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A Leadership Pathway in Patient Safety and Quality Improvement for Trainees

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ABSTRACT

Training house staff in patient safety and quality improvement (PSQI) requires multidisciplinary collaboration between program directors, graduate medical education, and hospital safety and quality leadership. A heavy clinical workload and limited protected time hinder trainees from engaging in a meaningful PSQI experience during their years of post-graduate training. This is further exacerbated by the lack of subject experts who are available to mentor young physicians. For pulmonary and critical care trainees who are actively involved in the management and care coordination of high-acuity patients, this lack of experience adds undue burden. The role of house officer for patient safety and quality improvement was implemented to engage those currently in training who have an interest in PSQI. Under the supervision of the hospital PSQI leaders, they are given optimal, purposeful immersion without impacting their primary training specialty. This skill set can then be incorporated into their future careers. In this review, we provide perspective on how this can be accomplished and provide a framework that can be expanded.

Keywords:
PSQI; trainee-education; leadership; critical care

The Accreditation Council for Graduate Medication Education recognizes that it is essential to teach physicians in training how to provide safe and high-quality patient care at U.S. teaching hospitals as part of comprehensive graduate medical

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education (GME) (1). Current analyses have shown that curricula designed to meet those requirements had variable results (2, 3). Although trainees are exposed to some degree of patient safety and quality improvement (PSQI) education, they are not consistently integrated into hospital-wide initiatives, limiting their opportunity for multidisciplinary and interprofessional collaboration (2, 4). In addition, the trainees' clinical workload, availability of faculty expertise mentorship, and support from program leadership determine the effectiveness of any given program's curriculum (5–7). These barriers contribute to trainees having a limited voice for change in their own clinical environment, despite constituting a significant portion of the workforce and having a unique expertise in workflows (3). Similarly, this further contributes to the dearth of future PSQI educators and experts who can mentor young physicians. For trainees in pulmonary and critical care medicine (PCCM), this impacts their daily workflow, as they are actively involved in the complex management and care coordination of the hospital's high-acuity patients. During their training, they get a unique perspective on safety concerns within the clinical environment, making their active participation in the system design of safe and patient-centered care essential.

To address these needs, our hospital's executive office for PSQI collaborated with the GME Designated Institutional Official (DIO) to establish the position of House Officer for Patient Safety and Quality Improvement (HOPSQI) in 2016. This position is supplemental to existing department-specific initiatives that are in place to address accreditation requirements, while leveraging the role of the PSQI-inclined trainee as a peer champion. The HOPSQI is a 1-year appointment, with the goal of expanding the officer's capacity as a future leader under the direct mentorship of the medical center's quality and safety experts. During this year, the HOSPQI is integrated into existing institutional and departmental processes to advance PSQI initiatives for the medical center while advocating for trainees, delivering a comprehensive curriculum to house staff, and creating a multidisciplinary space for residents, fellows, nurses, and pharmacists to enhance interprofessional collaboration.

TRAINING LEADERS IN PSQI: CURRENT STATE AND OPPORTUNITIES

At the present day, there are faculty in academia who are trained in PSQI whose roles and responsibilities are overextended, leaving limited time for trainee education and career development. Our institution has identified inspired and educated mentors; however, they exist in silos of their specialties and may not recognize the opportunities to directly engage the trainees within and outside their departments. The HOPSQI enhances the ability to extend the reach, connects across departments with common goals, and serves as a peer educator, while actively training as a future leader.

Although this position of HOPSQI is unique to our institution, the concept is analogous to the current existing position of Chief Resident in Quality and Patient Safety (CRQS). The CRQS program is nationally implemented by the National Center for Patient Safety of the Veterans Health Administration and has been in practice since 2008. The aim is to train physicians who have completed their residency as PSQI peer educators, while they actively develop their own skills as future leaders (8, 9). During this year, the CRQSs dedicate their full time to PSQI

work, with no additional responsibilities. This gives them the opportunity to have optimal immersion, which would prepare them for a career in PSQI (8, 10). However, other programs seeking to emulate the CRQS experience have found it challenging to create a streamlined process of training house staff into future PSQI leaders and experts. Even with a comprehensive curriculum, there are not enough data to suggest that a robust degree of exposure translates to a future career in PSQI (10). Furthermore, relying on trainees to take an additional year to foster their skills in PSQI is a tremendous request for those already in prolonged training programs and would pose limitations on those desiring to participate. The HOPSQI allows trainees to get a purposeful, focused training while they are in the advanced years of their post-graduate medical education.

To be eligible, trainees with interest in PSQI, either self-identified or recruited, must be nominated for the position by the program director (PD). Around two to three nominations are submitted annually. The key attributes for this role are a passion for PSQI as evidenced by prior work, self-motivation, strong communication skills, and an understanding that the work of HOPSQI is never intended to compete with the responsibilities of the primary GME training. Given the executive support for this position, the Chief Medical Officer and the Associate Chief Medical Officer, who is also the Chief Quality Officer (CQO), and the DIO from the GME office are involved in reviewing the application process. The personal statement, curriculum vitae, PD recommendation with letter of good standing, and conducted interviews are used to determine the selection of the optimal candidate. To ensure that there is diversity in the applicant pool, a call for nominations is made through the GME committee early in the calendar year for those in their second post-graduate year and above. So far, the selection panel has identified that fellows, although fully committed to their respective programs, have more flexibility for participation, particularly during dedicated research time, and have a notable level of capacity for time management with less work compression. Over the years, our program has had the opportunity to appoint trainees from various specialties, including preventative medicine, ophthalmology, PCCM, and emergency medicine. Within this group, there is diversity among age, sex, race, and specialty.

Table 1 details the breakdown of the specialties of the HOPSQI officers as well as their respective career paths after training graduation.

CURRICULUM DEVELOPMENT FOR LEADERSHIP

Establishing a comprehensive HOPSQI curriculum requires a multifaceted approach that focuses on strengthening the fundamental principles of PSQI, fostering longitudinal engagement with hospital leadership, and empowering the officer to be an effective educator to all house staff under the appropriate supervision (8). One of the unique aspects of this program is that the DIO and CQO remain the primary faculty responsible for oversight throughout the year. Regular meetings are scheduled with the CQO to ensure all metrics are met in a timely fashion. At the start of the year, attainable objectives are defined by the supervising CQO and the officer with established mandatory metrics, as well as personalized goals tailored to the officer's interest. In addition, the HOPSQI's schedule is mapped at the beginning of

Table 1. HOPSQI projects and active engagement during their year of appointment and their post-graduate career paths

Year	PGY Training Program	Projects and Committees	Current Position
2022–2023	PGY-6, critical care medicine	Sepsis steering project Innovation Challenge selection Resuscitation committee PSQI house staff newsletter	In critical care medicine fellowship training
2021–2022	PGY-5, ophthalmology; PGY-3, preventative medicine	Resident and fellow quality safety rounds Innovation challenge selection committee PSQI house staff newsletter Bringing Just Culture to residents and fellows	Went on to pursue additional fellowship; deputy health officer for the local health department
2020–2021	PGY-5 infectious disease	Quality and safety matters newsletter PSQI project repository COVID-19 vaccine prioritization workgroup Medical–surgical floor safety checklist Just Culture facilitator	Outpatient infectious disease practice with a focus on PSQI
2019–2020	PGY-6, pulmonary and critical care medicine	ACGME PEI learning collaborative GME orientation: introduction to PSQI for trainees Just Culture facilitator Universal protocol and safe procedural practices in central line placement Developing toolkits for trainees for analyzing adverse event Just Culture facilitator	Academic medicine in pulmonary and critical care with protected time for serving in an institutional role in hospital PSQI
2018–2019	PGY-5, emergency medicine; PGY-5, emergency medicine	QIPS engagement: active participation in multidisciplinary PSQI conference Patient safety event reporting: improving resident and fellow safety event reporting	Academic medicine in emergency medicine with a focus on PSQI; academic medicine in emergency medicine
2017–2018	PGY-3, preventative medicine	Expand PSQI monthly conferences PSQI resident website development Improving patient care through commit to sit	Went on to pursue additional fellowship
2016–2017	PGY-5, ophthalmology	Launch PSQI conference Telluride patient safety summer camp: off website Patient handoffs Clinical consultation guidelines	Outpatient ophthalmology practice with a focus on PSQI

Definition of abbreviations: ACGME = Accreditation Council for Graduate Medication Education; COVID = coronavirus disease; GME = graduate medical education; HOPSQI = House Officer for Patient Safety and Quality Improvement; PEI = pursuing excellence initiative; PGY = post-graduate year; PSQI = patient safety and quality improvement; QIPS = quality improvement and patient safety conference.

the year to ensure that there is no conflict with their primary training.

To strengthen the officer's implementation of PSQI concepts, knowledge of the basic principles and exposure to their practical application are compulsory. Our program mandates the completion of two nationally available certifications from the Institute for Healthcare Improvement (IHI) Open School Basic Certificate in Quality and Safety and the Telluride Academy for Emerging Leaders in Quality and Safety as well as our institutional Just Culture training. For those who want to pursue additional training, tuition reimbursement is offered for nationwide certification programs such as the IHI Certified Professional in Patient Safety and the Armstrong Institute for Patient Safety and Quality.

As part of leadership development, the HOPSQI is an active member of several hospital-level committees, such as the GME Committee, Pursuing Excellence Initiative Patient Safety Workgroup, Just Culture training at the institutional level, and the medical center's Performance Improvement Steering Committee, in which their role is to represent their peers and act as a liaison for interdisciplinary PSQI initiatives. The officer is incorporated into existing institutional quality improvement (QI) projects with pre-defined timelines and tangible outcomes, and they have the flexibility and support to develop and implement projects of their own design with adequate administrative support.

Engaging their peers and developing the skill to mentor and educate trainees with limited exposure to PSQI is another core component of this program. The HOPSQI facilitates multidisciplinary conferences for residents, fellows, nurses, and pharmacists that are focused on PSQI topics. These monthly conferences include informal brainstorming sessions and storytelling narratives regarding prior adverse events and their outcomes. They address challenges in limited loop closure or feedback that have been identified as one of the barriers to resident event reporting (11). In addition, hospital leaders in PSQI are invited to give lectures on topics such as Just Culture, interprofessional communication, medication safety, human factors engineering, adverse event analysis, and computer informatics. These sessions provide opportunities for trainees to identify faculty mentors and provide a pathway for engaging in institutional PSQI initiatives. A comprehensive summary of the curriculum is listed in Table 2.

Success measured by trainees graduating and pursuing a position in PSQI is varied—some may choose to complete a project, join an ongoing hospital or departmental initiative, or attend relevant meetings to speak as a peer on workflows for trainees as their schedule allows. Engaging and providing peer mentorship to others interested in PSQI is also a key outcome.

Before the coronavirus disease (COVID) pandemic, the PSQI monthly meetings were held in person for a learning and free lunch session, with an average of 15 multidisciplinary attendees from across the hospital. However, since the pandemic, attendance has waned given the loss of in-person gatherings. This challenge was an opportunity to identify other areas for peer engagement, resulting in the inception of the bimonthly PSQI newsletter, which highlights initiatives and delivers educational material relevant to residents and fellows. Routine monitoring shows that 50% of the newsletter is reviewed by the recipients.

At the end of the year, the HOPSQI provides a summary of projects and self-reflection at the institutional GME committee meeting. Scholarly projects from the respective longitudinal projects are also

Table 2. Multifaceted curriculum for optimal PSQI immersion during post-graduate training

Leadership Pathway		
Peer engagement	Educator	Monthly multidisciplinary house staff conference
	Mentorship	Loop closure and feedback on adverse events using storytelling sessions Peer PSQI newsletter Managing repository for QI projects online Providing oversight in connecting trainees with faculty mentorship and QI project development
Leadership	Active engagement as a member of the respective hospital committee	Representing peer voices for change Just Culture facilitator at the institutional level
	Building QI curriculum	House staff liaison for organizational PSQI initiatives Developing orientation curriculum and basic PSQI tools for house staff
PSQI outcomes driven	Integrating in existing institutional QI projects	Strategizing/implementing an institutional failure to rescue policy
	Utilizing existing hospital and administrative resources to successfully implement longitudinal QI project	Strategizing/implementing an institutional handoff project Implementation of best practice guidelines Integrating safety event into daily work project: increase house staff event reporting
Self-directed learning	Certificates	IHI: Open School Basic Certificate in Quality and Safety Just Culture training Telluride Academy for Emerging Leaders in Quality and Safety IHI: Certified Professional in Patient Safety Armstrong Institute for PSQI

Definition of abbreviations: IHI = Institute for Healthcare Improvement; PSQI = patient safety and quality improvement; QI = quality improvement.

presented at national meetings throughout the year. Table 1 includes a list of longitudinal QI projects prior HOPSQI's have completed during their year of appointment.

PRACTICAL APPLICATIONS IN PCCM TRAINING

Support from the respective PD is crucial to accommodate flexibility in the training schedule without accruing additional burden. For trainees in PCCM, the appropriate triage and care coordination of the hospital's complex patients are a crucial aspect of their daily responsibilities. Therefore, having focused exposure to navigating and addressing systemwide challenges as part of their comprehensive medical training will equip them with the necessary tools to deliver high-quality

patient care in their training and beyond. It is with this understanding that the necessary protected time is carved out to expand their expertise without compromising their primary specialty training.

As part of their training, PCCM fellows have several months dedicated to academics or research, which can be applied toward HOPSQI duties. The time commitment for this position is an average of 10 hours per week, allowing for flexibility, with an understanding that more time can be dedicated during elective blocks in exchange for protecting time while on clinical rotations. The weekly commitments for the HOPSQI vary greatly every week. Certain duties have a more rigid schedule, such as attending hospital and system-wide meetings. However, most of the officer's responsibilities are flexible, such as preparing a speaker series for the house staff or completing their personal QI project. The HOPSQI can dedicate as much time per week to these endeavors as they are able to, so long as they are able to meet the overarching deadlines.

Supplemental salary for this position is funded by the executive office of PSQI, which can be used by the HOPSQI to fund additional learning or provide general financial support to the officer in recognition of their distinction in this role, analogous to other medical center chief residents and chief administrative fellows.

OPPORTUNITY FOR CAREER DEVELOPMENT

Successfully implemented, this year frames the foundation for the officers to establish their careers as experts in PSQI. Participation as a peer representative in multiple committees gives them administrative exposure with skills in multidisciplinary coordination and effective communication. The focused mentorship is crucial in navigating career paths and opportunities.

Since its inception, our program has mentored nine HOPSQIs, two of them being in their final years of PCCM training. Graduates from this program have moved on to jobs where they have continued to carve out a career with a focus on PSQI (Table 1).

CURRENT LIMITATIONS

There are several limitations in building and sustaining a program such as ours. One aspect is organization and structure, which encompasses ongoing funding, faculty engagement and time to mentor the HOPSQI (especially given the production pressures faculty face), and ensuring the educational specialty training is not impacted. Faculty are often not afforded protected time, and there is limited application of promotion based on QI work and mentoring. Several opportunities are engaging and training safety and quality leaders of tomorrow; harnessing the expertise of these clinicians who have intimate insights on poorly designed systems and, hence, a plethora of system redesign suggestions; and creating a network for peer learning and sharing. Given the appropriate limitations of trainees' time, to avoid disrupting their academic education, does provide a constraint on how much focus they can put in this role, but it provides a framework for further adjustment and growth.

FUTURE DIRECTIONS

As the program continues to grow, it is important that the officer is provided additional opportunities to nurture their

expertise, and the goal will be to support one additional certification from either IHI CPPS or the Armstrong Institute for Patient Safety and Quality as an expected deliverable. As an educator, the officer will also have an opportunity to expand their skills by engaging in the faculty QI development course. With each year, there is increased interest in the program, and, given the size of the academic institution, expanding the funding to have more than one HOPSQI each year will allow for a more multidisciplinary peer representation at the administrative level. Over the course of the 9 years of this program, additional initiatives have been implemented to improve the process of event reporting and the accessibility of adverse event analysis to trainees and faculty. These combined strategies have been effective in improving event reporting across the spectrum, but there is still room for growth. To enhance multidisciplinary collaboration, we have built the tool and framework for a PSQI repository platform for all system-wide projects that are ongoing. We are still measuring the overall collective impact of all these institutional changes as it contributes toward trainees' PSQI participation.

PERSPECTIVE OF A RECENT HOPSQI

When I heard about the position of HOPSQI, I believed it was a great opportunity to elevate my understanding of a very important aspect of patient care—that is, care coordination and transition within the various departments. As a critical care fellow, I encounter patients at their life-threatening moments and have come to recognize the importance of preemptively addressing safety concerns. I can appreciate that safe and efficient practices can improve patients' overall outcomes and remain just as crucial as the evidence-based medical therapies we provide. However, getting involved in hospital-wide PSQI projects seemed overwhelming, especially when balancing heavy clinical workloads and responsibilities.

The HOPSQI position was, therefore, a welcome opportunity. The position came with not only structured training in PSQI but also qualified mentorship and resources. In my first week, I was able to meet with several project managers and leaders in the PSQI department who invited me onto several projects as well as offering their assistance with ideas of my own. This alleviated the burden of having to access and seek out opportunities on my own. I was able to join several committees to address safety concerns and was empowered to voice the perspective of the house staff in process improvement.

Over the course of my time as HOPSQI, I was able to provide a service to the hospital and house staff by advocating for them in committees, planning lectures, and acting as a liaison for residents and fellows interested in PSQI. Having the title of HOPSQI also gave me the confidence and authority to engage leaders in the institution with the trainees' concerns as they arose.

On a personal level, I gained confidence in PSQI methodology and was able to study under the mentorship of PSQI experts. By attending the committee meetings, I was able to understand the complexity of a healthcare institution in which optimal interprofessional coordination is crucial to deliver high-quality care. Preparing the lecture series and newsletters gave me the opportunity to enhance my own learning and figure out how to effectively communicate high-yield materials to residents and

fellows who might only have a basic understanding of PSQI principles. This knowledge and skill base not only furthered my own education as a clinician but also will serve to advance my career goals.

Although my role as HOPSQI has been very rewarding, I have also come across some hurdles. Given the house staff's demanding schedule, trying to garner participation in certain events and lectures has proved difficult. However, with support from both program and administrative leadership, we have developed ways to encourage participation and make our events more accessible to the house staff. We also recognized that many trainees were uninformed about the process of event reporting and adverse event analysis. In collaboration with program leadership, we were able to adjust the format of our morbidity and mortality conferences to emphasize the complex process of analyzing challenging cases from the perspective of Just Culture. I have found that the support of leadership and their willingness to collaborate in institutional changes has been crucial to addressing hurdles as they arise.

Serving as the HOPSQI has been an incredibly rewarding experience, and I am certain others will gain as much from this role as I have.

CONCLUSIONS

Integrating the voice of HOSPQI into organizational processes is essential for sustaining improvement and is one of the tenets of high reliability: deference to expertise. For the trainee, this unique experience of serving as the HOPSQI provides a well-rounded post-graduate training that can be a framework for future career development. A collaboration between the PD, the DIO, and the leadership quality and safety office is essential for the success of this program.

Author disclosures are available with the text of this article at www.atsjournals.org.

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