The "Pillars" of Curriculum Reform

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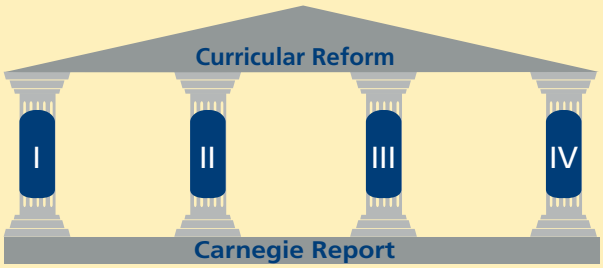
Medical schools have been engaged in curricular reform for over 20 years, although the 2010 release of the Carnegie Foundation's *Educating Physicians: A Call for Reform of Medical School and Residency*[1] galvanized the effort across the United States and Canada. The report's authors suggested four key elements, which we describe below along with some examples of how they can be implemented.



I: Standardization of Learning Outcomes and Individualization of the Learning Process

- Use competency-based progression versus adherence to preestablished timelines.
- Use regular, module-based, multiple-choice questions (MCQs), such as the customized exams available from the National Board of Medical Examiners (NBME), to ensure mastery of core basic science curriculum.
- Use comprehensive, cumulative exams with MCQs, such as the NBME's Comprehensive Basic Science Self-Assessment, for progress testing and comparison with prior curricula.
- Use the Reporter-Interpreter-Manager-Educator (RIME) framework as a criterion-based structure to anchor clinical skills to benchmarks in data gathering and clinical reasoning.[2]
- Encourage students' use of Concept Mapping[3] as a means of individual expression and communication.
- Tailor remedial activities to student needs.
- Initiate clerkships within 12 to 18 months of matriculation and tailor schedules and sequencing to student proficiency.

II: Integration of Formal Knowledge and Clinical Experience

- Consider a modular, organ-system approach to the preclerkship curriculum, with integrated clinical correlates (versus the traditional, discipline-focused approach).
- Introduce clinical medicine on Day 1 or 2 of medical school and allow students to assume responsibility for select elements of patient care.
  - e.g., Participation in a community of practice[4] as a RIME Reporter.
  - e.g., Biweekly visits with an amputee and his/her family during a musculoskeletal module.
- Use spaced education[5] to reinforce basic sciences during clinical clerkships.
- Weave in salient basic science threads during clerkships.
- Use case- and problem-based learning and evidence-based medicine (EBM) techniques.

III: Development of Habits of Inquiry and Innovation

- Establish the foundation of scientific inquiry...encourage developing and asking of critical questions.
- Encourage student speculation regarding futuristic therapies, based on the most recent scientific advances.
- Allow students to develop and present results of a customized research project (e.g., a capstone project), accomplished under the auspices of a dedicated mentor. Projects can reflect student interests:
  - Traditional bench research
  - Clinical research
  - Quality improvement/patient safety

IV: Focus on Professional Identity Formation

- Introduce situated learning and involve students in communities of practice.[4]
- Involve students in interdisciplinary education and team-based learning.
- Encourage art in medicine and reflective writing.
- Discuss humanism, medical ethics, and societal obligations.

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First published online