants were notified of session topics prior to each future session. Session 3 also included an opportunity for a breakout session without facilitators.
3	Bias of our Worlds: Part I	Request for opportunity to interact with other individuals completing the narrative-based sessions.	Session 4 included a shuffling of participants to new groups, with a mix of nurses, medical assistants, staff and physicians within each group.
4	Bias of our Worlds: Part II	Preference for staying within previously established groups.	Participants were returned to previously established groups for future sessions.
5	Awe in Medicine	Request for more time for reflection on material covered.	Session 6 reserved half the time to reflect on session participation to date.
6	Reflections	Pending	N/A

DISCUSSION

Narrative medicine has been shown to be an effective tool to promote empathy and has been postulated as a potential mechanism to prevent burnout.[13-15] Given the size and length of this pilot study, additional research is needed to investigate the use of narrative medicine as a tool to mitigate burnout and understand its potential role in addressing bias. While the current pilot study did not show significant differences for the Mini Z Burnout, CBI or PHQ-9 questionnaires when comparing pre- and intra-participation responses, there was a trend towards improvement for the CBI and PHQ-9 questionnaires. Importantly, this trend occurred despite pre-questionnaires being asked in the autumn and intra-questionnaires being asked in the winter, which typically may raise expectation for worsened depression and burnout rates in the setting of "winter burnout."[16]

Importantly, PHQ-9 scores within this study showed an improvement in mean scores from mild to minimal depression following completion in this study, suggesting potentially clinically significant impact on participants. Recognizing the sample overall had low levels of depression to begin with, it may be hard to identify changes and/or improvements in these numbers. Future studies should investigate the potential mental health benefit narrative medicine sessions can have for participants.

Of note, there are several limitations of the current study. One important potential limitation is understanding the test-retest reliabilities and internal consistencies of the IAT measures. Literature shows a higher value for internal consistency of the IAT (alpha = 0.80) compared to a lower test-retest reliability (r=0.50), suggesting systematic variance in single IAT observations that may not be shared across measurement occasions.[17] As such, future research should consider repeat testing for each point-in-time that questionnaires are collected.

Recognizing this was a small single-center study, future studies should investigate the use of a multi-center narrative-based intervention with a larger sample size. As the current curriculum did not focus only on bias, future research should investigate the value of a bias-specific narrative-based curriculum and monitor for changes in bias pre- and post-participation.

The current preliminary analysis only looks at data to date from questionnaires completed after 3 sessions were completed, including demographic and participation data through session 5. Additional analysis is required of the post-participation questionnaires to monitor for sustained effects.

CONCLUSION

Narrative medicine is a feasible and acceptable intervention for the pediatric rheumatology community. Additional research is needed to understand the potential affect narrative medicine can have on burnout and implicit and explicit bias.

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Greenwald AG et al. Best research practices for using the Implicit Association Test. Behav Res Methods 2022;54(3):1161-80.Narrative Medicine and Pediatric Rheumatology: Addressing Burnout and Bias.

Standardization of Care For Children With New Onset Nephrotic Syndrome

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BACKGROUND

The Glomerular Learning Network (GLEAN) is a collaborative of nine pediatric institutions whose mission is to improve the health and well-being of children with glomerular diseases by increasing sustained remission and decreasing complications. To achieve these goals, GLEAN launched a Quality Improvement initiative for new onset nephrotic syndrome consisting of a standardized clinical pathway and "Smart Bundle" (SB). This SB standardizes visit timing, initial medication regimens, patient/family education, and dietary counseling.

OBJECTIVES

A. To describe compliance with individual SB components: number of patients who received an educational packet, nutrition counseling, immunization review, and tuberculosis (TB) screening at 2 GLEAN sites, Children's Hospital of Philadelphia (CHOP) and Seattle Children's Hospital (SCH).

B. To describe compliance with all SB components at SCH only. The SMART Aim was 80% compliance of 100% of the SB components by 12/31/2022.

DESIGN/METHODS

GLEAN developed a SmartForm used by providers and nurses which populates an electronic health record registry at both sites. In a primary analysis, registry data from CHOP (12/2020-12/2022) and SCH (7/2022-12/2022) were combined to evaluate four SB metrics: education, nutrition counseling, immunization review, and TB screening.

A secondary prospective analysis of SB compliance was then completed for SCH. The additional components audited included: initial outpatient visit within 5 days of diagnosis, standardized steroid dosing, and 4-week follow-up visit completed.

RESULTS

In the primary analysis, 51 patients were included. 86% received an educational packet, 90% had nutrition counseling, 80% had immunization review, and 92% had TB screening.

In the secondary analysis, 3/10 (30%) patients were compliant with all SB components. Reasons for missed opportunities included: SmartForm not completed (50%), vaccine records not reviewed (10%), and TB screening not completed (10%).

CONCLUSIONS

Standardization of care for children with nephrotic syndrome has historically been difficult. This QI project demonstrates that standardization of care at large subspecialty centers is possible using a nephrotic syndrome SB. Future work across all GLEAN centers will determine which SB components may be most impactful on patient outcomes.
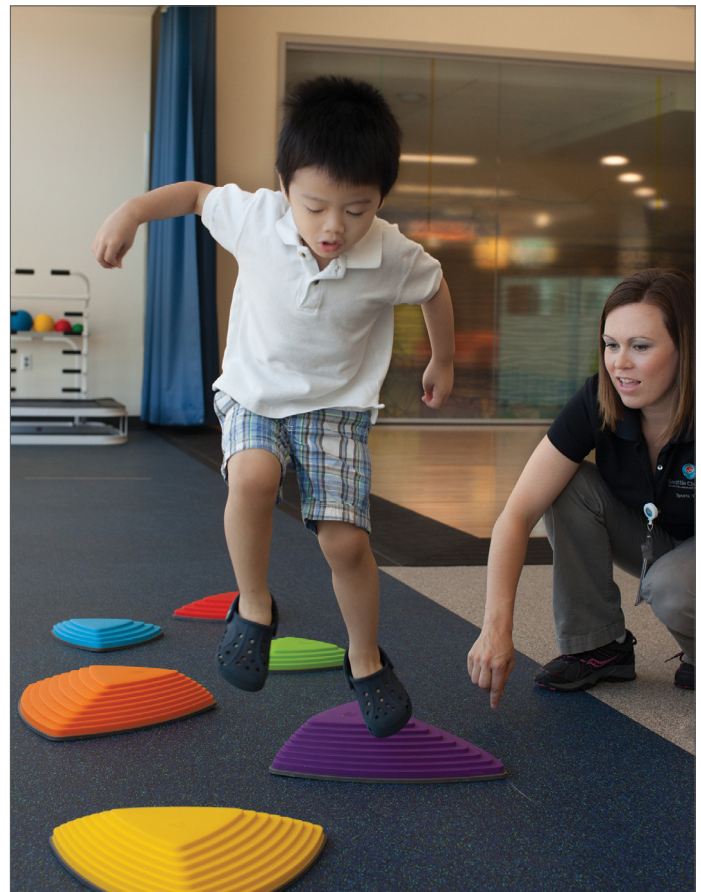
Increasing Access to Same-Day Addiction Services in Primary Care Clinics Among Veterans: A Pilot Study

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BACKGROUND:

The primary care clinic setting is often a site of first contact for veterans with the medical system, and therefore is an important location to assess and treat veterans with substance use disorders (SUDs). Integrating addiction medicine consultation and care into primary care is a potential method for increasing initiation of medications for SUD and referral to behavioral therapies or specialty SUD care. We developed a SUD consult service for primary care providers (PCPs) within one health system of the Veterans Health Administration (VA). The goals of this innovation were to increase 1) access to timely, evidence-based SUD care for patients with SUD, and 2) the number of patients prescribed pharmacotherapy for SUD (primarily alcohol and opioid use disorders) within the primary care setting. We aimed to evaluate the first 7 months of this service by describing the types of consults received, the number of patients treated, and the number of SUD medication prescriptions provided for alcohol use disorder (AUD) or opioid use disorder (OUD).

METHODS:

A consult service for same-day access to SUD medications was implemented in February 2022 in the VA Puget Sound Healthcare System, Seattle, WA. All patients enrolled in a primary care or women's health clinic at the Seattle campus or at one of the six community-based outpatient clinics (CBOCs) were eligible to take part in this service. All consults during a 7-month period from February 9 through September 9, 2022, were included in the analysis.

Eligible veterans were identified by their PCP as 1) having a SUD or substance-related concern and 2) agreeing to speak to a clinician about medication treatment. If a patient agreed to the referral, the PCP referred the veteran to the primary care SUD (PSUD) team which consisted of a multidisciplinary group of providers including physicians and pharmacists who provided on-call staffing to address referrals during weekday clinic hours. When a referral was received, an on-call PSUD provider contacted the veteran via telephone for a telemedicine visit. This visit was done on the same day as the referral, or if the patient was unavailable, on a future day. The PSUD provider took an assessment of the veteran's substance use, determined if the veteran met diagnostic criteria for SUD, and formulated a management plan. Medications for SUD were prescribed as warranted. If indicated, referral to an addiction specialist or other resources were provided. A follow-up appointment with the PCP, PSUD provider, SUD pharmacist, or specialty addiction treatment was then arranged with the veteran.

After each telemedicine visit was completed, providers logged patient information into a secure registry. Registry information was collected from all consultations, including reason for consultation, SUD diagnosis, prescribed medications, and referrals made as a result of the visit. Descriptive statistics were obtained and resulted below.

This quality improvement project was reviewed by the Human Research Protection Program and Quality, Safety & Value service line at our institution and determined to not constitute human subjects research.

RESULTS:

During the 7-month study period, 78 veterans were referred for PSUD consultation by PCPs. Seventy-eight percent (n=61) of consultations were for AUD, 8% (n=6) for OUD, 9% (n=7) for tobacco use disorder, 5% (n=4) for stimulant use disorder, and 9% (n=7) for multiple SUDs. Eighty-one percent (n=63) of referred veterans were successfully contacted for telephone appointment, 70% (n=44) of whom were contacted within 24 hours of the referral.

Forty-five patients with AUD were successfully contacted for PSUD consultation. Of these, 78% (n=35) were prescribed medications for AUD: 71% (n=25) naltrexone alone, 17% (n=6) both naltrexone and gabapentin, 9% (n=3) gabapentin alone, and 3% (n=1) acamprosate. Four patients with OUD were successfully contacted, and 75% (n=3) of these were prescribed buprenorphine-naloxone for OUD.

Of contacted patients, 94% (n=59) were scheduled for follow-up SUD care. Forty-nine percent (n=29) were scheduled for follow-up with PSUD provider, 25% (n=15) with a SUD pharmacist, 10% (n=6) with PCP, 10% (n=6) with a specialty addiction treatment center, and 5% (n=3) to other specialists (general psychiatry or pain clinic).

DISCUSSION:

Integrating same-day telemedicine SUD care into a primary care setting increased access to timely SUD assessment, management, and prescribing of evidence-based medications for SUD. The majority of patients were referred for AUD, but consultations were also received for other SUDs including opioid, tobacco, and stimulants. Most patients received follow-up with a PSUD provider or SUD pharmacist.

CONCLUSION:

This pilot intervention demonstrated the feasibility of a telemedicine referral service to increase timely access to SUD care for patients within the VA Puget Sound Health Care Systems' primary care setting.

Evaluation of a Newly Implemented Sepsis Order Set on Reducing Patient Mortality and Length of Stay

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ABSTRACT

Background

Sepsis is a clinical syndrome caused by a dysregulated host response to infection which results in life-threatening organ dysfunction.[1] Although advances in clinical practice have contributed to early detection and treatment, sepsis continues to place an immense burden on healthcare systems and patients.[2,3] Due to the continued prevalence of sepsis in hospitalized patients and its burden on healthcare systems, the establishment of a systematic response may improve patient outcomes. This project aims to identify factors associated with prolonged Intensive Care Unit (ICU) all-cause mortality for patients diagnosed with sepsis at the University of Washington Medical Center (UWMC).

Methods

We conducted a retrospective cohort study on patients admitted to UWMC Montlake between March 1, 2021 to September 30, 2022 who met sepsis diagnosis criteria. Descriptive analyses were utilized to examine the distribution of each covariate characteristic by exposure and outcome. Multivariate logistic regression was performed to ascertain the associations between use of the sepsis order set with the outcomes of interest.

Results

The unadjusted relative risk of all-cause mortality for patients who developed sepsis when comparing order set utilization was -0.103 (95% CI -0.1, -0.106, p<0.001). Following adjustment for confounding covariates, the rate ratio was -0.08 (95% CI -0.1, -0.05, p = 0.006).

Conclusion

The use of the sepsis order set was associated with reduced relative risk of all-cause mortality for septic patients admitted to UWMC Montlake. Further investigations are needed to evaluate clinical significance and potential improvements to the order set.

BACKGROUND

Sepsis is a clinical syndrome caused by a dysregulated host response to infection which results in life-threatening organ dysfunction.[1] Sepsis and septic shock are medical emergencies that are associated with high patient mortality, increased length of hospital stay, and long-term disability.[4,5] Although advances in clinical practice have contributed to early detection and treatment, sepsis continues to place an immense burden on healthcare systems and patients.[2,3] This is partly due to the lack of specificity of early sepsis symptoms which can mimic other non-infectious illnesses, as well as the absence of any gold standards for screening and diagnosis for the syndrome. Several sepsis screening tools exist, including the systemic inflammatory response syndrome (SIRS) criteria, quick Sequential Organ Failure Score (qSOFA) or Sequential Organ Failure Score (SOFA), National Early Warning Score (NEWS), or Modified Early Warning Score (MEWS), however there is a wide degree of diagnostic accuracy among these tools, with the majority having poor predictive values. The performance of sepsis screening tools also varies based on clinical setting, as not all tools are validated in community/ambulatory settings.[6]

The 2021 Surviving Sepsis Campaign highlighted several key recommendations in the management of sepsis and septic shock. These included the administration of antibiotics within one hour for patients suspected of possible septic shock or high likelihood of sepsis, a thorough clinical examination, and rapid laboratory assessments for both infectious and noninfectious causes of sepsis.[7] The implementation of evidence-based protocols for sepsis management was associated with greater reduction in sepsis mortality, as seen in a large retrospective study comparing states that mandated protocolized sepsis care vs. those that did not.[8] Due to the continued prevalence of sepsis in hospitalized patients and its burden on healthcare systems, the establishment of a systematic response may improve patient outcomes.[9]

This project aims to identify factors associated with prolonged Intensive Care Unit (ICU) all-cause mortality and length of stay for patients diagnosed with sepsis at the University of Washington Medical Center (UWMC). This could contribute to the improvement of UWMC's newly established sepsis response protocol.

METHODS

We conducted a retrospective cohort study on patients admitted to UWMC Montlake between March 1, 2021 to September 30, 2022. Data was extracted from UWMC Montlake's database by Vizient, of which 1,344 patients were initially included. Prior to analysis, all sensitive patient data was removed to create a de-identified dataset. Covariates relevant to the primary and secondary outcomes were identified using a Directed Acyclic Graph (DAG). Backwards stepwise regression was utilized to create a simplified model that best fits the outcomes of interest.

Inclusion/Exclusion Criteria

All admitted patients who met UWMC's criteria for sepsis diagnosis that were admitted to UWMC Montlake from March 1, 2021 to September 30, 2022 were included in the study for analysis. A diagnosis of sepsis is determined as meeting two or greater of the SIRS

criteria and evidence of organ dysfunction within a six-hour timeframe (criteria listed below). The sepsis order set was initiated at UWMC Montlake on March 1, 2022.

Patients with length of stay greater than the 95th percentile of the study population were excluded from primary analysis. This was done due to the presence of non-clinical confounding factors that prolong ICU length of stay, such as homelessness, difficulty finding long term placement, high nursing care needs inappropriate for clinical wards, etc. This resulted in 920 patients included for final analysis.

Detailed study criteria for SIRS, organ dysfunction, and definitions for time zero for sepsis diagnosis are outlined below:

SIRS Criteria:
• Temperature > 38.0 or < 36.0
• Heart Rate >90
• Respiratory Rate >20
• WBC >12,000 or <4,000 or bands >10%

Organ Dysfunction Criteria:
• Systolic BP <90
• MAP <70
• Creatinine >2.0
• Bilirubin >2.0
• INR >1.5
• PTT > 60 seconds
• Lactate > 2.0

The Time of Suspected Infection is the first time one of these actions occurred:
Option 1 - Blood Culture ordered first, followed by ABX ordered
    within 72 Hrs
Option 2 - ABX ordered first, followed by blood culture ordered
    within 24 hrs
Dual Option - Culture and ABX ordered at the same time

Time Zero Criteria:
CMS SEP-1 measure criteria:
First Lactate: one hour before or three hours after time zero
First Blood Cx: one hour before or three hours after time zero
Antibiotics Started: 24 hours before or three hours after time zero
IV Fluids Started: one hour before or three hours after time zero
    (only for patients with diagnosis of septic shock)

Primary Outcome

The primary outcome of interest was all-cause mortality resulting from all patients who had a diagnosis of sepsis during their admission at UWMC Montlake.

Secondary Outcome

The secondary outcome was length of stay for all patients who were admitted at UWMC Montlake who had a diagnosis of sepsis at some point during their stay.

Directed Acyclic Graphs

A directed acyclic graph was created to determine the sufficient adjustment set of confounders to better estimate the overall association between sepsis and all-cause mortality. The utilization of epidemiologic techniques such as directed acyclic graphs (DAG) in observational studies have the potential to reduce bias and identify controllable factors on the causal pathway that may improve patient outcomes.[10] Analyses of these factors can guide selection of interventions by determining mediators of poor outcomes and comparing potential benefits from alternative interventions.[11]

Statistical Analysis

All statistical analyses were performed in R Studio Version 1.2.1335. Descriptive analyses were utilized to examine the distribution of each covariate characteristic by exposure and outcome. Multivariate logistic regression was performed to ascertain the associations between the implementation of the sepsis order set and primary outcome. Statistical analyses were conducted by Laurence Henson.

RESULTS

The unadjusted relative risk of all-cause mortality for patients who developed sepsis when comparing order set utilization was -0.103 (95% CI -0.1, -0.106, p<0.001). Following adjustment for confounding covariates, the rate ratio was -0.08 (95% CI -0.1, -0.05, p = 0.006). These results suggest that usage of the sepsis order set has reduced the relative risk of all-cause mortality by 8%. Table 1 summarizes these findings for the primary outcome. Table 2 shows the results for our secondary outcome. Major covariates include age, presence of sepsis on admission, sepsis severity, and first lactate result.

Table 1: Multivariate Logistic Regression Analysis for All-Cause Mortality, UWMC Sepsis Dataset

Overall (n=917)		
Length of stay	Estimate (95% CI)	p value
Unadjusted	-0.103 (-0.1, -0.106)	<0.001*
Adjusted (Order set used)	-0.08 (-0.1, -0.05)	0.006*
No sepsis on admission	0.13 (0.09, 0.16)	<0.001*
Sepsis severity	0.08 (0.06, 0.09)	<0.001*
First lactate result	0.035 (0.031, 0.039)	<0.001*
Age	0.0037 (0.0031, 0.0043)	<0.001*

1. 95% confidence intervals in parenthesis
2. All models are logistic regression models, each adjusting for one independent variable and the final model adjusting for all potential confounders.

DISCUSSION

The use of the sepsis order set was associated with reduced relative risk of all-cause mortality for septic patients admitted to UWMC Montlake. These results suggest some positive impact of implementing the order set in reducing all-cause mortality, however there may be

sampling bias given the set study parameters favoring patients who more grossly meet UWMC's criteria for sepsis. Moreover, our primary outcome, all-cause mortality, may require a more detailed definition so as to exclude patients who passed away due to factors that are not impacted by sepsis.

Table 2: Multivariate Logistic Regression Analysis for Length of Stay, UWMC Sepsis Dataset

Over=(n=917)		
Length of stay	Estimate (95% CI)	p value
Unadjusted	-0.44 (-1.78, 0.90)	<0.001*
Adjusted (Order set used)	-0.33 (-0.25, 2.43)	0.006*
No sepsis on admission	21.2 (19.4, 23.0)	<0.001*
Sepsis severity	1.83 (1.2, 2.46)	<0.001*
First lactate result	-0.06 (-0.32, 0.06)	<0.001*
Age	-0.06 (-0.09, -0.03)	<0.001*

1. 95% confidence intervals in parenthesis
2. All models are logistic regression models, each adjusting for one independent variable and the final model adjusting for all potential confounders.

Further investigations are needed to evaluate clinical significance and potential improvements to the order set. This quality improvement project is a work in progress and we hope to provide more meaningful changes to the order set with future updates.

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Improving Safety of Non-Emergent Tracheal Intubation in the Neonatal Intensive Care Unit: A Quality Improvement Study

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BACKGROUND

Intubation premedication, including a paralytic, has been proposed to improve the success and safety of non-emergent neonatal tracheal intubation (TI).[1-6] As part of our participation in the National Emergency Airway Registry for Neonates (NEAR4NEOS), we track the occurrence of both severe and non-severe adverse TI associated events (TIAE). This quality improvement initiative has a global aim of optimizing provider use of full premedication (vagolytic and opiate analgesic and paralytic) for non-emergent TI at the Level IV neonatal intensive care unit at the University of Washington Medical Center. Our specific aim was to increase provider usage of full premedication for non-emergent neonatal TI by 20% by July 31, 2022.

METHODS

Setting and Design

This is a quality improvement study performed at a single academic NICU using prospectively collected data from NEAR4NEOS, a multicenter collaborative with the goal of improving intubation safety for neonates.[7,8] The UWMC has participated as a clinical site within the NEAR4NEOS collaborative since 2016. The NEAR4NEOS data collection form captures patient, practice, provider, and TI outcome data for delivery room and NICU intubations as described in standard operational definitions.[7,8] Data forms are filled out immediately following each intubation by the provider(s) performing the intubation. This study was determined exempt by the Seattle Children's Institutional Review Board (IRB # 14922) with the UWMC NICU included as a participating site.

Adverse Tracheal Intubation Associated Events: The NEAR4NEOS defines TIAEs as any unwanted outcome or event occurring because of an intubation or observed during or after the intubation.[2,7-9]

Premedication

For this study, full premedication was defined as opiate analgesia (morphine or fentanyl) with a vagolytic (atropine) and paralytic (rocuronium or vecuronium). As part of this quality improvement initiative, the UWMC NICU underwent practice changes to enhance the use of premedication for non-emergent TI. Practice changes included creating an intubation medication order set with fentanyl, atropine, and the shorter acting rocuronium premedication. Fentanyl was selected over morphine based on the faster onset of action compared with slower acting morphine in the context of intubation. Due to concerns for the rare side effect of rigid chest with fentanyl in intubations without a paralytic, some providers prefer morphine as an analgesic, and final choice of premedication was at the discretion of the intubating provider.

A review of baseline intubation data, provider surveys, and discussions with key stakeholders revealed a lack of a timely medication administration process and concerns about medication dosage as significant barriers to using full premedication. A quality improvement team including neonatal fellows, nursing leadership, NICU medical directors, pharmacists, and respiratory therapists implemented process changes over multiple plan-do-study-act cycles, including developing and revising an electronic intubation order set, nursing education, development of a pyxis premedication kit, order set modification, and intubation checklist (Figure 1). The primary outcome was the quarterly usage of full premedication for eligible TI. Process measures included the quarterly rate of any TIAE. As balancing measures, we collected data on adverse medication events (e.g., rigid chest) and the need for medication re-dosing. We used statistical process control charts.
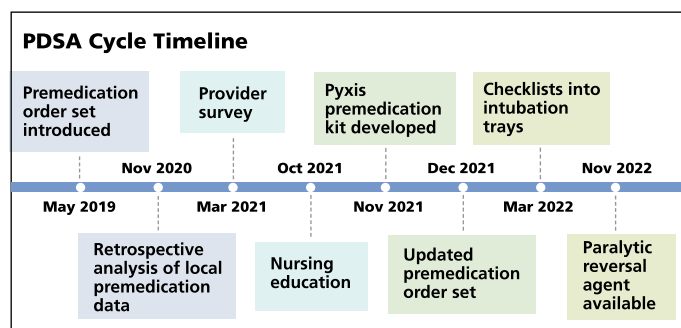

Figure 1. Plan-do-study-act (PDSA) timeline: Improving intubation safety in the University of Washington (UWMC) Neonatal Intensive Care Unit (NICU). All PDSA cycle elements were developed in collaboration with an interdisciplinary team including SKN (principal investigator), neonatal fellows, nursing leadership, NICU medical director, NICU pharmacist, respiratory therapists.

RESULTS

Data collection occurred from June 2017-Feb 2022 included 362 first-course TI encounters in the NICU. We excluded TI occurring in the delivery room and in-unit TI in the setting of unstable hemodynamics (e.g., ongoing CPR) or Intubate-Surfactant-and-Extubate (INSURE) as premedication is either not indicated or highly variable during those circumstances. Before interventions, an average of 0.10 (SD 0.07) eligible in-unit TI used full premedication. During the intervention phase, this increased to an average of 0.39 (SD 0.21) (Figure 2). The average quarterly rate of eligible TI with any adverse TIAE remained
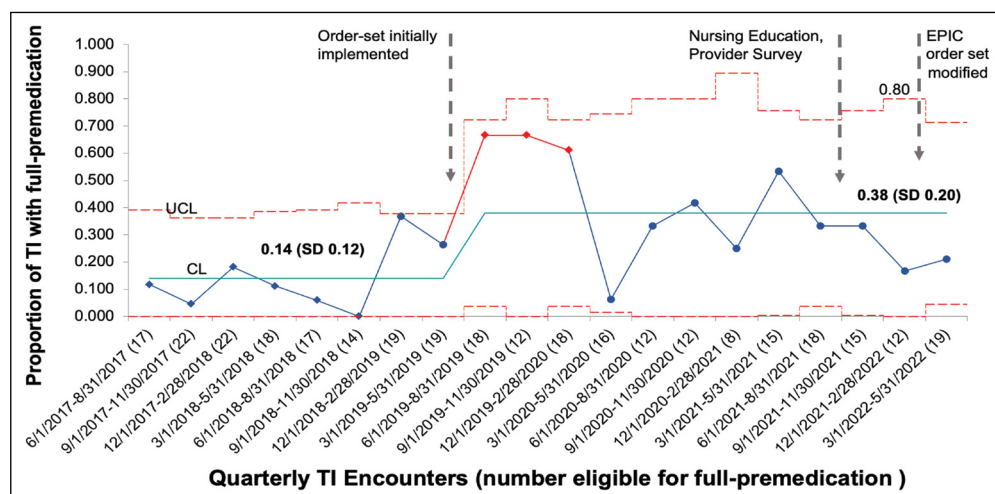
Figure 2.
Proportion of eligible TI using full premedication (assessed quarterly). We included only first course data from each intubation encounter as data from subsequent courses may not be independent of each other.
1. Intubation encounter was considered ineligible for full premedication if occurring in the delivery room, unstable hemodynamics, intubated for surfactant using INSURE.
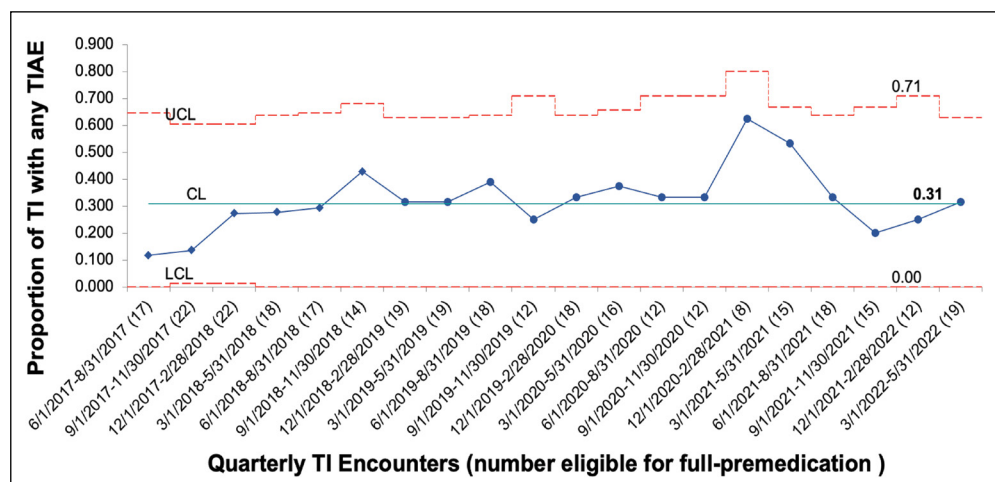2. Full premedication: opiate analgesia and vagolytic and paralytic.

Figure 3.
Proportion of eligible TI with any TIAE (assessed quarterly). We included only first course data from each intubation encounter as data from subsequent courses may not be independent of each other.
1. Intubation encounter was considered ineligible for full premedication if occurring in the delivery room, unstable hemodynamics, intubated for surfactant using INSURE, all other encounters were considered eligible
2. We followed standard operational definitions from the NEAR4NEOS, grouping TIAEs into severe and non-severe categories. TIAEs were assessed for all TI encounters considered eligible for full premedication regardless of actual premedication used.

stable at 0.31 (SD 0.08) (Figure 3), and the quarterly rate of severe TIAEs remained stable at 0.06 (SD 0.05). There were no adverse medication events and no need for medication re-dose. Data collection is ongoing.

CONCLUSIONS

Engaging an interdisciplinary QI team in an initiative focused on neonatal intubation safety has led to a 30% increase in the usage of full premedication for non-emergent TI without an increase in TIAEs. Future studies should explore provider hesitation and practice variation regarding use of full premedication.

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Optimizing Residents' Involvement in Educational Opportunities in the Neonatal Intensive Care Unit: The ORION Quality Improvement Initiative

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BACKGROUND

Pediatric residency encompasses a three-year period of intense training to care for infants and children of all ages. The past decade has heralded a number of changes to graduate medical education including duty hour restrictions, improved supervision of trainees, adjusted workload, and added time for reflection of clinical experiences.[1] While the goal of these modifications was to reduce burn-out, improve patient safety and the trainee environment, pediatric residents have also described a lack of procedural opportunities during training that contribute to feeling inadequately prepared even at the end of residency.[2] Surcouf et al. described the development of a recurring curriculum for pediatric residents designed to cover basic information to assist in daily rounding and clinical decision making in the neonatal intensive care unit (NICU).[3] The resulting NICU orientation was well received and served as a mechanism to build resident confidence within a novel clinical environment such as the NICU.3 While not every pediatric resident will pursue a career in neonatology, feedback from pediatric trainees at the University of Washington and Seattle Children's training program highlighted challenges specifically with regards to learning opportunities during the UWMC NICU rotation.

Optimizing Residents' Involvement in Educational Opportunities in the NICU (ORION) is a single center, multidisciplinary quality improvement initiative with a global aim of enhancing the educational experience and interdisciplinary work environment for pediatric trainees in the Level IV neonatal intensive care unit (NICU) at the University of Washington Medical Center (UWMC).

OBJECTIVE

To improve resident satisfaction scores relating to educational experiences during NICU rotations by 30% by July 31, 2023.

DESIGN/METHODS

We utilized a cross-sectional survey-based approach to obtain baseline data from pediatric trainees and bedside nurses regarding trainee learning experience, communication, and unit culture within the UWMC NICU. A 12-item REDCap survey was distributed to all residents (n=126), and a 15-item REDCap survey was distributed to all bedside nurses (n=100). Trainee satisfaction was evaluated using a Likert scale, and support for trainees was dichotomized over day and night shifts as well as across multidisciplinary providers. Baseline data from trainee and nursing surveys and discussions with key stakeholders revealed a lack of standardized orientation to the NICU, unequal division of patients, limited procedural experience and discrepancies between support and communication for residents between day and night shifts as barriers to a supportive work environment. An interprofessional quality improvement team comprised of pediatric residents, NICU fellows, Advanced Practice Providers, Attending Neonatologists, NICU medical directors, nursing leaders, and bedside nurses was formed to develop and implement the processes to improve the trainee experience at the UWMC NICU. We identified four key areas for change: 1) Clinical Care Structure 2) Communication 3) Education 4) Unit Culture (Table 1). Patient Safety Net (PSN) data was collected relating to coordination/communication events before and after interventions.

Table 1. Optimizing residents' involvement in educational opportunities in the Neonatal Intensive Care Unit (ORION): Interventions divided by four key change areas. All interventions listed have been implemented in the intervention phase except for the NICU Parent seminar which is currently under development

Clinical Care Structure	
2-day resident orientation	In-person interprofessional sessions including introduction to NICU admission process, documentation, recognizing NICU emergencies, expectations from nursing staff, introduction to unit QI activities
Senior resident schedule change	New night float schedule compared with q4 call structure for improved continuity of team overnight
Communication	
TeamSTEPPS modules	Video training modules developed with a focus on communication and unit culture
Night tele-rounds	Home call attending check-in with team via telemedicine technology
Education	
4-week resident curriculum	Developed using American Board of Pediatrics content specifications
Simulation training	Neonatal resuscitation, prenatal consultation, NICU procedures, involvement of residents in monthly interdisciplinary extremely premature program (EPP) delivery room situations
Unit Culture	
NICU Parent seminar for Residents	Opportunity for former NICU parents to share experiences with residents
Diversity, Equity and Inclusion	Perinatal call to action to recognize and address implicit bias

Outcome Measures included resident satisfaction scores as assessed by post-rotation surveys, nursing surveys assessed quarterly. Process Measures include the percentage of trainees attending a NICU resident orientation and the number of educational sessions performed/available

teaching days. Balancing Measures include patient safety events (PSNs).

A two-day structured orientation was developed and included sessions on identifying NICU emergencies, neonatal nutrition, admission and documentation processes, sterile technique, and unit guidelines, as well as simulation sessions on performing prenatal consults and umbilical catheter insertion. These sessions were led by interdisciplinary leaders comprised of Neonatology Attendings, Advanced Practice Providers, NICU Fellows, nursing leadership, Respiratory Therapists, and a Registered Dietitian. NICU Orientation occurs monthly for each block of residents at the beginning of the UWMC NICU rotation.

RESULTS

Pre-intervention, n=31 (65%) residents surveyed felt neutral, dissatisfied, or extremely dissatisfied with the NICU rotation. During the intervention phase, all twenty-four (100%) pediatric residents completed virtual TeamSTEPPS communication training within 2-weeks of starting NICU rotation. Fifteen (94%) first-year residents attended an in-person NICU orientation. Ten (42%) residents answered a post-rotation survey, and 100% of them felt satisfied or extremely satisfied with their NICU rotation (Figure 1). Data collection is ongoing.

Level of Resident Satisfaction with UW NICU Rotation Pre- and Post-Intervention

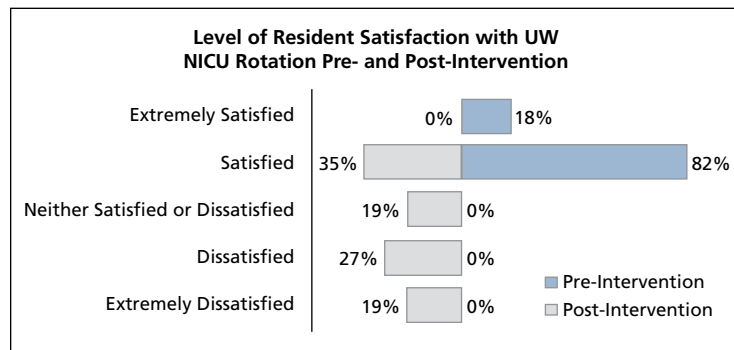| Category	Pre-Intervention	Post-Intervention
Extremely Satisfied	0%	18%
Satisfied	35%	82%
Neither Satisfied or Dissatisfied	19%	0%
Dissatisfied	27%	0%
Extremely Dissatisfied	19%	0%

Figure 1. Resident Satisfaction, Pre-versus Post-Intervention. n= 47/126 (37%) of residents responding pre-intervention (April-May 2022). n= 10/24 (42%) of residents responding during the intervention phase (July-Nov 2022).

CONCLUSION

An interdisciplinary approach to designing and implementing a structured resident orientation increased resident satisfaction during NICU rotations. Future efforts should focus on improving team communication with a goal of improving patient safety.

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In Which I Transition Without Any Medical Intervention

After Dr. Jenny Tiskus

Jasper Kennedy, MD, Family Medicine

The first day at the hospital,

my biggest worry was parental

eyes catching on my cropped hair

and my rainbow lanyard and refusing

to let me listen to their child's heartbeat

or smush their tiny belly to see where it hurt,

my presence culturing something

rank and septic simmering in their guts.

A few years in, I am criss-cross applesauce

on the stool in the pediatrics ED bathroom

waiting out my shift when I see in the mirror

the monster beneath every fascist's bed,

a gender weirdo lurking around

the same toilets their kids use,

instead of a kindly family doctor

silently screaming into their own arms.

WhoAmIThisTime
Christina Warner, MD