Training Osteopathic Primary Care Educators:

The Integrative Curriculum

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Introduction

- Osteopathic medical education is changing to better meet learning needs of physicians in training
- Focus now switching from lecture based to learner-centered instruction
- Integrating basic science into clinical work increases memory and recall for clinical use of biomedical science principles
Rate of **doubling of medical knowledge** was every 3 years in 2010 and will accelerate to every 73 days by 2020.

(www.healthcare.uiowa.edu.2020)
Objectives

- Compare and contrast teaching and learning models now in use
- Review learning principles in Carnegie Report of 2010
- Present a new MU-COM curricular model using competencies from NBOME Fundamental Osteopathic Medical Competency domains
Part One: Pre-doctoral Integrative Curriculum Model

- Learning and Curriculum Models
- Carnegie Report
- Fundamental Osteopathic Medical Competency domains 2011 (NBOME)
- Example – MU-COM

Part Two: GME Integrative Curriculum
Faculty “Product Line”

- Your report card is the learning of your students and GME learners
- It depends upon the lens through which you are looking
Learning Models- Behavioral

- Learning = behavioral change
- Learner roles
  - response to stimulus
  - acquires association through reinforcement
- Evaluation content based through formative feedback and summative testing of defined competencies
- Skinner, Keller, Mager, Gagne, Staaks
Learning Models - Cognitive

- Learning = conceptual change
- Learner roles
  - individually construct meaning based on prior knowledge and experience
- Evaluation in authentic situational contexts: clinical problems, essays, orals, pt. management problems
- Bordage, Elstein, Norman, Schulman, Patel
Learning Models - Sociocultural

- Learning = acculturation into new knowledge community
- Learner roles
  - socially construct meaning through participation in many communities
- Evaluation in authentic social context; portfolio, journal, observations, collaborative exams
- Bruner, Dewey, Lave, Luria, Vygotski
Pedagogy (Teaching) for Conceptual Understanding

- **Lecture**
  - One instructor, large student group
  - Large body information conveyed
  - Students passive mostly

- **Small group**
  - Engage learners
  - Culture of discovery and teamwork
  - Many instructors
  - Focus needed on learning objectives

- **Technology/Web based**
Pedagogy for Performance

- Simulation/Standardized patients (SP)
  - Communication, management, procedures
  - Competency assessment
  - Patient safety
  - Teamwork

- One Minute Preceptor (Aagaard, Teherani, Irby)
  - 5 microskills - Get a Commitment, Probe for Supporting Evidence, Reinforce What Was Done Well, Give Guidance About Errors and Omissions, Teach a General Principle

- SNAPPS (Wolpaw, Papp)
  - Sum H&P, Narrow Diff Dx, Analyze Diff Dx, Probe preceptor, Plan management, Select issue future learning
Pedagogy for Professional Formation

- Mentoring and role modeling
- Ethics
- Professionalism
- Reflective judgment
- Self awareness
Curricular Models In Use

- **Discipline based**
  - Post Flexner 1910, used until 60s-70s

- **Organ systems/integrated**
  - Case Western 50s, but reverted due to high resource needs

- **Problem based/case based (PBL)**
  - Discovery learning in small groups
  - McMasters, UNM 60s-70s, more schools 80s-90s

- **Clinical / symptom presentation**
  - U Calgary 1991, AT Still SOMA

** Many medical schools have blended models
Carnegie Report 2010

- Student learning, not teaching
- Emphasis on core material
- Competency-based with predetermined standards
- Lifelong learning
- Excellence = a career-long concept
- Mentoring credentials unwritten curriculum

How To Design Curriculum?

- “Begin with the end in mind”
  - What does a competent osteopathic physician look like?
    - Knowledge
    - Skills
    - Attitudes
- Graduate is well prepared for PGY 1 primary care residency
Fundamental Osteopathic Medical Competencies Domains

- FOMC domains published 2011
- Competencies from NBOME for licensure examination
- Uses Seven Osteopathic Competencies
- Required measurable elements under each competency
- Unique in licensure world
  - AAMC now working on “entrustable professional activities” (EPA)
MEASURABLE OUTCOMES FROM REQUIRED ELEMENT

2.3 The candidate demonstrates the ability to:

2.3.1 perform a clinically appropriate standard physical examination including evaluation of each of the body areas (head, neck, chest, abdomen, genitalia/groin/buttocks, back/spine, upper and lower extremities) and organ systems (constitutional; cardiovascular; ears, nose, mouth and throat; eyes; genitourinary – female and male; hematologic/lymphatic/immunologic; musculoskeletal; neurological; psychiatric; respiratory; skin).

2.3.2 perform an osteopathic structural examination and OMT.

2.3.3 perform a phlebotomy and administer intradermal, subcutaneous, and intramuscular injections.

2.3.4 obtain peripheral intravenous access.

2.3.5 perform endotracheal intubation.

2.3.6 perform an abdominal thrust (Heimlich maneuver).

2.3.7 insert a nasogastric tube.

2.3.8 administer basic cardiac life support (BCLS) and advanced cardiac life support (ACLS).

2.3.9 control external blood loss by application of pressure and/or the appropriate use of a tourniquet.

2.3.10 perform a simple closed-needle thoracostomy in a life-saving setting.
Which Curriculum Works Best?

- NBOME / COMLEX scores equivalent PBL vs. others
- Student satisfaction higher PBL
- USMLE – various formal curricular approaches had “little effect” on student performance (Fam Med 2009)
- Other measures not yet in literature
MU-COM Model

“Think like a doctor from day one”

- Systems based courses with foundational cases and group study
- Anchor lectures from clinicians
- Clinical findings the center for inquiry using biomedical science principles
- Small group sessions explore learning objectives and context to whole-patient concepts, using cases
- OMM presented for system at same time in lecture and lab
MU-COM Curriculum

- All exams have assessment linked to:
  - Lecture learning objectives
  - FOMC domains
- Curriculum mapping to identify
  - Coverage of all required elements
  - Where they occur in curriculum
  - Assessment methods
  - Results
  - Remediation / improvement plan

- Still mostly summative evaluations - needs more formative evaluations and links away from level of training
Assessments

- Formal knowledge
  - MCQ
  - COMLEX (or USMLE)

- Clinical
  - Computer based pt. management exam
  - Mini clinical evaluation (mini-CEX)
  - OSCE or CPX
  - Case write-ups
  - Journal article critique
  - Global evaluation by faculty
  - 360
  - Pt. logs
  - Portfolios
Summary

- Newer curriculum models are learner centered
- Assessments now moving toward competency based processes in both pre-doctoral and GME programs
- Integrating biomedical science with clinical cases improves memory and recall of fundamental concepts in patient care