

Weill Cornell College of Medicine, Qatar



# **CURRICULUM DEVELOPMENT**

**An Essential Educational Skill**

**A Public Trust**

**A Form of Scholarship**

**An Opportunity for Organizational Change**

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November 23, 2014



# Disclosures

The presenter is an editor and author of the book:

- Kern DE, Thomas PA, Hughes MT, eds. Curriculum Development for Medical Education: A Six-Step Approach. 2<sup>nd</sup> ed. Baltimore (MD): Johns Hopkins University Press; 2009.

and receives royalties from the publisher, Johns Hopkins University Press.

# Goals



By the end of the session, participants will be able to:

- Describe a 6-step approach to curriculum development
- Describe why curriculum development is
  - a public trust
  - a form of scholarship and
  - a method for organizational change
- Identify additional resources for curriculum development

# Who?



- Those engaged in curriculum development
- Educational leaders
- Other leaders (deans, department chairs)

# **CURRICULUM: DEFINITION**



- ***A planned educational experience***

# **CURRICULUM DEVELOPMENT: UNDERLYING ASSUMPTIONS**



- Educational programs have goals or aims, whether articulated or not
- Medical educators have professional and ethical obligations to meet the needs of their learners, patients and society
- Medical educators should be held accountable for the outcomes of their interventions
- A logical, systematic approach to CD will help achieve these goals

# ***Rudolf Virchow***



“Medical instruction does not exist to provide individuals with an opportunity of learning how to make a living, but in order to make possible the protection of the health of the public.”

# Guidelines and Accreditation Standards



- LCME (Liaison Committee on Medical Education) U.S. and Canada
- ACGME (Accreditation Council for Graduate Medical Education) U.S.
- ACGME International
- WHO (World Health Organization)
- WFME (World Federation for Medical Education)



# **CURRICULUM DEVELOPMENT PRECOURSE: OVERVIEW**



**■ 6 Steps**

**1. Problem Identification and  
General Needs Assessment**

- *Health Care Problem*
- *Current Approach*
- *Ideal Approach*

**2. Targeted Needs  
Assessment**

- *Learners*
- *Learning  
Environment*

**3. Goals and  
Objectives**

- *Broad Goals*
- *Specific  
Measurable  
Objectives*

**4. Educational Strategies**

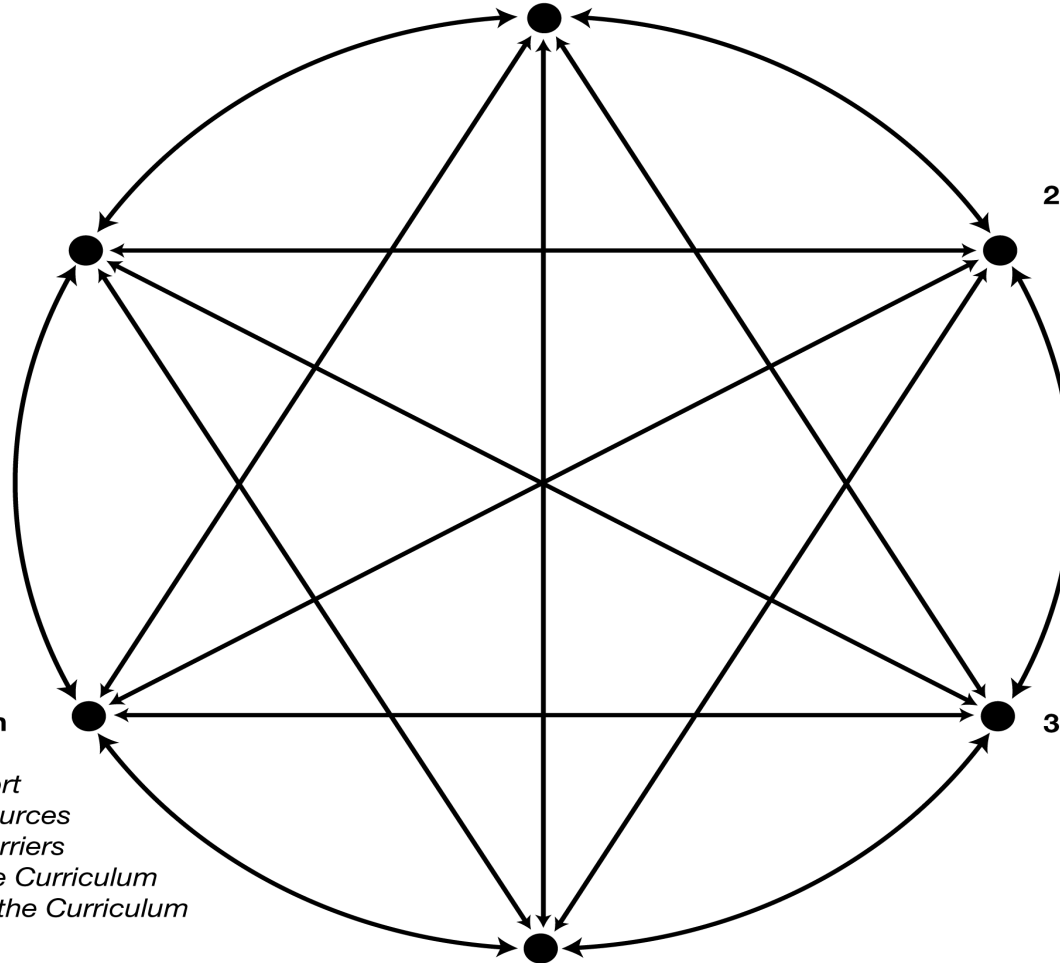
- *Content*
- *Method*

**6. Evaluation and  
Feedback**

- *Individual  
Learners*
- *Program*

**5. Implementation**

- *Obtaining  
Political Support*
- *Securing Resources*
- *Addressing Barriers*
- *Introducing the Curriculum*
- *Administering the Curriculum*





**STEP 1:  
PROBLEM IDENTIFICATION  
AND  
GENERAL NEEDS ASSESSMENT**

*...building the foundation for  
meaningful objectives*

# **PROBLEM IDENTIFICATION & GENERAL NEEDS ASSESSMENT: WHY?**



- Builds a rationale for your curriculum
- Grounds it in patient and societal needs
- Focuses a curriculum's goals and objectives
- Which in turn focus the educational and evaluation strategies
- Prevents duplication of effort
- Makes you an expert and a scholar

# **STEP 1:**

# **PROBLEM IDENTIFICATION**



- Identify and Characterize the Health Care Problem That Will Be Addressed by the Curriculum

# Whom Does the Problem Affect?



- Patients
- Society
- Health Care Professionals
- Trainees

# What Does the Problem Affect?



- Clinical Outcomes
- Quality of Life
- Quality of Health Care
- Use of Health Care and Other Resources
- Medical and Non-medical Costs
- Patient and Provider Satisfaction
- Work and Productivity
- Societal Function

# ***Example: Problem Identification***



“We need a curriculum in communication skills for our residents” *becomes*: Why is it important for residents to be effective communicators?

- What is the impact on the process of care?
- What is the impact on clinical outcomes?
- What is the impact on malpractice?
- What is the impact on utilization and costs?
- What is the impact on patient and physician satisfaction?



# GENERAL NEEDS ASSESSMENT



- What is **currently being done** about the problem?
  - By patients?
  - By practitioners?
  - By medical educators?
  - By society at large

# GENERAL NEEDS ASSESSMENT



- What is the **ideal approach** to the problem?
  - By patients?
  - By practitioners?
  - By medical educators?
  - By society at large

# **GENERAL NEEDS ASSESSMENT**




General Needs Assessment =

Ideal Approach - Current Approach

# ***Example:* Communication Skills**

(Kern DE et.al. Residency training in interviewing skills and the psychosocial domain of medical practice. J Gen Intern Med 1989; 4:421-431.)



- CS critical to diagnosis, patient education, trust, patient satisfaction, clinical decision-making
- CS related to patient outcomes: satisfaction, compliance, diabetes control, malpractice
- Physicians are “hypo-competent”
- Physician education often ignored or deficient at medical student and resident level
- Examples of effective education exist
- Effective education uses: effective educational methodologies which includes  $\geq 2$  experiential methods, same specialty role models, and reinforcement



**STEP 2:**

**TARGETED NEEDS ASSESSMENT**

**...refining the foundation**

# TARGETED NEEDS ASSESSMENT: DEFINITION



- A needs assessment of one's
  - Targeted learners
  - Targeted learning environment

# IMPORTANCE



- Identifies the specific needs and preferences of targeted learners and other stakeholders, which may be different from learners and stakeholders in general.
- Assesses the environment (including the hidden and informal curriculum) which will likely influence behavioral / performance outcomes.
- Permits tailoring the educational intervention to specific needs.
- Increases efficiency, prevents duplication.
- Builds relationship with stakeholders.
- Aligns strategy with resources.

# INFORMATION ABOUT TARGETED LEARNERS



- Previous training & experience
- Already planned training & experience
- Existing proficiencies: knowledge / attitudes / skills
- Current performance / behaviors
- Perceived deficiencies and learning needs
- Preferences



# INFORMATION ABOUT TARGETED ENVIRONMENT



- Related existing curricula
- Hidden / informal curriculum
- Specific enabling and reinforcing factors / barriers
- Resources
- Stakeholders
- Politics / factors related to institutional administration, policy and procedure

# ***EXAMPLE: ETHICS CURRICULUM FOR IM PGY-2 AND 3 RESIDENTS***



## Methods for Collecting Information:

- Inventory of previous curricula to which the residents had been exposed in the residency
- Informal interviews with several residents
- Survey of all targeted residents about their previous training, perceived competencies, and perceived needs.

# ***EXAMPLE: ETHICS CURRICULUM FOR IM PGY-2 AND 3 RESIDENTS***



## Findings:

- Residents had considerable training related to autonomy, beneficence, substituted judgment, advance directives, and end-of-life decisions
- Residents had no training related to clinical decision making in the context of competing interests such as patient vs. family vs. societal needs, or to different payment structures and funding / gift sources.
- All of the residents' training had centered around inpatient cases.

# ***EXAMPLE: ETHICS CURRICULUM FOR IM PGY-2 AND 3 RESIDENTS***



Response:

- The curriculum developers decided to focus their curriculum on clinical decision making, with an emphasis on the ambulatory setting.

# At the conclusion of Steps 1 & 2:



- You have a strong argument for the need for your curriculum.
- Set the stage for generalizability and dissemination of your curriculum.
- Understand the particular needs of your targeted learners and institution(s)
- Identified potential resources and support.
- Have the introduction and elements of a discussion for a manuscript
- You are now the expert!



**STEP 3:  
GOALS & OBJECTIVES**

*...focusing the curriculum*

*...the reason for teaching*

# GOALS



- *Goals* are broad educational objectives, the general ends toward which an effort is directed. They are usually not measurable as written.
- Example: The goal of the communication skills curriculum is ensure that residents become proficient in gathering relevant information from, building effective relationships with, and effectively educating and counseling their patients.

# OBJECTIVES



- *Objectives* are specific & measurable.
- Examples: By the end of the curriculum, residents will have demonstrated their proficiency in the following patient education skills:
  - assessing patients' knowledge, beliefs, needs;
  - tailoring education to needs;
  - giving information clearly and effectively;
  - checking patients' comprehension and agreement.



# GOALS VS. OBJECTIVES



- Goals: visionary, lofty, expansive
- Objectives: precise, measurable

# IMPORTANCE OF OBJECTIVES



- Help prioritize
- Direct content
- Identify learning methods (congruity)
- Enable and direct evaluation
- Permit clear communication to learners, faculty, and other stakeholders
- Required by accrediting bodies

# TYPES OF OBJECTIVES



- Learner Objectives

  - cognitive

  - affective

  - psychomotor (skill vs behavior)

- Process Objectives

  - curriculum implementation measures

- Patient / Healthcare Outcome Objectives

  - effects beyond those delineated in learner and process objectives,

  - e.g. patient outcomes, career choice

# HIERARCHY OF OBJECTIVES



- Patient / healthcare outcome >
- Behavioral / performance >
- Skill / competence >
- Attitudes / higher order cognitive >
- Knowledge

Those lower in the hierarchy may be enabling for those higher.

# ***EXAMPLE: Communication Skills***

- **Cognitive Objective:** By the end of the rotation, residents will be able to list the critical components of effective patient education: assessing patients' knowledge, beliefs, needs; tailoring education to needs; giving information clearly and effectively; checking patients' comprehension and agreement.
- **Affective Objective:** By the end of the rotation, residents will rate highly (compared to other roles) the physician's role to effectively educate patients.
- **Psychomotor Objective:** By the end of the rotation, residents will have demonstrated their proficiency in the above patient education skills.

By the end of residency, patient surveys will reveal the implementation of these skills in practice.

# ***EXAMPLE: Communication Skills***



- **Process Objective:** By the end of the rotation, each resident will have reviewed 3 recordings of their actual patient interactions with their colleagues and a facilitator.
- **Outcome Objective:** Two months after the end of the rotation, patients of trained residents will be more satisfied with their physicians and be more compliant with their prescribed medication regimen than patients of untrained residents.

# REMEMBER



- Goals provide overall direction
- A manageable number of objectives should
  - interpret the goals
  - focus and prioritize curricular components

## Caveats

- Most curricula encompass more than the sum of their written objectives



**STEP 4:**  
**EDUCATIONAL STRATEGIES**

*...accomplishing educational objectives*



# **STEP 4:**

# **EDUCATIONAL STRATEGIES**



- Content of the Curriculum
- Educational Methods

# EDUCATIONAL METHODS



Education is not the filling of a pail,  
but the lighting of a fire.

*William Butler Yeats*


# Adult Learning Theory 101



Adult learners..

- Interested in **concepts & principles**
- Like to **solve problems**, not learn facts
- Want to **use** what they've learned soon after learning it
- Learning is best at their **own pace**
- Motivation increases when they set **own learning objectives**
- Like to know how they're doing: crave **feedback**

# EDUCATIONAL METHODS: GENERAL GUIDELINES



- Maintain **congruence** between objectives and methods
- Used **multiple** educational methods
- Choose educational methods that are **feasible**
- Remember that **assessment can drive learning** (“internalization of assessment criteria”)

# **Congruence: Educational Methods for Achieving Cognitive Objectives**



- Reading
- Lecture
- Audio-visual Materials
- Discussion
- Case-based Learning
- Problem-based Learning
- Inquiry-based Learning
- Team-based Learning

# **Congruence: Educational Methods for Achieving Affective Objectives**



- Exposure (readings, discussions, experiences)
- Facilitation of openness, introspection, discussion & reflection
- Role models

# Congruence: Educational Methods for Achieving Psychomotor Objectives



## ■ Skill Objectives

- Supervised clinical experience
- Simulations
- Audio or visual review of skills


## ■ Behavioral Objectives

- Removal of *barriers* to performance
- Provision of *resources* that facilitate performance
- Provision of *reinforcements* for performance

# ***EXAMPLE:* Primary Care GYN**

- **By the end of the gynecology curriculum, each resident will have demonstrated, at least once, the appropriate technique, as defined on a check sheet, for obtaining a Pap smear and cervical cultures.**
  - Lecture / demonstration on proper communication / procedural skills
  - Practice with genitourinary teaching associate (GTA)
  - Observed pelvic exams in resident clinic
- **By the end of residency, patient surveys will reveal the implementation of these procedures in their continuity clinic.**
  - Pap exam trays in clinic
  - Provision of trained MA's to assist in clinic
  - Provision of audit feedback to residents on # of the patients they have seen eligible for Pap / Culture, # of these who have received the tests, and location of testing.





**True teaching is not an  
accumulation of knowledge;  
it is an awakening of  
consciousness which goes  
through successive stages.**

***from a temple wall  
inside an Egyptian pyramid***



**Education is what survives  
when what has been learned  
has been forgotten.**

***-B.F. Skinner***



**STEP 6:**  
**EVALUATION AND FEEDBACK**

*...assessing the achievement of objectives  
and stimulating continuous improvement*

# EVALUATION AND FEEDBACK: WHY?



- To determine if goals and objectives met
- To provide information for improvement
- To assess individual achievement
- To satisfy accreditation requirements
- To document accomplishments of curriculum developers
- To maintain and garner support
- To serve as a basis for presentations/publications

# THE 10 TASKS OF EVALUATION



- I. Identify Users
- II. Identify Uses
- III. Identify Resources
- IV. Identify Evaluation Questions\*
- V. Choose Evaluation Designs\*
- VI. Choose Measurement Methods\* and Construct Instruments
- VII. Address Ethical Concerns
- VIII. Collect Data
- IX. Analyze Data
- X. Report Results

# IV. IDENTIFY EVALUATION QUESTIONS



- Ensure that some evaluation questions are congruent with learner objectives.
- Include some evaluation questions that do not relate to specific learner objectives (program evaluation).
- Include some that are open-ended in nature.
- Prioritize and select key evaluation questions, based upon user needs and feasibility.

# ***EXAMPLE:* COMMUNICATION SKILLS**



- Do residents' communication skills improve following training? Are they superior to those of untrained residents?
- How do residents rate the curriculum and its various components?
- What are its strengths?
- How can it be improved?

# V. CHOOSE EVALUATION DESIGNS



- Choose an evaluation design congruent with the evaluation question.
- Choose an evaluation design that is feasible in terms of resources.



# V. COMMON EVALUATION DESIGNS

■ Posttest Only

X ---- O

■ Pretest Posttest

O<sub>1</sub> ---- X ---- O<sub>2</sub>

■ Control Group

E (O<sub>1</sub> ----) X ---- O<sub>2</sub>  
(R)

C (O<sub>1</sub> ----) ----- O<sub>2</sub>

X = intervention

O = observation

E = Experimental

C = Control



# **CONGRUITY: *EXAMPLE:*** **COMMUNICATION SKILLS**



- How do residents rate the curriculum and its various components?
- What are its strengths?
- How can it be improved?

X ---- O

## VI. CHOOSE MEASUREMENT METHODS AND CONSTRUCT INSTRUMENTS



- Choose a measurement method that is congruent with the evaluation question.
- Choose a measurement method that is feasible in terms of available resources.

# VI: Choose Measurement Methods: Congruence

|         | Knowledge   | Attitude  | Skill/Behavior   |
|---------|---|---|--|
| Learner | Oral exam<br>Written exam/Q'aire<br><hr/> Case discussion<br><hr/> Global rating scales | Learner interview<br>Questionnaire<br>Self-evaluation<br><hr/> Global rating scales | Direct observation<br>Audio/video<br>observation<br><hr/> Record audit<br>Outcomes of care<br>Patient interview<br><hr/> Self-evaluation<br>Global rating scales |
| Program | Aggregated scores from above methods  | Aggregated scores from above methods  | Aggregated scores from above methods   |

# ***EXAMPLE:***

# **COMMUNICATION SKILLS**



- **Do residents' communication skills improve following training? Are they superior to those of untrained residents?**
  - Self-assessments.
  - Faculty observation of real doctor-patient interactions using a skills check list.
  - Rigorous evaluation of videotapes of resident-standardized patient interactions.

# ***EXAMPLE:***

## **COMMUNICATION SKILLS**



- **Are the patients of trained residents more satisfied and compliant than those of untrained residents?**
  - Validated measures of patient satisfaction and adherence.
- **How do residents rate the curriculum and its various components? / What are its strengths? / How can it be improved?**
  - End-of-rotation questionnaire

# VI. IDEAL EVALUATION STRATEGY



- multiple measurements
- multiple measurement methods
- multiple raters

When all results are similar, the findings are said to be *robust*, and one can be reasonably comfortable about their validity.



# TAKE HOME MESSAGE: CONGRUENCY



**OBJECTIVES**



**EVALUATION  
METHODS**

**EDUCATIONAL  
METHODS**



## **STEP 5: IMPLEMENTATION**

**...making the curriculum a reality**  
**...converting a good plan into an accomplishment.**

# STEP 5: IMPLEMENTATION



- Identify Resources
- Obtain Support (Institutional, External)
- Develop Administrative Mechanisms to Support the Curriculum
- Anticipate and Address Barriers
- Have a Plan for Introducing the Curriculum

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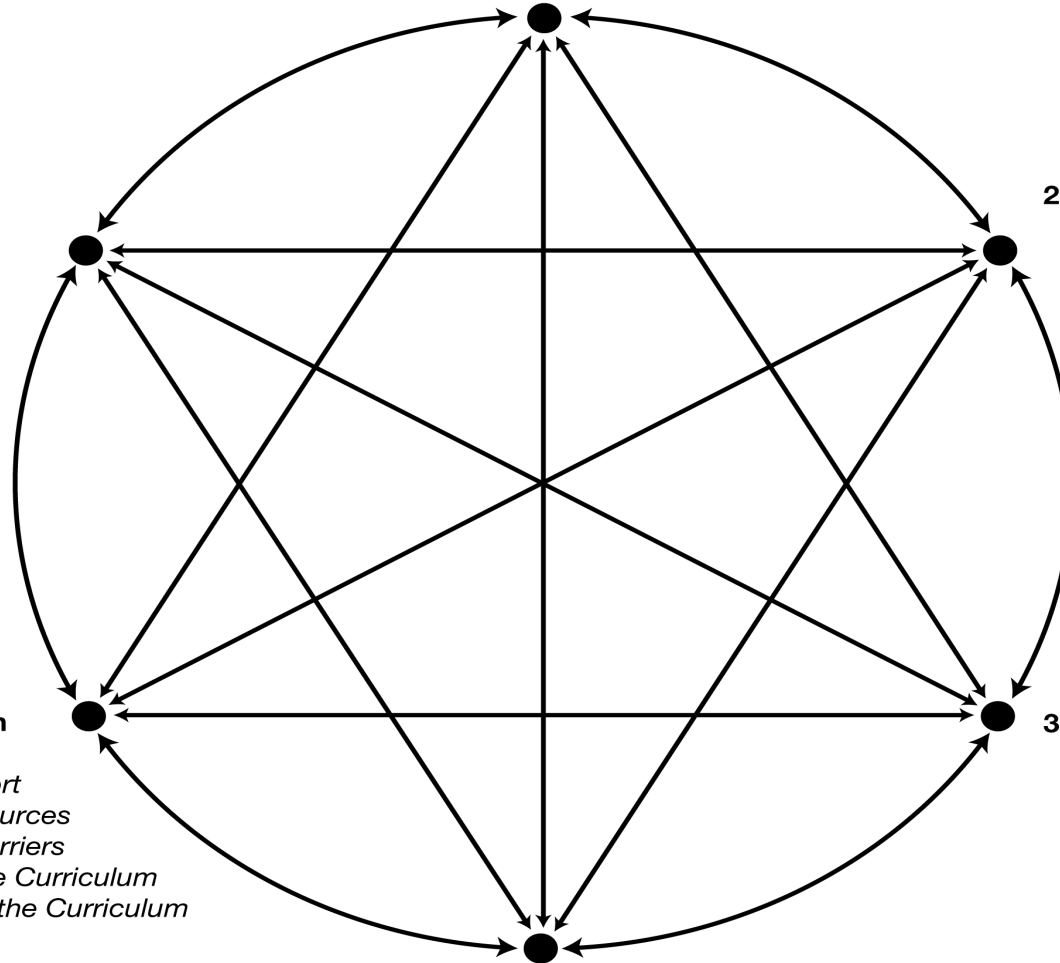
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# **CURRICULUM DEVELOPMENT : OVERVIEW**



- 1. Problem ID & Gen'l Needs Assessment
  - 2. Needs Assessment of Targeted Learners
  - 3. Goals & Objectives
  - 4. Educational Strategies
  - 5. Implementation
  - 6. Evaluation & Feedback
- 
- 7. Curriculum Maintenance & Enhancement



# **Is Curriculum Development Scholarship?**

# Glassick\*

## Criteria for Scholarship



1. Clear goals and aims
2. Adequate preparation
3. Appropriate methods
4. Significant results
5. Effective presentation / dissemination
6. Reflective critique

*\*Glassick CE, Huber MR, Maeroff GI. Scholarship Assessed: Evaluation of the Professoriate. 1997; San Francisco, CA: Jossey-Bass.*

*\* Glassick CE. Boyer's expanded definitions of scholarship, the standards for assessing scholarship, and the elusiveness of the scholarship of teaching. Acad Med. 2000;75:877–880.*

# Is CD Scholarship



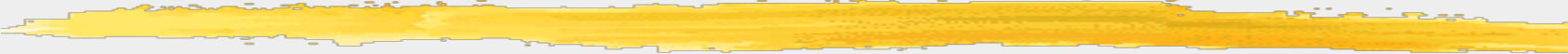
| Scholarship          | Curriculum Development |
|----------------------|------------------------|
| Clear Goals and Aims | Goals and Objectives   |
| Adequate Preparation | Problem ID, GNA, TNA   |
| Appropriate Methods  | Educational Strategies |
| Significant results  | Evaluation             |
| Dissemination        | ?                      |
| Reflective critique  | Evaluation             |



# DISSEMINATION



- Dissemination of the Curriculum to Multiple Locations
- Publication in Peer Reviewed Journals
- Electronic Publication
- Presentation
  - Local
  - Regional Professional Meetings
  - National and International Professional Meetings



**Can Curriculum Development  
Be a Method for  
Organizational or Culture  
Change?**

# Program Development is Organizational Change



- To the extent that one develops a new and different program.
- The new program can affect how people interact, think about and do things, and the conversations they have.
- After several cycles these new ways become the new status quo.
- If successful, you train individuals who disseminate the new ways.

# COMMUNICATION SKILLS (1)



- 1979 Introduction of CS and PS into GIM Training at JHBMC
  - Grant
  - Requirements
- External Experts → Internal Capability
- Revision
- Documentation and Communication of Success
- Program Expansion to All IM Residents

# COMMUNICATION SKILLS (2)



## ■ Related Activities

- Task Force → AAPP → AACH
- Scholarship

## ■ Influence on Related Activities

- Intern and Resident Support Groups
- FDP
- Osler Center
- Aliko Initiative
- Miller Coulson Academy of Clinical Excellence
- Residency in General

# RESOURCES



- Book:
  - Kern DE, Thomas PA, Hughes MT, eds. Curriculum Development for Medical Education: A Six-Step Approach. 2nd ed. Baltimore (MD): Johns Hopkins University Press; 2009.

# RESOURCES



## ■ Chapters:

- Kern DE, Thomas PA. What do leaders need to know about curriculum planning? In Pangaro L, ed. *Leadership Careers in Medical Education*. Philadelphia: ACP Press, American College of Physicians; 2010. p. 101-127.

Concise overview of educational program development and evaluation.

- Thomas PA, Kern DE. From curricular goals to instruction: choosing methods of instruction. In: Skeff KM, Stratos GA. *Methods for teaching medicine*. Philadelphia: ACP Press, American College of Physicians; 2010. p. 15-47.

Chapter on choosing instructional methods that are aligned with educational needs and objectives.

# RESOURCES



- Johns Hopkins Faculty Development Program:
  - Introduction to CD Concepts: 1/2-Day Workshop
  - Principles and Practice of CD: 2-day workshop
  - CD Practicum: mentorship for a project.
  - Longitudinal Program in CD: Wed AMs Sept-June
  - Under Development: Online Offerings
- Masters of Education in the Health Professions



# LONGITUDINAL PROGRAM IN CURRICULUM DEVELOPMENT

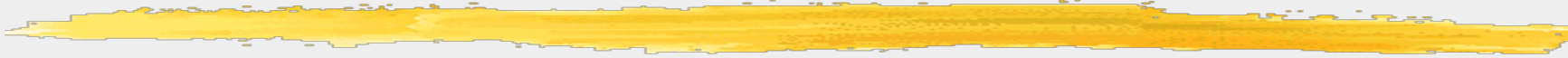


- 10 Months
- Workshops on Each Curricular Step
- Sessions on Literature Searching, IRB, Searching for Funding, Simulation Center, Dissemination
- Mentored Project
- Individual Meetings with Facilitators, Written Feedback on Each Step
- Work-in-Progress Sessions
- Written Paper / Curriculum and Oral Presentation

# RESOURCES



- Dave Kern ([dkern1@jhmi.edu](mailto:dkern1@jhmi.edu) )



# ***QUESTIONS***



***EXTRA SLIDES***

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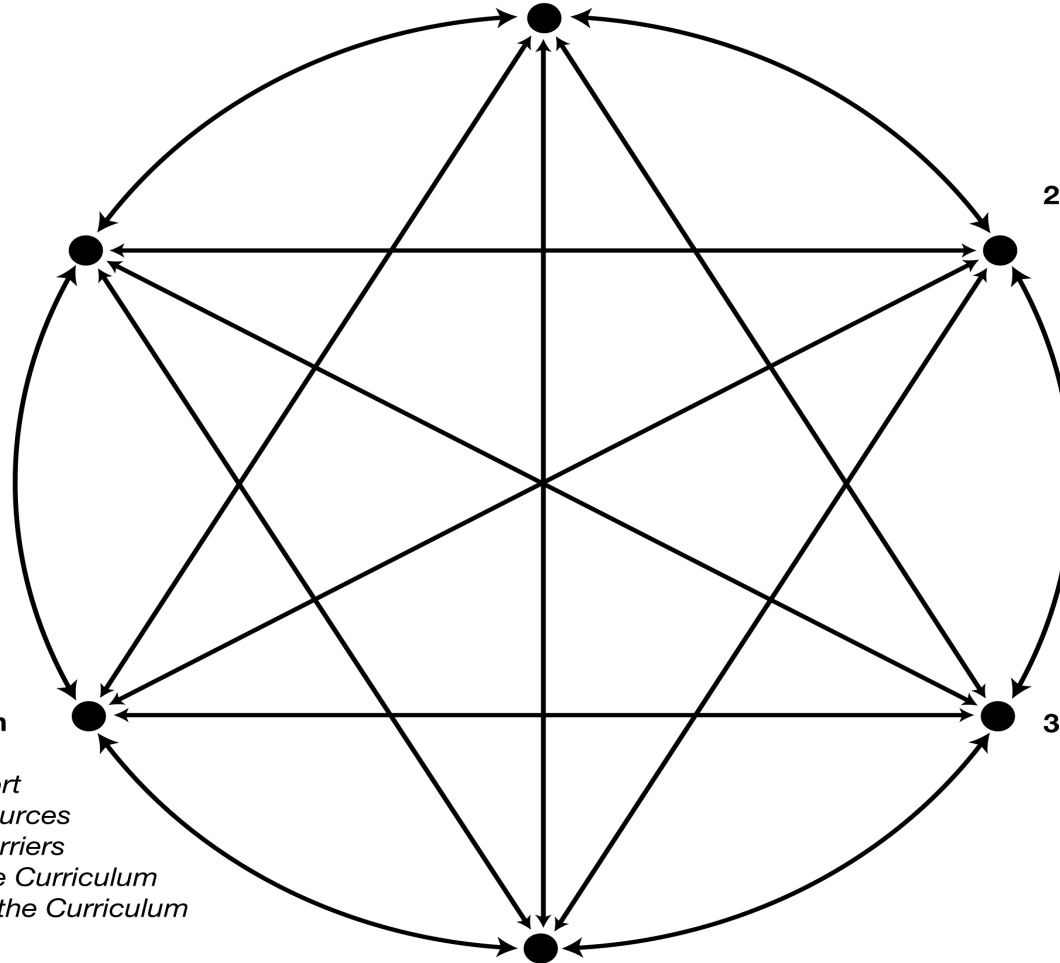
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  - 8. Dissemination