

THE INTEGRATION OF MEDICINE AND PHYSICAL DIAGNOSIS COURSE CONTENT UTILIZING SMALL GROUP LEARNING AND INSTRUCTIONAL TECHNOLOGY IN FIRST YEAR PA CURRICULUM

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Educational Objectives

- Describe higher order thinking skills and the role of active learning in enhancing these skills
- Discuss traditional approaches to teaching physical diagnosis
- Discuss the goals of an integrated approach to teaching medicine and physical diagnosis through active learning
- Understand how to integrate physical diagnosis and medicine curriculum using instructional technology and case based learning (CBL)

Educational Objectives

- Discuss how the referenced framework for teaching physical diagnosis allows students to function at a higher level of critical thinking early in their training
- Understand how to introduce peer review as an assessment tool

Higher Order Thinking Skills

- Involve complex cognitive processes including critical thinking and problem solving
- Can be achieved through small group instruction and the application of new knowledge^{1, 2}

Active Learning

- Emphasis on **problem solving** rather than fact regurgitation
- May be achieved through the use of:
 - ▣ Case studies
 - ▣ Simulation
 - ▣ Games
 - ▣ Audience response systems
 - ▣ Small group discussion
 - ▣ Team-based learning

Active Learning

- Promotes the transfer of knowledge and skills¹
 - ▣ To new situations
 - ▣ In increasingly complex ways
- Shifts the instructor's role from information deliverer to manager of the learning process¹
- Facilitates the **application of** knowledge

Traditional approaches to teaching Physical Diagnosis

- A stand alone course that teaches a head-to-toe adult exam
- A lecture series of system-based exams by content experts
- Presentations demonstrate “normal” physical findings
- Demonstrations and videos of the exams are seen on fairly healthy patients and in a comprehensive manner
- Facilitated small groups
 - ▣ Students partnered to practice physical assessments on each other
- Lab facilitators traditionally acting as the “talking heads”

Traditional Approaches to Teaching Physical Diagnosis

- Clinical Assessment Tools
 - ▣ Facilitated feedback to students in lab
 - ▣ Written exams
 - ▣ Documentation of comprehensive and directed histories and physical exams
 - OSCE write-ups
 - Hospital experience write-ups – supervised and unsupervised
 - ▣ Practicals that assess examination technique and communication skills

Disadvantages to Traditional Approach of Teaching PD course

- Memorization of exams without understanding “what” an exam is assessing and “why” it is used
- Lack of incorporating a differential diagnosis and using critical thinking skills to drive the pertinent history and physical exam
- Minimal practice in organizing and carrying out a directed physical exam
- Minimal exposure to understanding and identifying “abnormal” physical findings
- Little integration of organ systems and disease topics covered in medicine course

Integrating Physical Diagnosis and Medicine Curricula using Instructional Technology

- Our goal was to introduce concepts of disease into PD lab (at the beginning of fall semester - didactic year)
 - ▣ Reinforce learning of topics covered in the Medicine course
 - ▣ Introduce abnormal findings into Physical Diagnosis course
 - ▣ Facilitate the organization of the directed physical exam earlier in the didactic year
 - ▣ Enhance critical thinking and problem-solving skills early in curriculum

Outline of our Integrated Model

- Students are divided into groups of three
 - ▣ Physician Assistant Student (PA-S)
 - ▣ Patient
 - ▣ Evaluator
- Each lab group has six to nine students in total
- A chief complaint (CC) is provided prior to lab
 - ▣ For example: Cough in 29 y/o male

Outline of our Integrated Model

THE HISTORY TAKING PROCESS

- PA-S develops a list of differential diagnoses based on CC prior to lab
- PA-S takes a directed history from the patient
- Student evaluator takes notes on the history taking
- At the conclusion of history taking, the three students come together and discuss the history questions that were asked, providing feedback to the PA-S
- After peer evaluation, the lab facilitator brings the group together for a larger discussion which includes discussing the differential diagnosis

Outline of our Integrated Model

THE PHYSICAL EXAM

- PA-S then performs a directed physical exam based on patient presentation
- Patient then fills out a Professional Assessment Rating Scale (PARS) form evaluating patient communication techniques and provides feedback to the PA-S
- Group of 6-9 students come back together for facilitator-led CBL session which picks up at the physical exam
 - ▣ Case depicts abnormal physical exam and diagnostic findings
 - ▣ Allows for establishing an assessment and plan

Example of Utilizing Technology to Introduce Abnormal Findings

- Existing Software



DxR Clinician

- Faculty created cases using:
 - ▣ Google Drive
 - ▣ MS Word
 - ▣ Blackboard

Outline of our Integrated Model

ASSIGNMENTS

- Learning issues are established as in traditional CBL
 - ▣ Students assigned as evaluators communicate answers to these questions to the lab group and facilitator via a Google Document
 - ▣ Evaluators earn participation credit for completing learning issues in a timely manner
- PA-S writes up the case in directed H&P format
 - ▣ Graded assignment for the course

Summary of Roles and Responsibilities of Group Members

- Each week students rotate roles
- **PA-S**
 - ▣ Prepare a differential diagnosis based on CC prior to PA lab
 - ▣ Complete a directed H&P including an Assessment and Plan
- **Patient**
 - ▣ Provided with an outline detailing the comprehensive history for the case of the week
 - ▣ Complete a PARS form and provide feedback to PA-S
 - ▣ Complete learning issues derived during CBL session
- **Evaluator**
 - ▣ Provides peer-review feedback to PA-S on directed history and physical exam skills

Benefits of Peer Review as an Assessment Tool

- Feedback is given using formalized checklists
- As an evaluator students are encouraged to
 - ▣ Teach and reinforce what they just learned
 - ▣ Formulate and give constructive peer feedback
- Students gain insight into how they are perceived by their peers and are able to reflect upon this feedback

Benefits of Peer Review as an Assessment Tool

- A number of academic health centers using peer-review teaching found:
 - the process to be valuable
 - participates to be more motivated, interactive and learner-centered
 - participates inspired to explore other opportunities to improve ³
- Review of a 127 studies conducted in peer-assisted teaching during medical school overall suggested that peer-teaching, achieves short-term learner outcomes that are comparable with those produced by faculty-based teaching⁴

Peer Review as an Assessment Tool

- Relationship Quality
 - Rapport
 - Empathy
 - Therapeutic confidence
- Examination Quality
 - Questioning
 - Listening
 - Responding
 - Physical exam

Peer Review as an Assessment Tool

- Assessment Checklists
 - Proper technique
 - Sequencing of exam
 - Special tests

Benefits of an Integrated Approach to Teaching Physical Diagnosis and Medicine

- Helps students develop a systematic approach to patient encounters
- Facilitates critical thinking early in the curriculum
- Integrates history and physical exam findings with processes of disease
- Reinforces information by repetition and spacing of material over longer intervals which promotes longer retention²
- Promotes self directed learning and peer review

References

- ¹ Michaelsen L. Team learning: A comprehensive approach for harnessing the power of small groups in higher education. *To Improve the Academy*. 1992; Vol 11; 107-113.
- ² Straumanis J. What we're learning about learning and what we need to forget. *Society for College and University Planning*. July-Sept 2012; 6-11.
- ³ Guisic M, Hageman H, Zenni E. Peer review: a tool to enhance clinical teaching. *The Clinical Teacher*. 2013; 10:5; 287-290.
- ⁴ Yu TC, Wilson NC, Singh PP, Lemanu DP, Hawken SJ, Hill AG. Medical students-as-teachers: a systemic review of peer-assisted teaching during medical school. *Advances in Medical Education and Practice*. 2011; 2011:2; 157-172.