2-2020

Reaching the Summit: From exposure to immersion in quality improvement in physical therapy education

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Learning Objectives

1. Describe the Institute of Medicine (IOM) Competencies as a system to achieve patient centered care
2. Discuss key quality improvement (QI) concepts and skills (related to CAPTE and minimum skills)
3. Analyze how key educational frameworks can be used to design and evaluate a QI curriculum
4. Outline a curriculum for teaching QI concepts in your setting
Disclosure

- The speakers have no conflicts to disclose.

IOM Competencies


Core Competencies
1. Care is based on continuous healing relationships.
2. Care is customized according to patient needs and values.
3. The patient is the source of control.
4. Knowledge is shared and information flows timely.
5. Decision making is evidence-based.
6. Safety is a system property.
7. Transparency is necessary.
8. Needs are anticipated.
9. Waste is continuously decreased.
10. Cooperation among clinicians is a priority.

Why do we need system redesign and core competencies?

Medical Error: May be the 3rd Leading Cause of Death in US

Makary MA, Daniel M. Medical error—the third leading cause of death in the US. BMJ 2016;353:i2139.

DIKW Knowledge Hierarchy

Event Reporting System

Apply Quality Improvement

Definitions: QA vs. QI

Quality Assurance (QA)
- Benchmark-Maintain
- Accreditation Criteria

Quality Improvement (QI)
- Continuous change (No limit)
- Goal of making improvements at the systems level


What is Quality?

“The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.”


Donabedian’s Quality Assessment Framework

<table>
<thead>
<tr>
<th>Structure</th>
<th>Process</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>How care is delivered, organized, financed</td>
<td>Tasks performed that are intended to produce an outcome</td>
<td>“Ultimate Validator” Changes in individuals and populations due to health care</td>
</tr>
<tr>
<td>People, equipment, policies/procedures</td>
<td>Most closely related to outcomes</td>
<td>Require time to develop, multifactorial, random component</td>
</tr>
<tr>
<td>Equivalent to system design, determines average quality of care a system can deliver</td>
<td>Causal relationship between process &amp; outcomes</td>
<td></td>
</tr>
</tbody>
</table>

Minimum Required Skills of PT Graduates at Entry-Level

Quality Improvement

- "Participate in quality improvement program of self, peers, and setting/institution"

- "Describe the relevance and impact of institutional accreditation"

Professional Behaviors

Problem Solving

- Post Entry-Level
  - Participates in formal quality assessment in work environment
WHAT IS HAPPENING IN PT EDUCATION NOW?

Scoping Review

The objective of this scoping review was to examine the literature on quality improvement in physical therapy education, with the specific objectives of identifying (1) education activities in quality improvement methods in physical therapy curricula, (2) the developmental level of that education using the University of Toronto framework, and (3) the extent of evaluation of that education using Kirkpatrick’s framework.
Results


Summary

Limited core document guidance
Limited published literature

Room for Improvement
Key Educational Models

- Kern’s 6 Step Approach to Curriculum Development
- University of Toronto (AKA IPEC) Framework for the Development of Interprofessional Education Values and Core Competencies
- Miller’s pyramid and prism of assessment
- Kirkpatrick Four Levels of Learning Evaluation

Key Curricular Models

- Kern’s 6 Step Approach to Curriculum Development
- University of Toronto (AKA IPEC) Framework for the Development of Interprofessional Education Values and Core Competencies
- Miller’s pyramid and prism of assessment
- Kirkpatrick Four Levels of Learning Evaluation
Kern's 6 Step Approach to Curriculum Development

1. Problem Identification and Needs Assessment
2. Targeted Needs Assessment
3. Implementation
4. Goals and Objectives
5. Targeted Needs Assessment
6. Evaluation and Feedback


Kern's 6 Step Approach to Curriculum Development
Kern’s 6 Step Approach to Curriculum Development

1. Problem Identification and Needs Assessment
2. Targeted Needs Assessment
3. Educational Strategies
4. Implementation
5. Goals and Objectives
6. Evaluation and Feedback

Kern's 6 Step Approach to Curriculum Development

1. Problem Identification and Needs Assessment
   - Health Care Problem
   - Current Approach
   - Ideal Approach

2. Educational Strategies
   - Teaching
   - Learning
   - Methodology
   - Evaluation

3. Implementation
   - Obtaining Political Support
   - Securing Resources
   - Addressing Barriers
   - Introducing the Curriculum
   - Administering the Curriculum

4. Goals and Objectives
   - Broad Goals
   - Specific Measurable Objectives
   - Content/Method/Simulation

5. Targeted Needs Assessment
   - Individual Learners
   - Program

6. Evaluation and Feedback
   - Learners
   - Learning Environment

Key Educational Models

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University of Toronto (AKA IPEC) Framework for the Development of Interprofessional Education Values and Core Competencies

- Competence
  - Demonstrate competence in the skills and behaviors needed to engage in collaboration and communication that is integral to practice
  - Facilitate positive attitudes regarding their value

- Immersion
  - Facilitate development of the skills and behaviors needed to engage in the collaboration and communication that is integral to practice
  - Facilitate positive attitudes regarding their value

- Exposure
  - Introduce students to the values, ethics and skills needed in practice
  - Facilitate positive attitudes regarding their value
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Miller’s Pyramid of Clinical Competence
Key Curricular Models

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- Miller’s pyramid and prism of assessment
- Kirkpatrick Four Levels of Learning Evaluation™

Kirkpatrick Four Levels of Learning Evaluation™

- Level 1: Reaction • To what degree participants react favorably to the learning event.
- Level 2: Learning • To what degree participants acquire the intended knowledge, skills and attitudes based on their participation in the learning event.
- Level 3: Behavior • To what degree participants apply what they learned during training when they are back in the job.
- Level 4: Results • To what degree targeted outcomes occur, as a result of learning event(s) and subsequent reinforcement.
Kirkpatrick Four Levels of Learning Evaluation™

Level 4: Results
- To what degree participants apply what they learned during training when they are back on the job.

Level 3: Behavior
- To what degree participants acquire the intended knowledge, skills and attitudes based on their participation in the learning event.

Level 2: Learning
- To what degree participants react favorably to the learning event.

Level 1: Reaction
- To what degree participants react favorably to the learning event.
To what degree targeted outcomes occur, as a result of learning event(s) and subsequent reinforcement.

Level 4: Results

Level 3: Behavior

Level 2: Learning

Level 1: Reaction

Kirkpatrick Four Levels of Learning Evaluation™

U. Toronto  Miller’s Pyr  Kirkpatrick

Competence
Immersion
Exposure

Level 4: Results
Level 3: Behavior
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What is “Entry-level” for QI in DPT Education?

Exposure, Immersion or Competence?

QI Methods...Plan Do Study Act

ITERATIVE/INDUCTIVE

Plan

Do

Study

Act

What are we trying to do?

What data do I need to collect?

Adopt plan and test

Adopt change and test on larger scale

Analyze and interpret data as a team

Compare results to your goal

Exposure, Immersion or Competence?

QI Methods...DMAIC

LINEAR/DEDUCTIVE

Define

Measure

Analyze

Improve

Control

Define the problem and objectives

How will we measure what we want to improve

Map the process and compare to best practice and/or guidelines

Identify needed improvements (gaps between current process and best practice)

Audit and monitor to sustain improvement


QI Methods Reflect Clinical Research Process

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QI Tool...Process Map/Flowchart

Powerful tool for making a process visible
- Compare and contrast actual process to intended process (agree on level of detail; high level vs. detailed)
- Clarifies suppliers of inputs and customers (internal and external)
- Identifies unexpected variation and complexity that may benefit from simplification and standardization
- Identifies areas in which additional data may be needed
- Final map/flowchart creates a shared mental model of the process for team members and can be used in training new team members


Map/Flowchart Symbols

- Ovals represent structures, information, or action that starts a process
- Rectangles represent tasks/activities in the process; multiple arrows may enter a box but usually only one arrow leaves the box
- Diamonds represent decisions (Yes/No Question) in the process
- Circles with letters or numbers identify a break in the Flowchart, which is continued on the next page
- Arrows illustrate the direction or flow of the process

Process Map/Flowchart for Safe Inpatient Transfers and Mobility
SIPOC for Gait Belt Usage in Safe Patient Transfers and Mobility

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Inputs</th>
<th>Process</th>
<th>Output</th>
<th>Customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient Safety Committee</td>
<td>Policy/procedure for safe patient handling: all clinical staff apply a gait belt to any patient who is not independent in mobility and transfers.</td>
<td>Housekeeping ensures a clean gait belt is available on a hook by the head of the bed every time they are in the room.</td>
<td>Gait belts are used in 100% of assisted falls decreasing the likelihood of injury to patients and staff during assisted falls.</td>
<td>Patient and Family, All clinical staff who perform patient transfers, Organization, Healthcare System</td>
</tr>
<tr>
<td>Central Supply and Laundry</td>
<td>Adequate supply of clean gait belts</td>
<td>Housekeeping ensures a clean gait belt is available on a hook by the head of the bed every time they are in the room.</td>
<td>Gait belts are used in 100% of assisted falls decreasing the likelihood of injury to patients and staff during assisted falls.</td>
<td>Patient and Family, All clinical staff who perform patient transfers, Organization, Healthcare System</td>
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QI Methods Reflect Clinical Research Process

- Exploratory research methods (e.g., surveys and qualitative methods)
- Standardized assessments
- root cause analysis
- Fishbone diagram
- Frequency chart
- Run chart
- Descriptive statistics
- Inferential statistics
- Implementation component of organization innovation: Restructuring, Clarifying, Routinizing

QI Tools

- What are we trying to do? Define the problem & objectives
- QI Tools:
  - checklists
  - process map/flowchart
  - root cause analysis
  - fishbone diagram
- Plan
- Do
- Study
- Act
- Define
- Measure
- Analyze
- Improve
- Control

Root Cause Analysis (RCA)

- Retrospective, structured investigation of adverse events, near misses, Sentinel events (Wald & Shojania, 2001)

Case Example

Root Cause Analysis - The Concept
Root Cause Analysis (RCA)

• Key Processes in RCA toolbox (Battles et al., 2006; Nicolini et al., 2013)
  – Systematic reporting of events w/ action priority based on stratification of risk
  – Structured organization of data with timeline (what happened)
  – Group reflection (“sensemaking conversation”) by those most knowledgeable about situation (must include front line providers)
  – Identify root causes using causal statements, fishbone diagram (why 5x)
  – What can be done to prevent it from happening again?
  – Design action plan to prevent recurrence with focus on SYSTEM CHANGES AND STRENGTH of potential actions

Fishbone (Ishikawa) Diagram

QI Methods Reflect Clinical Research Process

<table>
<thead>
<tr>
<th></th>
<th>Clinical Research Process</th>
<th>QI Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exploratory research methods (e.g. surveys and qualitative methods)</td>
<td>Experiment, Descriptive statistics, Inferential statistics</td>
</tr>
<tr>
<td>Plan</td>
<td>What are we trying to do? Define the problem &amp; objectives</td>
<td>QI Tools: checklists, process map, flowchart, Root Cause Analysis, Fishbone Diagram</td>
</tr>
<tr>
<td>Do</td>
<td>Define</td>
<td>Frequency Chart</td>
</tr>
<tr>
<td>Study</td>
<td>Measure</td>
<td>Run Chart</td>
</tr>
<tr>
<td>Act</td>
<td>Analyze</td>
<td>Improve</td>
</tr>
</tbody>
</table>
Baseline assessment of gait belt availability = 58% across all patient rooms

As availability of gait belts increased, assisted falls resulting in injury decreased.

Run Chart Example

Policy for Housekeeping to stock gait belts in rooms routinized

Difference between total fall rate and unassisted fall rate accounted for by increase in assisted falls due to increasing availability of gait belts.

Reference for Gait Belt Usage

- The odds of falling unassisted are nearly 7 times greater if nurses do NOT identify gait belts as a fall risk reduction intervention as compared to if they do recognize them as an intervention.

- The odds of an assisted fall resulting in injury are nearly 4 times greater if a gait belt is NOT used as compared to if a gait belt is used.

Resources for QI Tools


Phases

Early: Faculty teach IOM concepts & QI basics
Middle: Curricular application of QI Concepts
Late: Student application

Exposure \> Immersion \> Competence

Introductory content lecture/Interactive

- **WHY IS IT IMPORTANT? (the HOOK)**
  - Scope of the problem of medical error (To Err is Human; current estimates) and IOM Competencies as strategy to address the problem
    - Suggested reading: Crossing the Quality Chasm Executive Summary (https://www.ncbi.nlm.nih.gov/books/NBK222271)
  - Relatively few clinical PTs conducting QI and taking a seat at the QI table within their organizations

- **Examples of Definitions/Terms:**
  - Definitions of QI vs. QA
  - Introduction to QI in context of Clinical Research (in “Research Methods” class)
  - QI Models and Tools
  - Definitions of types of measures (Outcome, Process, Balancing)

---

**36 Courses and other resources are FREE for individual students, residents, and faculty**

**QI Olympics (Hansen, MedEdPORTAL)**

- Example team building game: The Egg Drop
  - Team task: design egg packaging to best protect the egg during drop
  - Outcomes: (1) Egg breaking or not (2) Package score* = weight (g) + height (cm) + cost ($)
  - Teams provided limited building materials; each material assigned a “cost”
  - Specific design change tested and PDSA worksheet completed for each attempt

---

**Exposure**
Interprofessional Education RCA

- PT only, or Nursing and PT student teams
- Students read case of “near miss” where Hoyer lift collapsed during lift with multiple contributing factors:
  - primary language of PT ≠ primary language of PT
  - bariatric surgery program is brand new and equipment is still on order, nursing student is assigned to the patient, weekend shift PT, weight limit label is worn off and hard to read etc.
- Students in small combined groups perform written RCA based on IHI Model for Improvement

Interprofessional Education RCA (could be PT students only)

- Assignment:
  - Perform a RCA following IHI document “Root Cause Analysis Summary”
  - Complete a Fishbone diagram to demonstrate the various causes of the Near Miss
  - Make 5 or more recommendations that could be implemented by the facility.
    - Indicate strength of recommended actions and recommendations addressing latent conditions (vs. active failure)

Process mapping from patient perspective

- 2nd year nursing students followed a patient during a day’s work, recorded processes of care from the patient’s perspective.
- Created process map from patient perspective.
- Identified aspects of practice that could be improved.
- Outlined quality goals using structure, process, and outcome criteria to describe potential improvements. (Donabedian model)
Clinical Education PDSA activity

• Students identify a “problem” during Clinical Education
  ✓ At individual level and MEANINGFUL to THEM
  ✓ How to know it’s a problem?
    - Practice deviates from known “best practice”
    - Outcomes (of some identified item) have declined from previous

• Develop a mini-individual (personal) QI project.
  ✓ Obtain/create data to help form measures (outcome, process, balancing)
• Complete 2 rounds of PDSA
• Reflect and write brief summary of experience
• Submit assignment on Learning Management System (Canvas, Blackboard)
• Examples: Difficulty including standardized outcome measures during evaluations, high personal cancellation rate, inefficiency in documentation etc.
Shrader, et al, Interprofessional Elective

Caring for the Community
- 2 credit hour elective
- MD, PA, Pharmacist, & PT students
- Eleven weekly 2 – hour lectures
- Interprofessional small group activities
- Patient care at student run free clinic 5 evenings per semester
- Quality improvement project related to student-run clinic
- Patient case presentation

QI Methods Reflect Clinical Research
- Teach measurement of validity: predictive values of standardized fall-risk assessments
- Case Study of hospital comparing positive predictive value of three nursing fall risk assessments
- Reviewed records in past year
  - 26 patients fell
  - 37 patients did not fall
- Determined best tool using 2 cut points for each tool
  - John Hopkins Fall Risk Assessment Tool
  - Morse Falls Scale
  - Fall Risk Assessment Scoring System (FRASS)

FRASS Cutpoint at 15+ High Risk For Falls

<table>
<thead>
<tr>
<th>Assessment Results</th>
<th>Did the patient fall?</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>(FRASS ≥ 15)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Result</td>
<td>a = 17</td>
<td>b = 8</td>
</tr>
<tr>
<td>(true +)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Result</td>
<td>c = 9</td>
<td>d = 29</td>
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<td>(false -)</td>
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Sensitivity  
\[ \frac{a}{a+c} = \frac{17}{26} = 65\% \text{ of fallers had + test (≥ 15)} \]

Specificity  
\[ \frac{d}{d+b} = \frac{29}{37} = 78\% \text{ of nonfallers had – test (< 15)} \]

PV+  
\[ \frac{a}{a+b} = \frac{17}{25} = 68\% \text{ of those with + test (≥ 15) fell} \]

PV-  
\[ \frac{d}{c+d} = \frac{9}{38} = 76\% \text{ of those with – test (< 15) did not fall} \]
Comparing Results of Three Tools

<table>
<thead>
<tr>
<th>Tool</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>+ Predictive Value</th>
<th>- Predictive Value</th>
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<tbody>
<tr>
<td>Johns Hopkins (6+)</td>
<td>100%</td>
<td>0%</td>
<td>41%</td>
<td>0%</td>
</tr>
<tr>
<td>Johns Hopkins (13+)</td>
<td>88%</td>
<td>41%</td>
<td>51%</td>
<td>83%</td>
</tr>
<tr>
<td>Morse (45+)</td>
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<td>24%</td>
<td>48%</td>
<td>100%</td>
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<tr>
<td>Morse (75+)</td>
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<td>70%</td>
<td>54%</td>
<td>67%</td>
</tr>
<tr>
<td>FRASS (8+)</td>
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<td>24%</td>
<td>48%</td>
<td>100%</td>
</tr>
<tr>
<td>FRASS (15+)</td>
<td>65%</td>
<td>78%</td>
<td>68%</td>
<td>76%</td>
</tr>
</tbody>
</table>

Students Decide!

- Form Groups of 5 – 6 students
- You are the PTs on this hospital’s fall risk reduction team
- Which tool will you recommend the nurses use to screen for fall risk?
- Be prepared to provide a rationale for your decision
Application of Key Educational Models to Quality Improvement Curriculum

WORKSHOP

Reminder: Key Curricular Models

- Kern’s 6 Step Approach to Curriculum Development
- University of Toronto (AKA IPEC) Framework for the Development of Interprofessional Education Values and Core Competencies
- Kirkpatrick Four Levels of Learning Evaluation
- Miller's pyramid and prism of assessment

Kern’s 6 Step Approach to Curriculum Development
Kern’s 6 Step Approach to Curriculum Development

Needs assessment

- CAPTE criteria
  - 7D38: Participate in activities for ongoing assessment and improvement of quality services.
  - 7D43 Participate in practice management, including marketing, public relations, regulatory and legal requirements, risk management, staffing, and continuous quality improvement

- IOM competencies

Activity #1: Problem Identification and Needs Assessment

- Create team...
- Who does the problem impact?
- How important is the problem qualitatively and quantitatively?
- What is the current approach to teaching this content?
- What is the “ideal” approach to teaching this content?
  - Things you’ve tried that have been successful w/QI?
  - Things you’ve tried with other content that you can apply to QI?
  - Other examples that we have presented?
  - Additional research?
Activity #2: Targeted Needs Assessment
Collecting relevant information...

- Informal Discussion with Faculty and other stakeholders
- Focus groups
- Questionnaires
- Audit of current performance
- Strategic planning session

Activity #2: Needs Assessment of Targeted Learners

<table>
<thead>
<tr>
<th>Learners</th>
<th>Learning Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students? Faculty?</td>
<td>Related existing curricula</td>
</tr>
<tr>
<td>Experiences</td>
<td>Barriers</td>
</tr>
<tr>
<td>Expectations</td>
<td>Resources</td>
</tr>
<tr>
<td>Existing proficiencies (KSA)</td>
<td>Inter-professional opportunities</td>
</tr>
<tr>
<td>Preferred learning methods</td>
<td>Clinical Education opportunities</td>
</tr>
<tr>
<td></td>
<td>Pro bono clinic</td>
</tr>
</tbody>
</table>
Activity #3: Goals and Objectives

- Specific & Measurable…5 elements
  - Who will do, how much of what by when?
- Objectives for Individual Learner and Program
- Objectives directed towards:
  - 1) Learner (KSA's)
  - 2) Process
  - 3) Outcome

**Learner (KSA's)**
- Process: Participate in designated learning activities
- Outcome: Apply QI processes in clinical environment

**Program**
- Process: Educate Faculty through specific training
- Outcome: Prepare students to use QI skills in entry-level practice

**Verb Selection**

- Cognitive (Knowledge)
- Affective (Attitude)
- Psychomotor (Skills)
Problem Identification and Needs Assessment

Educational Strategies

Goals and Objectives

Targeted Needs assessment

Evaluation and Feedback

Kern’s 6 Step Approach to Curriculum Development

• Demonstrate competence in the skills and behaviors needed to engage in the collaboration and communication that are integral to practice.
• Facilitate positive attitudes regarding their value.

Competence

• Facilitate development of the skills and behaviors needed to engage in the collaboration and communication that are integral to practice.
• Facilitate positive attitudes regarding their value.

Immersion

• Introduce students to the values, ethics and skills needed in practice.

Exposure

Miller’s pyramid and prism of assessment.

Knowledge

• Knows

Understands

Knows how

-• Knows why

Performance integrated into practice

• Observes/Pays attention

Knowledge of procedure

-• Understands

-• Can recall

-• Can apply

-• Can use

-• Can perform

-• Can evaluate

University of Toronto (AOS II IC)
Framework for the Development of Interprofessional Education Values and Core Competencies: Keys

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Miller’s prism of clinical competence (aka Miller’s pyramid). Based on work by Miller GE, The Assessment of Clinical Skills/Competence/Performance; Acad med. 1990. Adapted by Mehay/Burns, UK. 2009

https://breathe.ersjournals.com/content/15/3/163.full
Activity #4: Educational Strategies

• Where to include?
  ✓ PT only vs. Inter-professional?
  ✓ Potential courses: Research Methods/EBP, Practice Management, Clinical Education
    - Integrated vs. Standalone?
  ✓ Classroom, lab, clinical education, service learning, pro bono clinic

<table>
<thead>
<tr>
<th>Method</th>
<th>Knowledge</th>
<th>Problem Solving</th>
<th>Attitudes</th>
<th>Clinical Skills</th>
<th>Non-Clinical Behaviors</th>
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<tbody>
<tr>
<td>Readings</td>
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<td>+</td>
<td>+</td>
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<tr>
<td>Lecture</td>
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<td>+</td>
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<tr>
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<td>+</td>
<td>++</td>
<td>+++</td>
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<td>+</td>
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<tr>
<td>Reflection/Review of Simulation Videos</td>
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<td>+++</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Real Life Clinical Experience</td>
<td>+</td>
<td>++</td>
<td>+++</td>
<td>+</td>
<td>+++</td>
</tr>
</tbody>
</table>

+++ = appropriate in some cases, useful as adjunct to other methods
++ = good match
+ = excellent match


Kern’s 6 Step Approach to Curriculum Development

- Problem Identification and Needs Assessment
- Targeted Needs Assessment
- Goals and Objectives
- Educational Strategies
- Pilot Testing
- Implementation
- Evaluation and Feedback

Activity #5: Implementation

1. Identify resources
   a. Personnel
   b. Time
   c. Facilities and equipment
   d. Funding
2. Obtain support
   a. Deans, chairs, faculty, CIs, Preceptors, hospital administrators
3. Develop structure to support curriculum
   a. Dedicated faculty w/time to teach content
   b. Broader faculty participation
4. Anticipate barriers
   a. Personnel
   b. Time – competing demands
   c. Facilities and equipment
   d. Funding
5. Plan to introduce curriculum
   a. Pilot
   b. Phase-in
   c. Full implementation

Kern’s 6 Step Approach to Curriculum Development

Return to Activity #3

- Remember back to objectives:
  ✓ How might they be assessed?
Kirkpatrick Four Levels of Learning Evaluation™

**Level 4: Results**
- To what degree targeted outcomes occur as a result of learning event(s) and subsequent reinforcement.

**Level 3: Behavior**
- To what degree participants apply what they learned during training when they are back on the job.

**Level 2: Learning**
- To what degree participants acquire the intended knowledge, skills, and attitudes based on their participation in the learning event.

**Level 1: Reaction**
- To what degree participants react favorably to the learning event.

Activity #6: Evaluation and Feedback (DIKW Hierarchy)

- Choose Methods and Instruments
  - Questionnaires using rating scales
  - Course evaluations
  - Focus groups
  - Individual interviews
  - Direct observation
- Data Collection
- Data Analysis

Reflect, make sense, collectively learn
- “Know Why and Take Action”

Kern’s 6 Step Approach to Curriculum Development

- Problem Identification and Needs Assessment
- Targeted Needs Assessment
- Goals and Objectives
- Educational Strategies
- Implementation
- Evaluation and Feedback


- Bennett AAFP Family Medicine Presentation

In closing:

- Regulation is the floor (QA)
  - Institution: JCAHO, CARF, State Surveys
  - PT Program:
    - CAPTE accreditation standards-minimum
- Opportunities for curricular integration, unlimited