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).

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... 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 measureable UME graduation expectations (i.e., entrustable professional activities) and GME achievement milestones.

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

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

Motivated Learners

Pretest

Curriculum: lecture, video, demonstration, and deliberate practice with feedback

Posttest

FAIL

PASS

Perform skill with patients and advance to next unit. Goal: constant improvement

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

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Pretest

100

80

60

40

20

0

Percent Score

Mastery learning curriculum featuring deliberate practice and individualized feedback

Mastery learning curriculum featuring deliberate practice and individualized feedback

Most learners meet the MPS at immediate posttest

At final posttest all learners meet or exceed the MPS

Seven learners do not meet the MPS and return for additional deliberate practice

o = individual learner

At pretest learners do not meet the MPS set at 90% by an expert panel

MPS = 90%

Pretest Posttest

UME: Medical school year 1 to year 4

GME: Postgraduate year 1 and beyond

CME: Maintenance and expansion of competence

Improvement patient care and clinical outcomes

Entrustable professional activities

Core competencies and milestones

Suggestions for further reading:

4. This current (November 2015) issue of Academic Medicine.

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