scale; and implementation of the assessment rubric with concurrent collection of validity evidence. For both the FMOB-CR and the development process, we collected validity evidence according to Messick's unified concept of validity.[2]

Outcomes to Date

The TABLE details the validity evidence collected to date. Fifteen FMOB teachers surveyed showed strong agreement across 5 items about the utility of the rubric in allowing them to accurately assess residents (overall M=3.25/4, Likert scale 1=strongly disagree to 4=strongly agree), and across 3 items about the usefulness of the rubrics in helping them to understand program expectations of resident competence (overall M=3.36/4); 14 of 15 teachers preferred the new form to the old one.

We hope that the worked example of the FMOB-CR and its development process may serve as a blueprint for other institutions to develop context-specific assessment tools.

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NEW IDEAS

Using Lean Six Sigma Methodology to Improve Resident Engagement

Setting and Problem

An engagement survey was administered in 2018 to all physicians at our institution, including residents and fellows. The results showed very low engagement scores among trainees, which focused the attention of hospital administration. In response, the Process Improvement Office (PIO) was tasked by administration to collect information about residents' concerns. A Lean Six Sigma performance improvement technique, the "waste walk," was chosen. Lean Six Sigma is a management technique originally developed in the manufacturing sector, but now frequently used in health care settings. Lean methodology identifies specified wastes that lead to inefficiency in production, and Six Sigma methodology aims to decrease error.[1,2] A waste walk is a structured visit to the workplace (the hospital, in this case) to identify 8 Lean waste types (defects, overproduction, waiting, non-utilized talent, transportation, inventory, motion, and extra processing), in order to prioritize improvement opportunities.

Intervention

The PIO conducted a series of waste walks to cover areas of the hospital where inefficiencies were expected or where it was suspected that waste would impact patient care. Specific programs with large hospital-based services were included, with residents selected to be included in the observations by their program directors and chief residents. Evening and overnight shifts were included in the sampling. Observations were conducted by staff from the PIO and included Lean Six Sigma Green Belts (intermediate) and Black Belts (management). Observers shadowed the resident for all clinical activities during their

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shift, including their interactions with patients and other staff. Observers made note of all Lean wastes noted. Over a 1-month period, 23 residents covering 20 different services and representing 16 training programs were observed, constituting 183 hours of shadowing by PIO staff. The observations were collated and categorized to the 8 Lean waste types. All trainees were then able to vote on the issues that were of greatest importance to them.

Outcomes to Date

Opportunities identified included issues with communication, availability of equipment, admission process for transfer patients, residents performing duties outside their scope, (eg, cleaning equipment, making appointments), and resident staffing issues. Most residents identified procedure scheduling and transfer of patients as major issues to be addressed. Tangible results of the process included improvements in information availability in the electronic medical record for outside transfers, allocation of resources to improve a resident work room, and establishment of a working group to improve handoffs. In the 2 years following the intervention, there were 12 resident-run quality improvement projects concerning communication. Education vs service scores in the Accreditation Council for Graduate Medical Education Resident/Fellow Survey improved from the 72nd percentile in 2019 to the 93rd percentile in 2020. Resident engagement scores in the 2 years following improved to a score of 4.08 out of 5. While the sources of these improvements were multifactorial, the waste walk was a tangible demonstration to the residents of the institution's commitment to them and its interest in their voices. The walks also educated the administration in the day-to-day systemic obstacles residents face in providing care.

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