

The Making of a Clinician: Leveraging IT

Presented by:
Jonathan I. Ravdin, MD
President and CEO, PDS Inc.

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Development of Medical Education Abraham Flexner – over 100 years ago



Abraham Flexner

- Abraham Flexner was hired by Carnegie Foundation
- Site visited all 155 medical schools in U.S. and Canada
- The Flexner Report (1910) transformed medical education
- Guided by scientific inquiry and discovery rather than past traditions.
- Based upon the model at Johns Hopkins University
- As a result of the study, more than half of U.S. medical schools closed down.



Flexnerian Model of Medical Education (1910-2010)

- Requires a University degree with successful completion of a large set of required science courses.
- Segregates basic from clinical sciences in a required four-year format.
- Is discipline – based with passive learning and content-oriented testing methodologies.
- Clinical sciences have been traditionally hospital-based, acute care focused and organized by clinical department or discipline.
- A hierarchical apprenticeship structure is utilized for clinical education consisting of 3rd and 4th year students, interns, a resident and attending physician.
- The focus is on the diagnosis and management of disease and not health maintenance.
- Professional development is influenced predominantly by medical, surgical or hospital-based specialists while career choices occur over a brief window of time.
- Reduces student interest in primary care and altruistic career choices.
- Students graduate with a median debt of over \$180,000 in debt.

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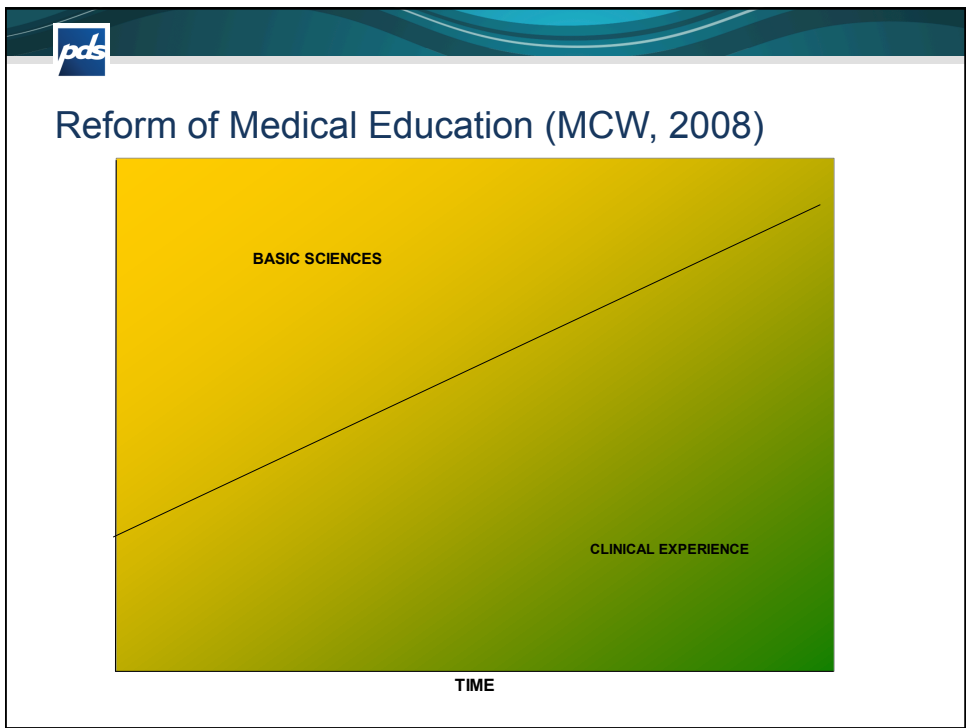
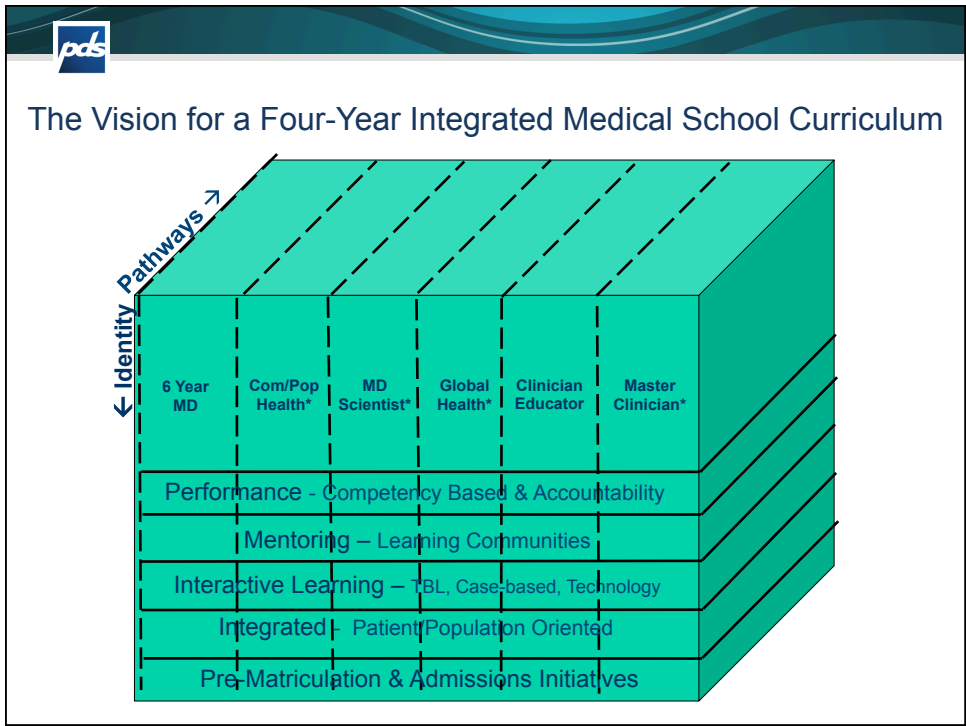


Reform of Medical Education (2010 Carnegie Foundation Report)

Recommendations:

- Should be competency and outcome based with student milestones achieved over a flexible period of time.
- Integrates experiential learning (professional skills) and knowledge building (basic and clinical sciences) over the entire duration of undergraduate and graduate medical education.
- Emphasizes team-based learning and skill development with associated outcomes measurement.
- Enhances professional development throughout, with a focus on ethics, societal issues, and reflective practice within a supportive learning environment.
- Enhances the use of inquiry and self-learning to improve patient satisfaction, health system performance, and clinical outcomes.
- Requires schools to be more intentional about selecting, developing, and supporting medical educators.

Molly Cooke, David M. Irby, Bridget C. O'Brien; Educating Physicians: A Call for Reform of Medical School and Residency; June 2010





Current Role of IT in Medical Education

- Provide electronic access anytime and anywhere to information resources (Biomedical Library) that include journals, texts, and focused reviews of up to date clinical information or guidelines.
- Provide electronic versions of syllabi for basic and clinical sciences with e-testing capabilities.
- Access to and participation in electronic health records during clinical training.
- Provide Simulation Centers for training and testing of professional skills, including invasive procedures.
- Leverage imaging technology for direct use in clinical training and knowledge-based learning.
- Provide e-learning portfolios to record the development of clinical competencies and academic endeavors.
- Use of social media for team-based learning.

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New Uses of IT for 21st Century Medical Education

- Use of collaborative IT resources to promote learning, team development and team-based care.
- Provide an individualized student e-syllabus and knowledge and competency assessment with appropriate analytics.
- Utilize big data analytics and cloud solutions to:
 - Follow the individual learning, competencies and progress of a large cohort of students.
 - Assess the patient outcomes in a “learner’s practice”.
 - Provide real time feedback of patient and team-member satisfaction.
 - Provided medical educators with continual feedback of student satisfaction and the efficacy of their educational efforts.
 - Develop a lifelong learning portfolio for medical professionals with analysis of their strengths, weaknesses and updates needed.
 - Provide the public or population health information relevant for each clinical care decision making event.
 - Provide voice recognition-mediated searching of the biomedical literature for on-demand situational learning and clinical decision making.
 - Provide the analytics needed for effective clinical decision making in the delivery of personalized medicine (medical genomics).

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