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In the News

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The Makings of A Better Match

By Brigid Duffy

New York—It's no secret that residents and fellows continue to withdraw from general surgery training programs at far higher rates than other specialties. Now, the Department of Surgery at Houston Methodist Hospital is asking: Can an application process based on scientific selection reduce the likelihood of making a "bad match"?

The desire of general surgery residents and fellows to leave their respective programs has been largely acknowledged by hospitals, medical schools and faculty for decades. According to the "Report on Residents" of the Association of American Medical Colleges, more than 4,000 medical students will hope to earn a general surgery residency position for fall 2018, but past data show that coveted match may not last until graduation. More than one in five interns who enter a surgery residency program will not graduate (*Ann Surg* 2017;266[3]:499-507), while at least one-third of those who remain will be subjected to one or more remediation attempts (*Arch Surg* 2012;147[9]:829-833).

The causes behind the rate of attrition continue to mystify most institutions.

Brian Dunkin, MD, a surgeon, and Aimee Gardner, PhD, an industrial organizational psychologist, have applied selection science to their fellowship application process at Houston Methodist Hospital.

Brian Dunkin, MD, FACS, a professor of surgery at Houston Methodist Hospital, was one of thousands of faculty members across the United States who could not pinpoint why a number of fellows in his minimally invasive surgery fellowship were unhappy and not performing well. Ultimately, the program was placed on probation, prompting a site visit from the Fellowship Council. Houston Methodist Hospital brought in a site reviewer in a search for some guidance.

“The reviewer said to me that he thought we had a strong fellowship with excellent faculty and amazing clinical volume, but that one of the problems was ‘you’re choosing the wrong fellows!’” Dr. Dunkin recalled. “The site reviewer felt that we needed to do a better job choosing fellows that fit better into our program. I really took this to heart. Heck, your Starbucks barista has been hired using a more scientific process than your surgery trainee!”

Poised to find a better method for evaluating fellows, Dr. Dunkin enlisted industrial organizational (I/O) psychologist Aimee Gardner, PhD, of the School of Health Professions & Department of Surgery, Baylor College of Medicine, also in Houston, for help. In partnership with Dr. Gardner, whom Dr. Dunkin describes as his “partner in crime,” the duo set out to overhaul Houston Methodist Hospital’s MIS fellowship application process using a model based on selection science.

The Previous Process: A Lose-Lose

Most surgery residency programs share an analogous process when evaluating their applicants. The initial review includes a general look at USMLE scores, third-year medical school grades and letters of recommendation. If the applicant makes it past a predetermined threshold, he or she is invited for an on-site interview, which often is unstructured.

It's a system that's rife with frustration and inefficiencies.

Believing that more interviews will make a successful match more likely, applicants apply to an average of 38 programs and spend up to $10,000 for resident spots within certain disciplines of surgery (*Ann Plast Surg* 2010;64[6]:770-774). With traveling all over the country for on-site interviews, most applicants miss days, if not weeks, of training.

Consequently, residencies and fellowship programs are burdened by sifting through piles of applicants, many of whom look identical on paper.

"We were fed up with the inefficiencies and ineffectiveness of how surgery trainees are chosen," said Dr. Gardner, who formerly served as a faculty member of surgery residency at the University of Texas Southwestern Medical Center, in Dallas. "We were spending a substantial amount of time sorting through applications that all looked the same, participating in countless weekend interviews, and taking part in unsystematic ranking discussions to try and speculate who might be a good fit for our programs. There was just so much guesswork in the process."

Unfortunately, even after spending countless hours choosing the “right” trainees, both Drs. Dunkin and Gardner found that they spent far too much time managing the consequences of bringing in some trainees who just weren’t a good fit.

“We knew that every fellow we looked at was likely to have adequate technical skills,” Dr. Dunkin said. “But the other core competencies that we value, like being a motivated team player with integrity, were far more difficult to assess.”

A New Frontier: Selection Science for Trainees

When designing a new application process to be more efficient, systematic and equitable, Drs. Dunkin and Gardner first conducted a “job analysis” to help identify the specific demands and requirements needed to thrive in Houston Methodist Hospital’s MIS fellowship. They met with faculty members involved with the fellowship—both as a group and one-on-one—to obtain information regarding the unique values of the program, what the faculty expected of a fellow and the characteristics of fellows who had performed well in

the past. Through an iterative process, the faculty reviewed the results and ranked the importance of the various skills and behaviors to create a final scheme of their ideal fellow's attributes.

When it came time to create the new application process, Drs. Dunkin and Gardner made the decision to give the applicants' USMLE scores less weight, believing that scores are a small part of the comprehensive applicant snapshot.

Putting too much stock in test scores also introduces issues of fairness. Research supports that evaluating applicants based on cognitive-based examinations, such as the USMLE, can result in substantial racial differences in test performance (*Human Performance* 2002;15[1/2]:161-171). Not only does this introduce inequity into the process, but it can eliminate candidates from consideration who might thrive in the program.

Moving away from test scores, the duo introduced a new component to the application process: situational judgment tests. In the hope of getting to know candidates beyond grades and test scores, the situational tests presented candidates with real-life situations that they would encounter in their fellowship, and they were asked to explain how they would handle the situation. Despite the initial worry that candidates might be unwilling to do the extra work required, 91% of them completed the additional assessment.

"It's hard to game the system with [tests of judgment] because our program has a specific way of doing things, and we might not be looking for the same traits that another program would look for," Dr. Dunkin explained.

For example, the MIS fellowship program at Houston Methodist Hospital requires fellows to work with five faculty members, all of whom have unique performance characteristics and ways of getting the job done. Each faculty member expects every fellow to adapt to their method, with the hope that fellows will be exposed to a wide range of techniques and later have the ability to pick what works best on an individual level when they leave the program.

"Some people are completely overwhelmed by that expectation," Dr. Dunkin noted. "They have to keep track of who does what and manage expectations. While we see it as an asset of the program, it's not for everyone."

Applicants who passed the situational judgment assessment were invited for a structured interview on site.

The typical "get to know you" interview is unstructured and, according to a study published in the *Journal of Graduate Medical Education* (2015;7[4]539-548), has "dubious value" because of its lack of a standardized approach. This style of interview is subject to extreme

variability and is prone to inappropriate questions related to candidate demographics. It introduces yet another layer of potential discrimination in the application process and results in low interrater reliability (*Acad Med* 2016;91[11]:1546-1553).

By contrast, a structured interview focuses only on questions that determine if a candidate has the specific traits that the program has pre-identified as necessary for success. All faculty involved in advanced surgical fellowship interviews were required to take a structured interview course designed specifically for surgeons.

“Our structured interview program, InterviewWise, was tailored to the surgeon personality,” Dr. Gardner said. “It’s evidence based, fast-paced, and includes activities for surgeons to do with their hands. Surgeons watch snippets of videos, rate them, discuss them and ultimately practice interviewing appropriately.”

As a whole, the new application process was shaped so that candidates could be evaluated on the myriad indicators that make a successful surgeon beyond technical skills: organizational skills, prioritization abilities, a willingness to cooperate, healthy stress management, future aspirations and many other core competencies.

The Results: Efficiency, Equity

Even though the pilot program is still in its infancy, Drs. Dunkin and Gardner agreed that the thought of going back to the old system is nothing short of dreadful.

“We didn’t have a process before,” Dr. Dunkin said. “But when it was mentioned that we might not have the resources to continue the program, most colleagues just said, ‘Oh, hell no. We gotta find a way.’”

By evaluating applicants’ responses to the situational judgment tests in the first phase of the application process, the number of on-site interviews conducted were cut in half. Dr. Dunkin predicts the numbers will only improve as the program is further developed.

“In our first year, the time commitment for faculty was slightly less, but now that we’ve done all of the groundwork and we’re set up, we expect that faculty time will be reduced to one-third of what it was,” Dr. Dunkin said. “When you put it in those terms, it’s great for leadership buy-in.”

A retroactive look at the selection process showed there was no correlation between information in the traditional application package (USMLE scores, case logs and letters of recommendation) and results of who was determined to be a good fit based on recommendations from the customized screening tools.

The process also reduces biases inherent in cognitive examinations and unstructured interviews. Dr. Gardner noted that the proportion of underrepresented minorities invited for on-site interviews increased significantly. “Twenty percent more of underrepresented minorities were considered,” she said. “We believe the system can help to even the playing field.”

On the flip side, applicants reported that they enjoyed the “extra work” that was required, as it gave them the opportunity to communicate some of their best soft-skill attributes in a way that is more personal, yet reliable.

“Applicants are an important stakeholder in this process, so we made extra efforts to examine applicant perceptions,” Dr. Gardner said. “Overall, applicants have been very positive about the experience, citing that they were able to gain more information about the program, ‘try on’ the role of a fellow, and were impressed at the organization of the whole process.”

Furthermore, if applicants pass the first round and are granted an interview, Houston Methodist is confident that they will be a good fit. The interview is the chance to “put the ball in their court” and allow the applicants to decide if the program is a good fit for them.

“It’s a two-way street,” Dr. Dunkin noted. “The applicants have a chance to get to know us just as we get to know them.”

Fine-Tuning the Process

As Drs. Dunkin and Gardner continue to refine their process in its second year, they’re making efforts to engage the international community of surgeons, a community that faces the same issues of attrition, unhappiness and lack of diversity. They also founded SurgWise, a consulting firm that helps other programs to determine the attributes they value in candidates, and develop a structured system by which those assets can be evaluated.

“From some of the national listservs, we know that many residency and fellowship program directors are similarly frustrated with the current selection process,” Dr. Gardner said. “The initial development takes time and expertise, and we’re hoping to work with many different programs to recreate this process at their institutions.”

In the meantime, the application process for Houston Methodist Hospital’s MIS fellowship will be continually fine-tuned. Next year, the duo aims to provide more feedback to applicants who are not accepted into the program.

Looking back on the process, Dr. Gardner noted that applicants felt they were making an extra effort by completing some of the additional screening questions—roughly an extra hour of time—and in turn, that increased their expectation that Houston Methodist Hospital would make an extra effort as well.

“We created a psychological contract with them,” she said. “Moving forward, we have processes in place to contact every applicant who completed extra assignments, and to give them feedback on why they weren’t considered further.”

Ultimately, as a profession that is dedicated to caring for people, it’s important to lean on a system that leverages more fair and efficient practices for selection.

As Dr. Dunkin reflected, “We have a responsibility not only to the patients we care for, but also to the newest members of our profession—the applicants.”