Transforming Medical Education to Enhance Learning and Improve Health

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"Challenges make life interesting, however, overcoming them is what makes life meaningful." ~ Mark Twain ~
In the 18th century, medical education used an apprenticeship model

- Changes were made over time to advance learning:
  - Use of more standardized teaching formats
  - Objectives-based teaching that follows a specified curriculum
  - Curricula that are integrated and learner-centered
  - Inclusion of multiple domains in defining competence and the use competency-based assessment
  - Incorporation of various settings for clinical training
How can we best prepare students for the future?

- It has been > 100 years since Abraham Flexner made recommendations to restructure medical education.
Opportunities exist to enhance the current structure of medical education

• Over the last decade +, calls for change have come from national professional organizations and foundations, advisory and advocacy groups
  – e.g. AAMC, AMA, Assoc of Faculties of Medicine in Canada, Commonwealth Fund, Josiah Macy Jr Foundation, Carnegie Foundation, IOM; Blue Ridge Academic Health Groups

• Accrediting bodies have also expanded &/or modified standards
  – e.g. LCME, ACGME, ABMS
Calls for change include common considerations

- Integration across the continuum of education
- Need for evaluation/research
- Funding for education
- Importance of leadership
- Social accountability of the profession
- Use of new technologies in education and practice
- Alignment with changes and needs for future care delivery

Enhancing medical education is a shared responsibility

• “Snapshot” of medical education published as a supplement of Academic Medicine in 2010
  – 128 medical schools in US and Canada
  – All schools reported curriculum renewal efforts motivated by changes in society, science, and educational theory
  • Recognition of the “new and different” medical student

New topics have been added to enhance traditional curricula

- Behavioral/social sciences
- Geriatrics/palliative care/end-of-life care
- Health care disparities
- Cultural diversity/cultural competence
- Rural health
- Global health
- Public health
- Informatics
New teaching/assessment strategies have also been introduced

New pedagogies

• Longitudinal curricula
• Problem-based, team-based and case-based learning
• Online self-directed learning modules
• Standardized patients/simulation

New assessment tools

• Logs/portfolios
• Reflective writing
• Standardized patients/simulation/OSCEs
Why more change?...

- to enhance learning and develop competent physicians who are dedicated to improving health
“There is no greater power for change greater than a community discovering what it cares about.”

Margaret Wheatley
Change should be guided by four goals

• Standardization of learning outcomes with an individualization of the learning process
• Integration of knowledge and clinical experience
• Development of habits of inquiry and innovation
• Formation of professional identity

Standardization of learning outcomes with an individualization of the learning process
Outcomes define the end product of educational programs

• Performance expected by the end of the unit of instruction
  – Linked to transition stages related to competency and increasing independence

• Provide a roadmap for learning and define standards for assessment
  – Include knowledge, skills, behaviors and attitudes
Competencies are measurable standards that guide teachers and learners

“the knowledge, skills, attitudes, and personal qualities essential to the practice” of a specific profession, such as medicine

Outcome Project

ACGME
Enhancing residency education through outcomes assessment

GOOD MEDICAL PRACTICE – USA

Assessment should be formative as well as summative

• Assessment must begin with readiness assessments that help the learner and the teacher know where “gaps” exist
• Assessments must occur over time and use benchmarks of performance
• Formative assessments must include feedback and guide learners to develop learning objectives and “next steps”
• Cumulative assessments allow summative judgments to be made
Efforts to define performance outcomes have led to the creation of milestones and EPAs

• Milestones = benchmarks leading to competency
• Entrustable professional activities = critical parts of professional work that can be entrusted to a trainee after sufficient competence has been attained


Integration of knowledge and clinical experience
Effective educational programs take into account the way people learn

• Learning should be sequenced with each subsequent “exposure” being designed to meet the learning needs identified during the previous experience

• A developmental approach requires longitudinal relationships between learners, teachers and patients

• Opportunities to pursue individual interests must be created to allow mastery to occur
A flexible approach is learner-centered

• Learners bring varied backgrounds, different prior knowledge to each experience; and have different rates of mastering content

  There is no need to provide repeated exposure to material the learner has mastered

  Subsequent experiences should allow learners to broaden the way they approach the problem
Integration promotes adaptive thinking

• Integration should occur across the curriculum
• Learning is more likely to happen if it happens in context
• Experiential learning allows students to make connections
• Students should have opportunities to apply knowledge in increasing more complex situations
Integration is a strategy to achieve program goals and is not an outcome in and of itself

- Decisions about integration must address:
  - The purpose of integration
  - The elements that should be integrated
  - The teaching environments in which the integration should take place
  - The principles that unify the efforts to integrate

Integration should be multi-dimensional

- Teachers must make the links explicit and provide the conceptual framework as a scaffold for student learning

Development of habits of inquiry and innovation
Life long learning is based on a constant striving for excellence

- When experiencing problems multiple times in different contexts, learners should consider various ways to approach the problem

Adaptive expertise requires curiosity, agility, and innovation
Learning requires reflective practice

• Learners be able to monitor their own learning and assess what they do not know
• They need to determine how to address what they do not know
• Learners must seek and be open to external assessment
Self-regulation can be taught through guided practice and tutoring

• Teachers should act as coaches providing feedback, challenge and support
• Helping learners set goals, develop plans, self monitor and self evaluate improves performance, motivation and skills in managing their approach to learning

Faculty must develop skills in providing feedback to learners

• Elaborative feedback creates a dialogue between the teacher and the learner
  – promotes reflection and self-assessment
  – uses questioning to check inferences
  – relates feedback to self-assessment

Kogan JR et al. Faculty staff perceptions of feedback to residents after direct observation of clinical skills. *Med Educ* 2012; 46; 201-215.
“More important than the curriculum is the question of the methods of teaching and the spirit in which the teaching is given.”

-Bertrand Russell
Motivation drives learning and impacts student performance

- Curricular innovations have focused on what students should learn (cognitive aspect of learning) and how they should learn (metacognitive regulation)
- Efforts to build new curricula should also pay attention to the affective component of learning i.e. what stimulates students’ internal motivation

The learning environment impacts a learner’s motivation

- Intrinsic motivation arises when one’s needs for autonomy/self-determination; competence and relatedness are met
- Intrinsically motivated medical students are more likely to take part in optional courses, peer-tutoring experiences and health-related extracurricular programs

Formation of professional identity
Teachers are role models who must demonstrate excellence, collaboration, respect and compassion

- Professionals share collective values
  - Professionalism includes self awareness, a commitment to self improvement, placing patients’ needs above one’s own and a dedication to improving the systems of care delivery and addressing the needs of society
Learners develop habits of mind and practice through their experiences with the formal and informal curriculum

- Relatedness increases satisfaction with the profession and occurs through:
  - Mentoring and positive role models
  - Early exposure to patients
  - Participating in service learning

Learning must occur in settings that help to socialize students

- Students must be welcomed into the community of practice
- Learners must see all of the roles physicians play and see how physicians relate to one another, to others in the health care system and to the community
Physician-citizens attend to the social contract of medicine

• They understand the principles of population health, effective healthcare delivery and the science of system change
• They know the needs of their communities and of the nation in which they live
• They appreciate the complexity of the system and work in teams to improve the system and enhance health outcomes
They focus on the pursuit of health rather than the treatment of disease

- Reduction of waste
- Improvement in quality
- Safety
- Equity in health status
- Use of technology to promote efficiency
- Attention to workforce issues
Change in educational systems require leadership and collaboration

- Integration of goals across the continuum of education
  - Alignment of accreditation and licensing requirements
- Faculty development
- Evaluation/research to measure impact of change
  - Collaboration across institutions
“Leadership and learning are indispensable to each other.”

--John F. Kennedy
Realizing what you can become: moving from good to great

- Greatness builds on previous work
- Greatness = making a distinctive impact that has lasting endurance → establishing your brand
  - Delivering on your mission
  - Making an unique contribution
  - Commit to the continual need to improve

Lessons learned: maintain focus on the “greatness” of the work

- Establish the “why”
  - Support from the Dean/leadership is critical
- Envision the future you want to create
  - Find out what others have done/are doing
  - Connect vision with a plan
Spend time creating coalitions

• Build an operational network
  – Think about who has influence and consider the “way the organization really works”
  – Ensure 360° cooperation from those able to “block and support”
  – Identify leaders and encourage broad involvement

• Communicate, communicate, communicate
  – Develop and cultivate relationships
  – Foster mutual trust and rapport
Establish credibility and create momentum

• Build a strong team of empowered members
  – Focus collective energies and develop a shared sense of ownership
• Experiment/Take risks
  – Produce short term wins
• Consolidate gains
  – Pay attention to formal approval processes
Nurture change and those involved in the change

• Anchor the new curriculum in the culture
  – Consider the impact on all stakeholders
    • Prospective/current students; faculty; others
  – Align resources and recognition and reward systems
    • Time to participate in planning, develop curricula
    • Public acknowledgement
    • Academic advancement
    • Awards, grants for innovation
    • Professional development
Address the reasons people may be reluctant to participate in the change effort

- Fear of losing something of value
  - Help people see their value in the new system
  - *Identify peers who can help others “see” (students are key voices)*

- Not understanding the change
  - You can never communicate enough
  - *Surface misunderstandings and clarify right away*

Accurate diagnosis allows you to deal with resistance

- Thinking the change is not “good”
  - Access to different information leads to a different assessment of the situation
  - Lack of information contributes to suspicion
  - Invite dissenting voices

- Low tolerance for change
  - Related to fear they will not be able to develop new skills required
  - Provide support and faculty development
External forces may impact the time you have & the strategies you use

• Listen and use what you hear in planning change
  – *See resistance as a resource to refine the effort*
  – *Consider what has happened in the past*

• Invite participation—Create a personal stake
  – *Return to the “why”*

• Provide support—different people will need different amounts of
time and different kinds of support
“Whatever your mind can conceive and believe, it can achieve.”

---Barbara A. Robinson
The leadership literature provides lessons to navigate curricular change

“Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it's the only thing that ever has.”

---Margaret Mead
Questions to focus our discussion

What worries you? What are your ideas?
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