

## Program Description

We are a large academic fellowship program within a multi-hospital medical system whose mission is to create academic leaders, scientists, and educators in pulmonary and critical care medicine.

## Rationale

Graduate medical education is constantly evolving and requires creative solutions to meet new challenges. We describe a process for complex organizational change that was developed in response to areas for improvement identified in our fellowship program. At its core, the process utilizes a hackathon to generate innovative solutions. Originally described in the design world and used by other GME programs at our institution, hackathons are events where teams compete to come up with a “hack,” or innovative solution to a problem.(1) We required the perfect hack to be innovative, integrated into existing workflow, measurable, and cost-neutral.

## Method

Figure 1 demonstrates the process map for our fellowship innovation cycle, spanning identification of areas for improvement through evaluation of implemented solutions. Our process started in 2019, when review of fellowship exit surveys and our ACGME self-study revealed quality improvement and patient safety (QI/PS) and wellbeing as areas for programmatic change. We invited fellows, core faculty, and support staff to a fellowship retreat, at which we hosted the hackathon. Thirty-eight fellows, faculty, and staff attended and were randomly assigned to one of five teams. The event started with an explanation of the hackathon process and fifteen-minute didactic overviews of each area of our fellowship with its associates challenges. Teams had thirty minutes per topic to brainstorm a hack, after which each team had five minutes to pitch their hack to the full group. Participants then voted for their favorite ideas. Following the retreat, separate workgroups comprised of faculty and fellows met on a quarterly basis to implement the hacks as well as other ideas generated at the retreat and in other forums. Once their objectives are accomplished, the working groups are disbanded, although they may reconvene if new issues arise within the scope of their responsibility.

## Results

The winning hacks for QI/PS were to provide a curriculum relevant to fellowship and build a system for mentored fellow participation in QI/PS initiatives. The QI/PS Workgroup identified goals and objectives for a QI/PS workshop during the first year of fellowship and created a monthly, fellow-led Outcomes Conference on an ICU rotation, during which fellows partner with ICU service leaders and receive mentorship in root cause analysis. The winning hack for wellbeing focused on fellow schedule flexibility. The Wellbeing Workgroup proposed reworking rotation coverage to provide additional days off on busy rotations, fellow identification of one day each week to leave work early (approximately 5pm), and the addition of opt-out counseling during the first year of fellowship. We continue to measure progress on these initiatives through annual ACGME surveys, Well-Being Index scores (2), fellow exit surveys, and review at our annual program evaluations. Informal feedback has demonstrated that participants appreciated their incorporation into efforts to improve the fellowship program.

## Conclusion

The increasing complexity of fellowship training requires innovative solutions. We implemented a unique process involving a hackathon and dedicated working groups to bring together faculty and

fellows to improve QI/PS education and wellbeing within our fellowship program. Through this initiative, we built community, engaged diverse participants, and encouraged creativity. Given its success, we have continued to incorporate the process into our annual fellowship retreat to address new challenges.

**References:**

1. Brown A, Jauregui J, Chipman AK, Ilgen JS. Using Hackathons to Transform Complex Educational Problems Into Innovative Prototypes. *J Grad Med Educ.* 2018;10(4):465-466.
2. Dyrbye LN, Satele D, Sloan J, Shanafelt TD. Ability of the physician well-being index to identify residents in distress. *J Grad Med Educ.* 2014;6(1):78-84.