

Mastery Learning With Deliberate Practice in Medical Education

William C. McGaghie, PhD, professor of medical education, Jeffrey H. Barsuk, MD, MS, associate professor of medicine, and Diane B. Wayne, MD, vice dean of education and professor of medicine, Northwestern University Feinberg School of Medicine

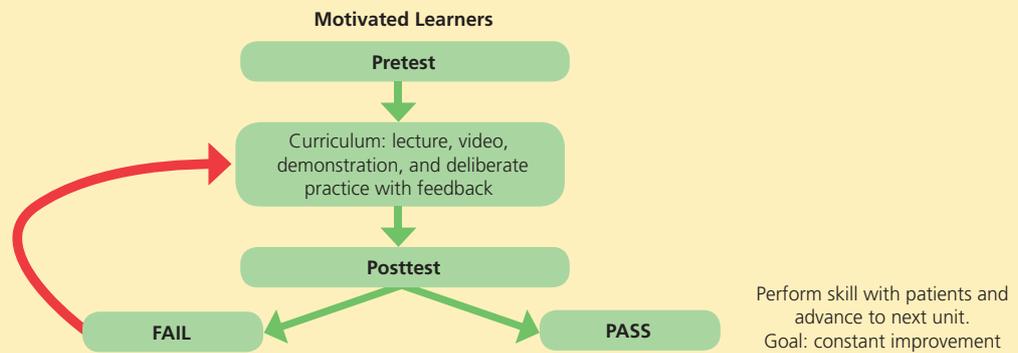
Mastery Learning: The Basics

Mastery Learning in medical education...

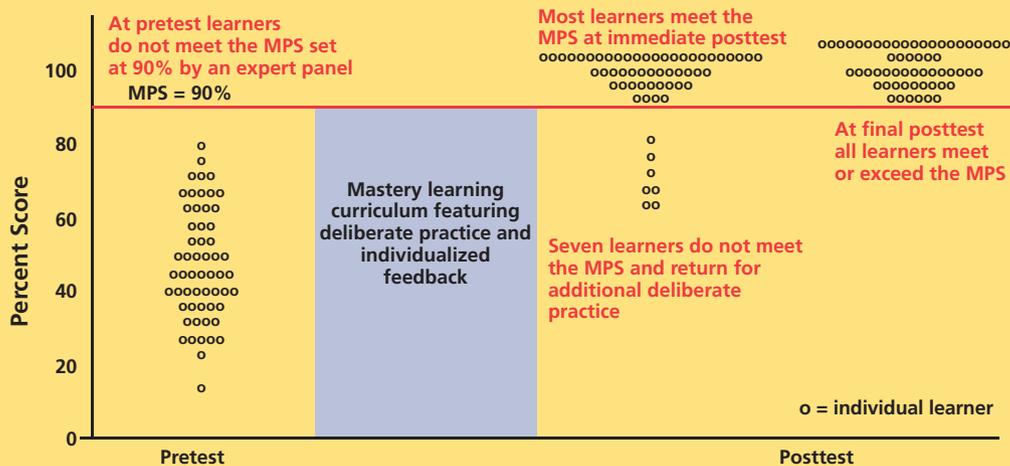
- ... expects "excellence for all" and entails the acquisition— independent of a specific learning time—of knowledge, skill, and professionalism competencies at high achievement standards with little or no variation among learners
- ... produces, when coupled with deliberate practice, powerful educational outcomes (e.g., readiness for patient care), often with collateral effects (e.g., cost savings) for individuals and programs
- ... frequently occurs with deliberate practice in a medical simulation laboratory but can also be achieved in other educational settings (e.g., classroom)

- ... increases professional self-efficacy among medical learners who master clinical skills (e.g., clinical procedures; communication with staff, patients, families)
- ... may require periodic refresher training to ensure maintenance of learning outcomes
- ... can translate into improved patient care practices and patient safety outcomes
- ... aligns with the current emphasis on measurable UME graduation expectations (i.e., entrustable professional activities) and GME achievement milestones

How Mastery Learning Works: An Outline of a Mastery Learning Program



Mastery Learning of Patient Handoff Skills: An Example of Mastery Learning and Deliberate Practice



Mastery Learning and the Medical Education Continuum



Suggestions for further reading:

- Cohen ER, Barsuk JH, Moazed F, et al. Making July safer: Simulation-based mastery learning during intern bootcamp. *Acad Med.* 2013;88:233–239.
- Ericsson KA. Deliberate practice and the acquisition and maintenance of expert performance in medicine and related domains. *Acad Med.* 2004;79(10 suppl):S70–S81.
- McGaghie WC, Issenberg SB, Barsuk JH, Wayne DB. A critical review of simulation-based mastery learning with translational outcomes. *Med Educ.* 2014;48:375–385.
- This current (November 2015) issue of *Academic Medicine*.

Author Contact: wcmc@northwestern.edu

UME indicates undergraduate medical education; GME, graduate medical education; CME, continuing medical education; MPS, minimum passing standard.