Curriculum Renewal – What is it? Why is it?

Louis Pangaro, MD, MACP
Professor of Medicine
Uniformed Services University of the Health Sciences
A question for each of you

- Given that our world is changing
  - in practice patterns
  - costs and resource constraints
  - new technologies
  - national and global uncertainties

- what is one thing that YOU as an individual want to preserve?
  - please write down one thing in the chat
Disclaimer and Disclosure

• “The opinions and assertions expressed herein are those of the author(s) and do not reflect the official policy or position of the Uniformed Services University of the Health Sciences or the Department of Defense.”

• Harvard Macy Course in “Systems of Assessment in Medical Education” (honorarium).
Issues for discussion

- How can we define curriculum and renewal?
- Why would we want to revise?
- What are methods to foster independence, create capability?
Theme

The emphasis on “competence” places faculty judgment at the center of any curricular revision.
Terms - Syllabus v. Curriculum

Syllabus: a list to be covered (‘content’)

Curriculum = a “race”

- what we do to leaners (‘pedagogy’)
- what we ask them to do
Many terms for curricular “change”

Renewal: making new, updating

Reform: shaping; (pejorative?)

Redesign: planning anew

Revision: “seeing” things differently
Commitment to Understanding mechanism

System Science
Clinical Science
Basic Science

State/nation
Society/organization
Neighborhood/church
Medical Home
Caregiver/Family

Systems
Organs
Cells
Genes
Molecules

After, Pangaro, JIAMSE, 2010; Med Sci Ed, 2022
Physician - physiology – physics
Physis = nature, process

Goal of any curriculum =
Promise of this expertise
Why have we revised?

Historically

• 1910 - Flexner - more to know = basic science

• 1990s - Need for “professionalism”
  → early clinical experience,
  → inter-personal skills and standardized patients

Finnerty, Flexner Revisited, *Acad Med*, 2010
Why do we continue to change things?

• Practice of medicine has changed dramatically
  • Climate change, pandemics, unstable politics
  • EHR, AI and machine learning

• Integration now a priority in accreditation
  • Relevance to patients, social awareness

• New curricular opportunities
  • MD-MPH; MD-MBA, MD-MHPE

• Student learning styles have changed
  • Adult learning; technology; life-long learning
Changes to Curricular Structure/Organization: (22.9%)
• Shortened Pre-Clerkship Curriculum (2+2)
• Re-Alignment of USMLE Step 1 Exam to after clerkships

Step 1 scores increased significantly following curricular revision (10 points, SD 18.2) after controlling for MCAT and undergraduate GPA.

Torre, TeachLearnMed, 2020

• Increasing Opportunity for Electives in MS-3 Year
• Three-Year Medical School Track

Pock, BMC Medical Education (2019)
Trends in curricular reform, Post-Carnegie II  2)

Changes to Curricular Content: (30.3%)
• Reinforcing Basic Science in the Clinical Years –
  • did this really happen?
• Early Clinical Exposure
  • Go further?
Trends in curricular reform, Post-Carnegie II (3)

Changes to Curricular Delivery: (33.6%)

• Enhanced Curricular Integration
  • Away from ‘discipline-based’ courses

• Decreased Reliance on Lectures

• Pre-Clerkship “Boot Camp”

Pock, BMC Medical Education (2019)
Changes to Assessment: (10.6%)

• Developing a Competency Based Assessment
  • Tasks, not simply MCQ tests
• Elimination of Traditional (Letter) Grades

• Assessment Tracking
  • What if anything gets better over modules, clerkships?
60 years of “reform without change”

• [desired change] …cannot be accomplished by adding to or changing existing curricular components,…
• … must include a change in the teaching and learning environment, …. 
• or in what we mean by socialization for a profession…”

Bloom SW, Amer J Public Health, 1995
The major theme: med education = “public good”

dollar cost (GDP) and human cost (“to err is human”)

• Reasoning and decision making
• High value care
• Health system science (HSS)
• Competency-based medical education (CBME)
what is (are) the problem(s) CBME is trying to solve?

• What is the strategic goal?
  • Medical education is a social good,
  • Showing that “we serving the public trust”

• What is the tactical goal?
  • Documentation of the functional level achieved, not simply fund of knowledge
    • Move from analytic frameworks (KSA, “competencies” to synthetic frameworks (RIME, milestones, EPAs)

• documentation and measurement
Educational Goals

Curricular planning
Old and new

Curriculum

Assessment / Evaluation

Feedback / Grading

Teaching to the test
How to test “competency”? 

Summative

• *In vitro* = MCQs, OSCE, etc. = standardized
• *in vivo* = direct observations by faculty

Formative

• *In vivo* = real patients, complex, contextual
  • not standardized → direct observations by faculty
System-based Practice

Practice-based learning & Improvement

Medical Knowledge

Communication Skills

(Procedural Skills)

Professionalism

There is only one competency

Patient Care
Competence defined (analytic framework)

The habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and the community being served.

Competence Defined Synthetically

The ability to give to each situation all that belongs to that situation, and no more.

Only faculty can judge competence

Pangaro, Med Teach, 2000
In curricular renewal what is the role of (busy) faculty?
entrustment of students vs. entrustment and support of faculty
Barriers to evaluation in CBME

Cognitive
- goals & objectives may vary across teachers;
- school’s mental model may be very elaborate

Social/Emotional
- Teacher is not a dispassionate servo-mechanism; ‘mentoring’;
- limited interaction → not confident

Logistic/Resources
- Time (!) for observation, training; other priorities
- Infrastructure
- electronic forms?
Syllabus (What?) vs Curriculum (How?)

If it’s a list to be covered, then adding things, and integration is how faculty arrange things in the schedule.

If curriculum is a way of doing, then it’s how students arrange things in their head, visualization.
Strategy of simplicity

- Curriculum is not content; it is a relationship with “content”, guided by teachers

- Curriculum is an invitation to progress.
  - Understanding → Action
Defining curricular Success and Failure

A beginning intern from my own medical school sees a patient with thyrotoxicosis who needs medication
Simple program evaluation

• I would be happy if....

They could describe iodine metabolism and how methimazole worked.

Structure of Program Evaluation, TLM, 2007
Simple program evaluation

If not knowing these basic mechanisms, they were not restless until they filled the gap.

I would drop dead with embarrassment if....
evaluation of whether
the expectation (“set point”) has been internalized

If not knowing these basic mechanisms, they were not restless until they filled the gap

1. Recognizes the gap
2. Has a concept of adequate knowledge
3. Search strategy
4. Commitment
Professionalism: “a promise of expertise and a promise of duty”

Edmund Pellegrino
The essential goal: progressive independence of the learner

After Stanford Faculty Development Center
“Beyond the Classroom”
"Three acts"

Home → Clinic → Home

H&P

The patient was first seen with SG A on 2/24/2014 with presenting complaints of back pain, joint pain, and fatigue. The patient was a 69-year-old female who was referred to the estate for evaluation of management of presumed lupus nephritis.

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Performance award metaphor

We are supporting actors in someone else’s life
HSS - Social determinants

• Determine 40% of variation in health status (4 times as much as health care)

Berwick, NEJM, 2022

What part of this is our problem to fix?
Can it be done in the 20th century model?
“20th century” models

- “2 + 2”
- Exclusively apprenticeship model → academic model

Flexner Revisited: The Role and Value of the Basic Sciences in Medical Education
Can understanding be formed in the context of the classroom?

Alternatives:
- Spiral curricula
- Zucker SoM’s method
- Abandon Flexner’s 2+2?
What is the capability we must create?

• An internalized "set point"

• A standard against which learners judge their current performance?
  • “What they did”, not “who they are”.

• A mental model of what expertise and duty look like

• Preclerkship = developing prototypes
• Clinical years = moving from understanding to action
preclinical med ed should include

- **the basic sciences**: anatomy, biochemistry, neuroscience, physiology, genetics, molecular biology, microbiology, immunology, pathology, and pharmacology
- **behavioral science**
- biostatistics, epidemiology
- **public health**
- critical assessment of the medical literature

Finnerty, Acad Med, 2010
Curriculum = a series of invitations that fosters this progress

Understanding  Action

Reporter

Interpreter

Manager/Educator

System-based Practice-based
Practice Learning
The RIME rhythm is familiar:

H&P ............ ......S.0..... Reporter
Assessment.. ..........P...... Interpreter
Plan............. ...... Manager/
                  Educator
Frame of Reference Performance

**REPORTER**
- Gather a history and perform a physical exam
- Document a clinical encounter in the patient record
- Provide an oral presentation of a clinical encounter
- Collaborate as a member of an interprofessional team

**INTERPRETER**
- Prioritize a differential diagnosis following a clinical encounter
- Recognize a patient requiring urgent or emergent care
- Recommend* and interpret common diagnostic and screening tests

**MANAGER**
- Enter and discuss orders and prescriptions
- Give or receive a patient handover to transition care responsibility
- Obtain informed consent for tests and/or procedures
- Perform the general procedures of a physician

**EDUCATOR**
- Form clinical questions and retrieve evidence
- Identify system failures and contribute to safety and improvement
A student sees a patient with thyrotoxicosis

What’s the role of the clinical faculty?
"WHAT DO I NEED TO KNOW?" about a therapy*

- How does it **work**? (inhibit the formation and coupling of iodotyrosines in thyroglobulin)
  - affecting the relevant anatomy or physiology
  - if a drug, pharmacology; what are the indications? genetic variation?

- How **good** is it?
  - efficacy - short term, long term - are there relapses
  - how good is the evidence?
  - necessary, appropriate, equivocal or inappropriate for the condition?

- How **bad** is it?
  - risks, side effects (severity and frequency), contra-indications
  - costs
  - alternatives?

*Medical/Lifestyle/Surgical/Radiation
Other concepts of adequate knowledge

• "WHAT DO I NEED TO KNOW?" - ABOUT A DISEASE OR SYNDROME
  • What is it?
  • What does it look like and behave?
  • What do we do about it?

• "WHAT DO I NEED TO KNOW?" - ABOUT A TEST
  • How does it work?
  • How good is it?
  • How bad is it?
Internalization of what constitutes adequate basic knowledge
What a “promise of expertise” looks like
Is the student acquiring a standard against which to compare?
What is the capability we must create?

• An internalized "set point"
• A standard against which learners judge their current performance?
  • “What they did”, not “who they are”.
• A mental model of what expertise and duty look like
  • Preclerkship = what does success look like?
  • Clinical years = practice across many patients and disciplines
Systems thinki at all levels

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Systems thinking: gluconeogenesis and community health

• What the system trying to do? What does success look like?
• What are the inputs?
• What are the intended outputs?
• What’s the system trying to maximize, minimize, avoided?
• What are the feedback loops?
• What else in the system influences success?
• What limits success, threats to success?
1. What should a student bring to the situation?

**Duty**: learned through early patient contact

**Expertise**: Most (25%) of the explainable variance in ratings in student clerkship performance in the RIME scheme was explained by preclerkship GPA

Durning, Acad Med, 2004

2. What should faculty bring to the clerkship situation?

Trust, clear expectations, feedback
“What are some pathophysiologic mechanisms that might explain this patient’s findings?”

“What are some social mechanisms that might explain this patient’s findings?”
Curriculum as an Invitation in this setting

- For clerkship students, curriculum should be an invitation to interpret.

- “What are three possible factors that explain your patient’s problem?”
Professionalism:
a promise of expertise and
a promise of duty

The promise is made to the patient
Not to the teacher, the test or the health care system
Summary recommendations – policy and strategy

• Students: see curriculum as a process
  • Internalize what a promise of expertise and duty look like
  • Invitation to progress

• Faculty
  • Support and trust, clarity in expectations, time for feedback

• Deans/chairs
  • See faculty as key to success
Wrap-up:

What is something that you heard today that you think could apply to your curriculum renewal process?

Please type in the chat.
Thank you

louispangaro@aol.com