Approaches to active learning; two medical schools make a start

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Approaches to Active Learning in a Pre-Clinical Curriculum: A KU Experience

IAMSE Webinar 2014

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Intention of this Session

- Describe the context for a model of active learning at Kansas
- Discuss primary goals of encouraging critical thinking, independent learning and clinical reasoning among MS1 students
- Discuss some variations on active learning strategies in a large classroom
- Describe some means of assessment

KU SOM Learning Environment

- Sole state medical school with class size of > 200 students
- 3-site campus connected by ITV
- Modular preclinical curriculum with first Fall term devoted to underlying fundamentals
- 4-week Inflammation and Immunity module in Oct-Nov

Foundations of Medicine	Genetics and Neoplasia	Inflammation and Immunity

KU SOM Graduation Competencies

- **Patient Care**: assessment, diagnosis, management, prevention/promotion, skills
- **Medical Knowledge**: access, provide evidence, appraise
- **Practice-based learning/improvement**: refine, feedback, reflect, set personal objectives
- **Professionalism**: attitudes, behaviors, sensitivity, responsiveness, limitation, ethics
- **Systems-based practice**: team, health systems, error, solutions for community

What can be done in the first year of medical school?

- Developing these skills does not require a vast fund of knowledge; it requires inquisitiveness, patience and a learning framework.
- Independent engagement of students in active learning assignments facilitates skills development.

Assessment?

- How well do students manage complicated clinical case material?
- Where do they go for authoritative information?
- How do they develop an understanding of key diagnostic characteristics?
- How well do they apply mechanisms of disease to new clinical scenarios?
- Can they communicate what they have learned?

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9 Steps in the Teaching/Learning Process

1. Define background study expectations
2. Provide an independent learning exercise (clinical case).
3. State pre-class student expectations: identify individual or team learning issues.
4. Assess student readiness to participate in class. Provide feedback.
5. State the specific case and session objectives.

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9 Steps in the Teaching/Learning Process

6. Present the case in a large group setting.
7. Illustrate the desired skill.
   - Identifying learning issues and rich resources
   - Developing a problem list
   - Managing large sets of case information
   - Developing a concept map of pathogenesis
8. Provide a take-home exercise, typically another case.
9. Written post-class reports with assessment and feedback

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Example: Transfusion Reaction

1. Reading and lecture review
2. Clinical case on transfusion reaction
3. Submit a set of 5 learning issues/objectives
4. Readiness: ABO antigens/antibodies and universal donors and recipients (web-clickers)
5. Objectives: Recognizing the signs and symptoms of an adverse event.
   - Clinical response
   - Understanding the genetics of ABO

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Example: Transfusion Reaction

6. Present case in typical clinical format: CC, HPI, PMH, etc.
7. Skill: Linking presenting signs/symptoms to immune mechanisms of RBC destruction.
   - Nearest neighbor discussion about blood types
   - Constructing a concept map of pathogenesis
8. Take-home case of TRALI
9. Report: How do these mechanisms relate to solid organ rejection mechanisms?

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Variations in the Process

- Stage of the learner: independence?
- Sequencing of skills development?
- Teaching/learning setting?
- Resistance to class attendance?
- Competition with podcasting?
- Individual versus group assignments?
- Time burden of assessment?
- Opportunities for narrative assessment

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Constructing a concept map of disease pathogenesis

Connect the following terms or processes in a concept map to create a picture of disease pathogenesis.

- Foreign RBCs (foreign ABO)
- Anti-ABO antibodies
- Intravascular lysis of RBCs
- Released cellular debris
- Fever, pain, tachycardia and hypotension

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Review of this Session

- Context at KU for this model of active learning
- Primary goals: critical thinking, independent learning and clinical reasoning
- Assessment
- Variations on active learning strategies in a large classroom

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Expanding student-directed learning at Virginia Tech Carilion School of Medicine

IAMSE Webinar 16 January 2014

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Expanding student-directed learning at Virginia Tech Carilion School of Medicine

Session objectives:

Outline the VTCSOM MS1/MS2 learning environment

Describe the 2013 expansion of student-directed learning

Highlight surprises, successes & challenges

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Virginia Tech Carilion School of Medicine

- **New school** - Charter class graduates May 2014
- **Very small** - 42 students per class
- **48% Basic Science curriculum = PCL/PBL**
  Patient-centered Learning/Problem-based Learning for MS1/MS2
- **Pass/fail system; end-of block assessment**
  (informal, formative assessments during blocks)
- **Curriculum is organ system-based**;
  MS1 year = normal; MS2 year = pathological

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VTCSOM MS1/MS2 learning environment

Four Value Domains: **Basic Science**
Clinical Science
Research
Interprofessionalism

Basic Science curriculum = lecture 7 hours/week
lab/workshop 4 hours/week
PCL/PBL 10 hours/week

As of 2013 MS2 ➔ enhanced student-directed learning

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Patient-centered Learning (PCL)/PBL at VTCSOM

7 students + 1 faculty facilitator/group

1 clinical case/week

Students identify learning objectives;
each student presents to group twice weekly

Mon. 2 hours
Wed. 3 hours
Fri. 4 hours
(1h with patient)

2013 Expansion of student-directed learning

MS2 year only

(Block V – Infectious disease, Pathology intro., Dermatologic disease, Genetic disease)

Voluntary faculty participation (2013):

traditional lecture *OR* asynchronous content delivery

3/15 faculty members chose asynchronous content delivery

2013 Expansion of student-directed learning

Method of asynchronous content delivery 2013
Pre-recorded voice-over Powerpoint slides

- Mycology
- Parasitology
- Autoimmune disease
- Skin & Soft tissue Infections

Plan to add video pre-recorded sessions in 2014

In-class synthesis sessions – focus on clinical correlations
Q&A
Small-group problem-solving

2013 Expansion of student-directed learning

In 2013, for some lecture topics, students were provided with an additional choice for content consumption:
textbook assignments
pre-recorded content
in-class synthesis sessions

Results:

No change in attendance for synthesis sessions vs. lectures

No change in end-of-block exam results vs. 2012

Student response varied widely

2013 Expansion of student-directed learning

POSITIVE student responses

End-of-block evaluation: Asynchronous content delivery rated slightly higher than traditional content delivery

Availability of pre-recorded content was well-received.

Some students found this an improvement over lectures.

2013 Expansion of student-directed learning

NEGATIVE student responses

Quality of pre-recorded content was unsatisfactory to some.

Time needed for pre-recorded content was problematic.

Uncertainty regarding synthesis sessions was unsettling.

Challenges for 2014 and beyond…

Increasing faculty participation

- **convincing reluctant colleagues**
- **providing suitable faculty development opportunities**

Improving quality of pre-recorded content

Providing excellent in-class synthesis sessions

Presenting expanded choices for student-directed learning *without* expanding required study time

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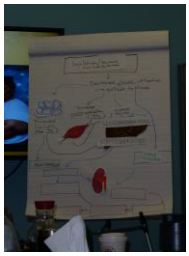
In summary… this session described :



- **The VTCSOM Basic Science PCL/PBL- intensive MS1/MS2 learning environment**
- **initial attempts at providing pre-recorded curricular content & in-class synthesis sessions in MS2**
- **results & challenges for the future**

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Thank you! ***Questions?***

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