

The Plastic Surgery Milestone Project

MARY H. McGRATH, MD, MPH, FACS, CHAIR,
ON BEHALF OF THE PLASTIC SURGERY
MILESTONE WORKING GROUP

Introduction

The Milestone Project in plastic surgery was created to define training outcomes and measure progress as a trainee progresses from novice to expert. The Plastic Surgery Milestones represent a framework with graduated measures to ensure the learner and program faculty know the expected intermediate and long-term competencies, and can more accurately measure where an individual is on the expected trajectory of attainment of competence along this continuum. The Plastic Surgery Milestones also define the end point of formal training at which a resident or fellow has the clinical experience to be ready for unsupervised practice in the specialty.

Milestone Development History

In August 2011, a Plastic Surgery Milestone Working Group was convened with equal representation from the American Board of Plastic Surgery (ABPS), the Plastic Surgery Residency Review Committee (RRC), and the American Council of Academic Plastic Surgeons (ACAPS), which is the organization of plastic surgery program directors. Members of the 12-member working group, including 1 resident, were selected for their experience with surgical education and curricular development, subspecialty content expertise, familiarity with different models of plastic surgery training, and leadership within academic institutions and the plastic surgery community.

An advisory group consisting of the senior leadership of the ABPS, RRC, Accreditation Council for Graduate Medical Education (ACGME), ACAPS, American Society of Plastic Surgeons (ASPS), American Society of Aesthetic Plastic Surgery, and American Society of Reconstructive Microsurgery was appointed, kept informed, and invited to critique the work at all points. The members of the Plastic Surgery Working Group and Advisory Group are shown in the BOX.

The Milestone Working Group started with literature review and accessing the Plastic Surgery Education Network (PSEN), which is a national collective of educational

BOX MEMBERS OF THE PLASTIC SURGERY MILESTONE DEVELOPMENT GROUP

Plastic Surgery Milestone Working Group

Mary H. McGrath, MD, MPH, FACS, University of California, San Francisco, Chair
Keith Brandt, MD, FACS, Washington University School of Medicine
Donald W. Buck II, MD, Northwestern University McGaw Medical Center
William Dzwierzynski, MD, FACS, Medical College of Wisconsin
Laura Edgar, EdD, CAE, Accreditation Council for Graduate Medical Education (ACGME)
C. Scott Hultman, MD, MBA, FACS, University of North Carolina at Chapel Hill School of Medicine
Jeffrey E. Janis, MD, FACS, The Ohio State University Medical Center, University of Texas Southwestern Medical Center
Carolyn L. Kerrigan, MD, MSc, Dartmouth-Hitchcock Medical Center
W. John Kitzmiller, MD, University of Cincinnati College of Medicine
Joseph E. Losee, MD, FACS, FAAP, University of Pittsburgh School of Medicine
Donald R. Mackay, MBChB, DDS, Penn State Hershey Medical Center
Martha S. Matthews, MD, Cooper University Hospital
Peggy Simpson, EdD, ACGME
Robert A. Weber, MD, Scott and White Memorial Hospital

Plastic Surgery Milestone Advisory Group

Mary H. McGrath, MD, MPH, FACS, University of California, San Francisco, Chair
Timothy Brigham, MDiv, PhD, ACGME
Gregory R. Evans, MD, University of California (Irvine) Medical Center
Robert J. Havlik, MD, Indiana University Medical Center, Medical College of Wisconsin
Jeffrey M. Kenkel, MD, FACS, University of Texas Southwestern Medical Center
R. Barrett Noone, MD, American Board of Plastic Surgery
John Potts, MD, ACGME
Rod J. Rohrich, MD, University of Texas Southwestern Medical Center at Dallas
Joseph M. Serletti, MD, Hospital of the University of Pennsylvania
Nicholas B. Vedder, MD, University of Washington

information and courses jointly created by 7 plastic surgery organizations for members of the ASPS and residents in participating residency programs. Plastic surgery training programs submitted existing curricular and assessment materials and contributed best practices for evaluating the development of competence. Milestone levels for medical knowledge were informed by ABPS examination subject topics, and the national database of performance on the plastic surgery in-service examination by residents at different levels of training. Performance levels for operative patient care were informed by the ACGME database of the plastic surgery operative log entries for residents at different levels of training. Performance levels for behavioral and ethical conduct were informed by the ABPS oral examination clinical case review and subject matter.

Corresponding author: **Mary H. McGrath, MD, MPH, FACS**, Professor of Surgery, Division of Plastic Surgery, Associate Chair for Quality and Safety, Department of Surgery, University of California, San Francisco, 505 Parnassus Avenue, Suite M593, San Francisco, CA 94143-0932, 415-353-4285. Fax 415-353-4320, mary.mcgrath@ucsfmedctr.org

DOI: <http://dx.doi.org/10.4300/JGME-06-0151-25>

The working group then focused on principles for framing the key domains of plastic surgery for the 6 competencies. After considering several models, a matrix with a blend of anatomic, functional, and aesthetic factors was selected to organize the medical knowledge and patient care Milestones. The matrix would represent the major domains of plastic surgery, be generally consistent with preexisting organizational models in the specialty, apply across all developmental levels, and be quantifiable. The progressive levels of the Milestones were developed by consensus based on acquisition of competency without regard for time dependency. The working group modified, consolidated, and supplemented the Milestones from the ACGME expert panel to create the Plastic Surgery Milestones for the 4 nonspecialty-specific general competencies.

The draft Milestones were submitted to the advisory group for comment and presented at the national ACAPS meeting, and 21 plastic surgery residency programs volunteered to use the Milestones for end-of-year resident evaluation and provide detailed comments from the faculty and the residents about the experience. The working group made a number of revisions based on these inputs.

The Plastic Surgery Milestones were presented at an interactive workshop at the ACAPS meeting in April 2013. Members of the Milestone Working Group led small groups of program directors acting as mock clinical competency committees to use summary information about fictional residents and assign levels in the Milestones to describe the residents' performance. Additional creative tasks of the working group were the development of Milestones for the plastic surgery fellowships in craniofacial surgery, and participation with representatives from orthopedic surgery in developing Milestones for the hand surgery fellowships. These fellowship Milestones have been submitted to the advisory group and to the respective fellowship program directors for comment.

General Features of the Specialty Milestones

There are 36 Plastic Surgery Milestone sets, with each set encompassing the levels showing progression from entry level in training to entry into the unsupervised practice in the specialty. Twenty-eight of these address medical knowledge and patient care in 14 focus areas. The 14 clinical focus areas were developed by the working group to reflect the spectrum of plastic surgery and be consistent with the training requirements outlined by the ABPS and the Plastic Surgery RRC. Eight Milestones cover the 4 general competencies (interpersonal and communication skills, professionalism, practice-based learning and improvement, and systems-based practice). The general competencies were adapted to reflect specific elements in

the practice of plastic surgery such as the elective nature of aesthetic surgery, training in practice management and marketing, and caring for underserved populations.

Establishing Milestone Validity, Utility, and Practicality

To ensure validity of the Plastic Surgery Milestones, the working group and medical education community in the specialty used a number of approaches. The working group comprised content experts and educational experts, and the advisory group included senior leaders in plastic surgery education. The effort to develop the Milestones included review of existing curricular and assessment materials. Content of the national PSEN and subject topics from the ABPS certification examination and from in-service examinations were included. Certification and accreditation standards were referenced for established knowledge, skill, and behavior expectations.

Twenty-one training programs conducted pilot testing of the Milestones during an evaluation cycle and their feedback provided initial evidence that the Milestones could discriminate levels of competency. These programs also provided practical suggestions for use that were incorporated during the developmental process. For example, since the Plastic Surgery Milestones describe a progression in competency that is not time-dependent, a resident may not yet have had exposure to a certain one of the subspecialty areas. Recognizing this, each of the 28 clinical Milestones offers the option of selecting "Not yet rotated" for that area of focus at that given time.

Envisioned Practical Use in Evaluating Residents

Recommendations for the practical use of the Milestones are emerging from the experience of the original 21 training programs field testing the Plastic Surgery Milestones, and from the ongoing use by additional programs after the Milestones were posted in April 2013 on the ACGME and ACAPS websites. The Milestones are continuous with increasing complexity across levels and are not time-dependent or linked to the year of training. This is especially important for plastic surgery since there are different program formats with differing lengths of training. It is anticipated that the format will be considered by the RRC when it evaluates each program annually, and that the RRC will have different evaluation result expectations for the different formats.

The 3 to 4 points populating each level are designed to be observable and specific enough to give both the evaluator and the resident information that is reliable and reproducible over multiple performance evaluations. Program directors involved in the effort are optimistic that the concrete nature of the Milestones will enhance the

granularity of the assessment process and enable better focus on areas requiring more attention or those of potential weakness at an earlier stage. Plastic surgery residents working with the Milestones see value in having clearly articulated expectations and national benchmarks against which to judge their training experience.

A result of the field testing and the interactive workshop at the national plastic surgery program directors' meeting (ACAPS) was a request for assessment tools to help assign Milestone levels. The working group modified existing assessment instruments and produced 6 evaluation tools to aid with the selection of Milestone levels. These plastic surgery assessments tools are not required; they are available as educational materials on the ACGME website and on the ACAPS website.

Recommendations for Competency Committee Composition and Functioning

Plastic surgery programs are organizing Clinical Competency Committees (CCCs) to provide broad input, advise the program director, and address evaluation and feedback processes within the program. The core faculty participating on the CCC will review multiple resident assessments completed throughout resident education by

faculty members, other care providers, and patients. Using this information, the CCC will complete the Plastic Surgery Milestone evaluations at no less than the required semiannual evaluation for each resident, assigning levels and planning engagement with each resident for detailed review of his or her Milestone levels both at that point in time and as a measure of progression and growth in competence. The CCC also anticipates using normative data about residents' performance on Milestones from the plastic surgery RRC to assess the quality of their residency program and facilitate improvements in program curriculum and resident performance.

Conclusion

For plastic surgery, a specialty with diverse areas of special interest, the Milestones will serve as a comprehensive and detailed picture of the requisite areas of training outlined by the ABPS and can provide direction for curricular development in the residency and fellowship training programs. This will contribute to the improvement of training in the ACGME programs and support outcomes-based accreditation of training programs in the Next Accreditation System.