

Integrating the NAS Milestones and Handheld Technology to Improve Residency Training and Assessment

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OBJECTIVE: To incorporate the use of an intuitive and robust assessment tool in conjunction with the Next Accreditation System Milestones to maximize opportunities for trainee performance feedback and continuous trainee assessment, with the long-term goal of increasing the rate of performance improvement and mastery of knowledge and surgical skills.

DESIGN: Pilot study.

SETTING: Johns Hopkins Medicine, Baltimore, MD. Primary, tertiary, and quaternary clinical care; institutional environment.

PARTICIPANTS: Experimental group: two randomly selected postgraduate year-1 integrated training program residents per year for 2 consecutive years from the Department of Plastic and Reconstructive Surgery. Control group: traditionally trained residents from the integrated training program in the Department of Plastic and Reconstructive Surgery. Study duration: 7 years (until residents complete residency training).

ANTICIPATED RESULTS: This assessment strategy would create large amounts of informative data on trainees, which can be cross-referenced to determine trainee progress. Assessment data would be collected continuously from all faculty surgeons. Comparisons of faculty and resident self-assessments would facilitate resident evaluations. Ease of use of the data collection structure would improve faculty evaluation compliance and timely resident case report completion.

CONCLUSIONS: Improving the efficiency and efficacy of competency documentation is critical. Using portable technologies is an intuitive way to improve the trainee assessment process. We anticipate that this 2-pronged approach to trainee assessments would quickly provide large amounts of informative data to better assess trainee progress and inform Milestone assessments in a manner that facilitates

immediate feedback. Assessments of faculty and resident satisfaction would help us further refine the assessment process as needed. If successful, this format could easily be implemented by other training programs.

APPLICABLE PROJECT AREA: Innovations in Surgical Education: Milestones (J Surg 71:39-42. © 2014 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

KEY WORDS: medical residency, educational assessment, plastic surgery, graduate medical education

COMPETENCIES: Patient Care, Medical Knowledge, Practice-Based Learning and Improvement, Interpersonal and Communication Skills, Professionalism

BACKGROUND

The current political and economic climate presents Graduate Medical Education (GME) training programs with many challenges. External forces such as GME funding cuts,¹ healthcare funding changes,^{2,3} the Next Accreditation System (NAS),⁴ reduced resident work hours,⁵ and increased requirements to demonstrate competencies in a continuous manner⁶⁻¹³ all threaten to change medical education. To accommodate an ever-increasing knowledge stream, GME programs are struggling to accomplish more with less—more efficient knowledge and skill transfer with fewer GME dollars and resident work hours. These limitations have created challenges for all training programs, including plastic surgery.

Plastic and reconstructive surgery is unique in its ability to treat any part of the human body and many levels of defect severity. This can range from superficial (i.e., skin) wounds to complex, potentially life-threatening (i.e., traumatic craniofacial) defects. This variability is reflected in the specialty's Accreditation Council for Graduate Medical Education (ACGME)-required caseload, consisting of 29 caseload areas containing 78 category listings. To graduate,

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categorical residents must complete at least 930 cases in a specific category distribution by the end of their postgraduate year (PGY)-6.

To facilitate documentation of trainee competence and standardize training assessments in preparation for the NAS, the American Board of Plastic Surgery Milestone working group has created 36 Milestones within the 6 domains of physician competency (<http://www.acgme-nas.org/assets/pdf/Milestones/PlasticSurgeryMilestones.pdf>). All plastic surgery residency programs must soon accommodate this new evaluation system. With these internal and external forces in mind, the Johns Hopkins Department of Plastic and Reconstructive Surgery is implementing a new trainee assessment structure integrating Milestone assessments through secure web portals and handheld technologies to improve the efficiency and efficacy of residency training and assessment.

OBJECTIVE

To incorporate the use of an intuitive and robust assessment tool in conjunction with the NAS Milestones to maximize opportunities for trainee performance feedback and continuous trainee assessment, with the long-term goal of increasing the rate of performance improvement and mastery of knowledge and surgical skills.

METHODS

Program Overview

Starting July 1, 2014, 2 integrated training program residents would be enrolled in the Johns Hopkins Department of Plastic and Reconstructive Surgery's pilot Residency Redesign Training Program (RRTP). The curriculum is designed in modules divided by training year and would comply with the American Board of Plastic Surgery Milestone working group's NAS Milestones and Competencies as well as all Residency Review Committee requirements. The goal is for

residents to achieve PGY-6 level—appropriate competency in all milestones by the end of their PGY-5 with the long-term goal of eliminating the PGY-6 training year. While collecting data on RRTP trainees, PGY-6 would be used either to ensure appropriate competency for residents not yet competent in all Milestones by the end of PGY-5, or as an apprenticeship (or mini-fellowship) for residents who are appropriately competent by the end of PGY-5. The apprenticeship would still qualify as a PGY-6 training year—residents would continue to undergo trainee assessments, collect cases for their ACGME case logs, and participate in resident education activities. However, the apprenticeship would allow PGY-6 trainees to better focus their training in a particular area (or areas) of expertise. RRTP residents would undergo Milestone assessments at the end of each rotation and during month 10. If additional education in any competency is needed, the resident would be moved to the appropriate service(s) during the last 6 weeks of the training year to supplement his/her skill set. A final annual evaluation would occur each year after month 12. PGY-5 residents would be assessed after month 6 of the PGY-5 year to determine if their residency training could be completed in 5 years or if an additional year is needed. Residents enrolled in the traditional training program would undergo Milestone assessments every 6 months throughout residency.

After collecting data on at least 2 classes of PGY-5 RRTP trainees, our training program would determine whether or not to approach the RRC to request the option of eliminating the PGY-6 training year.

Technology and Applications

Starting August 2013, all residents would be provided with tablet computers. Wi-Fi Internet access and access to 2 web-based applications (E*Value [Advanced Informatics, Minneapolis, MN] and the Learning Portfolio [a custom-built, HIPAA-compliant, web-based platform])

TABLE 1. The 6 Core Learning Areas Encompassing the 28 NAS Milestones and 8 Core Competencies

Core Learning Area	NAS Milestone
1 Core competencies	Patient safety (SBP1); resource allocation (SBP2); practice management (SBP3); interpersonal and communication skills; the ability to investigate and evaluate the care of patients (PBLI1); research and teaching (PBLI2); ethics and values (P1); and personal accountability (P2)
2 Pediatrics	Congenital anomalies (MK1 and PC1)
3 Hand/upper extremity	Upper extremity trauma (MK1 and PC1) and nontrauma hand (MK1 and PC1)
4 Craniofacial	Maxillofacial trauma (MK1 and PC1) and head & neck (MK1 and PC1)
5 Microsurgery*	Tissue transfer (MK1 and PC1) and lower extremity (MK1 and PC1)
Breast†	Non-cancer breast surgery (MK1 and PC1); breast reconstruction (MK1 and PC1); and reconstruction of trunk-perineum (MK1 and PC1)
6 Burn*	Surgical care (MK1 and PC1) and wound care (MK1 and PC1)
Cosmetic†	Facial esthetics (MK1 and PC1) and cosmetic trunk and lower extremity (MK1 and PC1)

SBP, systems-based practice; PBLI, practice-based learning and improvement; P, professionalism; MK, medical knowledge; PC, patient care.

*Core Learning Area for junior resident trainees (PGY-1 and 2).

†Core Learning Area for senior resident trainees (PGY-3, 4, and 5).

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