Collaboration Opportunities with Electronic Learning Platforms

April 19, 2018
9:45 AM - 10:45 AM, Room 04, Meeting Room Level
Welcome!

- Christina Goode, PhD
  - Western University of Health Sciences
- Mark Speicher, PhD, MHA
  - AACOM
- Sean Tackett, MD, MPH
  - Osmosis, Johns Hopkins Bayview Medical Center
- Grace Cisek, EdD
  - AZCOM
Osmosis Overview

• Osmosis is a learning platform that currently helps over 5,000 DO students learn medicine

• The Osmosis learning platform uses learning science best practices, including spaced repetition, to help students learn more effectively

• The Osmosis Library has recently expanded to include many DO-specific learning topics
Osmosis Platform: Content

Osteopathic Principles Resource Index

We’ve organized resources like Osmosis videos, Picmonics, and Sketchy Medical all in one place so you can quickly find out what’s available for what you’re currently studying.

<table>
<thead>
<tr>
<th>Foundations</th>
<th>9 Concepts</th>
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<tr>
<td>General principles</td>
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<tr>
<td>Osteopathic medicine: Introduction to somatic dysfunction</td>
<td>Osteopathic medicine: Chapman's points</td>
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<td>Osteopathic medicine: Biomechanics of treatment</td>
<td>Osteopathic medicine: Myofascial release and Zink lines</td>
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<td>Osteopathic medicine: HVLA technique</td>
<td>Osteopathic medicine: Counterstrain and facilitated positional release</td>
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<td>Osteopathic medicine: Muscle energy</td>
<td>Osteopathic medicine: Lymphatic system</td>
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</table>
Counterstrain is a passive indirect osteopathic manipulative treatment technique. The tissue being treated is positioned in a point of ease away from the restrictive barrier to eliminate the tender point. The pelvis has anterior and posterior tender points that each have their own defined classic treatment positions that are then fine-tuned to positions of comfort.
Integration with schedules

Wednesday, Apr 11th

12PM Grand Rounds
Exam Prep Resources

Osmosis Prime Resources
- Osmosis Videos
- Osmosis Flashcards
- Osmosis Questions

More Resources
COMBANK (click "Apply Edits" to save changes)
- Apr 18 - Aug 31
- Completed 0 of 1300

Core Resources
- First Aid
- Picmonic
- Sketchy Micro
- Sketchy Path
- Sketchy Pharm
- Pathoma

Need help? ask us
Exam Prep Resources

Study Schedule

- **Microbiology**
  - **Fri. Apr 20, 2018**
    - **Bacterial genetics**
      - **First Aid 2018**: p. 130 - 131
      - Microbiology: Bacterial genetics
      - 2 Pages
    - **Custom Goals**
      - **COMBANK**
        - Custom Goals
      - 10 Questions
      - + Add Custom Goal

- **Microbiology**
  - **Sat. Apr 21, 2018**
    - **Exotoxins**
      - **First Aid 2018**: p. 132 - 133
      - Microbiology: Exotoxins
      - 2 Pages

Additional sections:
- **CLASS EXAM REVIEW**
  - Apr 18 - Jun 8
- **BOARD REVIEW**
  - Apr 18 - May 12

Customize view:
- Everything
- Not Completed
- Completed
- Saved for Later

Alliance for Continuing Education in the Health Professions
Graduate College of Biomedical Sciences

Dr. Christina Goode
Associate Dean of Academic Affairs
Western University of Health Sciences
Use of Osmosis in a Special Masters Program

- Description of the SMP
- Relevance of SMPs to the changing applicant pool
- Goals of the MSMS at WesternU
- Use of Osmosis
- Results
Special Masters Programs

• Complete additional science coursework and demonstrate that you can excel at the graduate level – new graduate GPA
• Earn an additional credential (residencies)
• *Gain skills and confidence that will prepare you for success in professional school*
Vision: The MSMS program is designed to assist individuals from *diverse* backgrounds in gaining acceptance to professional schools with the ultimate goal of increasing the number of health-professionals in underserved areas.

Why: Cultural diversity and competency of health care providers can reduce the health care disparities.
Diverse

- Underrepresented in Medicine (URiM)
- Low SES: Less than 10 percent of accepted medical students come from the two lowest quintiles of family income (those earning less than $40,000 per annum)
- Educational: first generation
Evaluate academic potential using GPA, transcripts and considering class load and employment during undergraduate program.

Incoming MCAT scores ranged from 17 – 32 and 482-514.

Incoming undergraduate GPAs have averaged 3.25 (2.68-3.87) and Science GPA 3.12 (2.26-4.0).

Interviews looked for mission fit, cultural humility, service commitment and involvement with underserved areas and populations.
MSMS Curriculum

• 46.5 units are completed during the 11-month program
• 27.5 units are basic medical sciences including gross anatomy, microbiology, and molecular and cellular biology
• Goal is to PREPARE students for medical school which often means to teach students how to learn effectively
The courses are offered at an advanced level and “at pace” as a stepping stone from a typical undergraduate load to that of a professional school.

- Longitudinal, cumulative exams
- Use of learning strategies including those embedded in Osmosis
- Team-based learning
Changing Applicant Pool

• Single accreditation may reduce applications to DO programs
• Changes at the university level may reduce preparation
  • Approximately 71 percent of all college students are employed while completing their undergraduate education (2010 US Census)
  • Remedial classes are being reduced/eliminated
• New MCAT has changed prerequisites at many schools
Osmosis was introduced 3 years ago for MSMS students with the goals to introduce:

- Spaced repetition learning
- Time line
- Creation of questions

The last two years the program was purchased for the students

Incorporated directly in 4 of the core biomedical science classes as required or extra credit
Results

### Contributor Statistics

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*“Alone we can do so little; together we can do so much” — Helen Keller*

A huge thanks to the contributors this block (listed alphabetically):
“As a medical student, it is great to have a one-stop-shop for learning material, note-taking, and testing”.
“I personally don't use the flashcard option very much and do not really look at the questions other students create. I found that it was not helpful for me because it was mostly 1st order”.
“Osmosis was the most helpful in subjects that required memorization”.
“Osmosis does a great job allowing for collaboration among classmates. People who are creative and have a great eye/high yield radar can create questions for each lecture. Others who are more direct, task-oriented people can make comprehensive flash cards. Anyone in the team-workspace can access these resources”.
“I like to be efficient with my limited time, and osmosis does all the busy work for me....I think it is very critical to figure out what works for you during the MSMS program”.
Limitations

- Inconsistent adoption by faculty
- Students are still learning how to learn so tend to create only simple first-order questions
- Time-line does not work as well for foundational material
- Small sample size (28-30 students/year)
- Other health professional students in cohort
Integrating OSMOSIS Materials

Grace Cisek, EdD
Director of Assessment, AZCOM/MWU
AZCOM Curriculum

• As scientists and practitioners of the healing arts, osteopathic physicians subscribe to a philosophy that regards the body as an integrated whole with structures and functions working interdependently.

• As an extension of this philosophy, osteopathic physicians treat their patients as unique persons with biological, psychological, and sociological needs, an approach that underscores the osteopathic commitment to patient-oriented versus disease-oriented healthcare.

• In recognition of this approach, Arizona College of Osteopathic Medicine (AZCOM) has developed, and continues to refine, a four-year curriculum that educates students in the biopsychosocial approach to patient care, as well as the basic medical arts and sciences.
AZCOM Curriculum

• Within this curricular format, AZCOM students spend their first two years completing a rigorous basic science curriculum and preparing for their clinical studies, including early clinical simulated experiences.

• During their third and fourth years, students rotate through a variety of clinical training sites accruing 84 weeks of direct patient care experience.

• By stimulating intellectual curiosity and teaching problem-solving skills, the AZCOM curriculum encourages students to regard learning as a lifelong process.
AZCOM Students

• Class of 2020 Profiles
  – Female: 42%
  – Average Age: 25
  – Average Overall GPA: 3.50
  – Average Science GPA: 3.45
  – Average Composite MCAT: 29/505
  – Class Size: 253
  – Top Home States: Arizona, California, Utah, Illinois
OSMOSIS integration: Pathology Lecture Schedule

<table>
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<tr>
<th>EXAM 2</th>
<th>CNS I: Anomalies: Trauma</th>
<th>CNS II: Degenerative Diseases</th>
<th>CNS III: Cerebrovascular Diseases</th>
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Also first-year integration: MPSYG 1511

Normal Brain Development: Anatomy & Biochemistry of Behavior

Sristi Nath, D.O.
8-19-16
MSI
SESSION ID# 695929
Objectives

- Understand the course of pre and postnatal brain development.
- Understand the significance of critical periods of development.
- Memorize basic neuroanatomy and associated functions.
- Be aware of neurotransmitters associated with human behavior.
MPSYG 1511 Links to First Aid

High-Yield Physiology

- Memory
  - 1 time in 1 document

- Spinal cord and nerves
  - 1 time in 1 document

- Basal ganglia
  - 1 time in 1 document

High-Yield Anatomy

- Nervous system anatomy and physiology
  - 3 times in 1 document
Nervous system anatomy and physiology

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<tr>
<td></td>
<td>in nervous system p. 229</td>
<td>in nervous system p. 229</td>
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<tr>
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<td><strong>Norepinephrine (NE)</strong></td>
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Neurology Questions

183 Questions
Pathology: Cerebral cortex disorders
182 of 183 questions remaining

73 Questions
Pathology: Congenital and developmental disorders
73 of 73 questions remaining

37 Questions
Pathology: Demyelinating disorders
37 of 37 questions remaining
Key Terms from the Lecture in Pathology on the CNS

- Carbon monoxide toxicity
- Global Ischemia
- Astroglial -gliosis
- Alzheimer type II astrocyte
- Rosenthal fibers
- Alexander disease
- Corpora amylacea
- Lafora body disease
- Ependymal granulations
- Rod cell microglia
- Glial nodule
- Neuronophagia
- Central chromatolysis
- Red neuron
- Papilledema
- Increased intracranial pressure
- Hydrocephalus
- Noncommunicating hydrocephalus
- Communication hydrocephalus
- Cerebral edema
- Atresia of aqueduct of Sylvius
- Normal pressure hydrocephalus
- Hydrocephalus ex vacuo
- Subfalcine herniation
Links to First Aid 2017

**First Aid 2017**

Switch to:
2015
2016
2018

**a-fetoprotein**
- spina bifida p. 657

**Spina bifida**
- Dandy-Walker syndrome p. 462
- labs/findings p. 657
- neural tube defect p. 461

**Meningocele** p. 461

**Meningomyelocele** p. 461

**Spina bifida cystica** p. 461
Case Studies Provided By Students

See Acromegaly, Fibroma, Gigantism, Hemianopsia, Multiple myeloma, Osteoblastoma, Osteochondroma, Osteoma, Osteosarcoma, Pituitary adenoma, Prolactinoma
Researching the Impact of Collaborative Tools

Mark Speicher, PhD
Senior Vice President for Medical Education and Research, AACOM
Medical education research questions

• Are often more difficult to answer
  – Learner factors
  – Instructor factors
  – College factors
  – Environmental factors

• Think about what you do
  – “Why do we do this?”
  – “Why don’t we do that?”
  – “Upon what evidence are we basing our approach?”

• Ensure the answer matters to you and your colleagues

• Try “Does a ______ for ______ result in ______?”
Previous research at AZCOM: Board study survey

• First given 2012-2013
  – Results very popular
  – No matching or grouping

• Given again in 2016-2017
  – Trying to determine associations between tools and performance
  – Descriptive results are out, but predictive results are underway
  – Past studies have generally not shown associations
Combining internal and external data

• Our goal: what worked for what groups of students:

• What additional data from our service providers could add: utilization and practice performance data
  – E.g. “What proportion of questions should I be getting correct?”

• Added difficulty: Matching the data
  – Service providers may be able to do this for you
Describing this dataset

COM Student Data
- Demographic data
- Pre-matriculation data
- Academic performance data
- Other data

Student Survey Data
- Self-reported tool use
- Self-reported study time
- Self-reported confidence
- Results of self-assessments

Service Provider Data
- Tool-specific actual utilization data
- Tool-specific performance data
- Sometimes they have other data, even if it’s predictive data
Results

• Interactive Survey Tool
  – What do students like me usually use to study
  – What do students who do well usually use to study
  – What do students like me who do well use to study? How much? Targets?

• Regression analysis
  – No single good predictors of performance
  – Some tools worked for some groups
    • Likely very COM-specific
    • Need some cross-institutional research
AACOM Annual Conference

Sean Tackett, MD, MPH
Assistant Professor of Medicine, Johns Hopkins Bayview Medical Center
Osmosis Research Director

April 19, 2018
About me

• Research Director for Osmosis since 2016
• General internist with faculty appointment (since 2016)
  • Curriculum development teaching/mentorship
  • Wards teaching
  • Other medical education research (e.g. learning environments, accreditation)
  • Other stuff (e.g. remote medical second opinions)
Evolution of research directorship

• Year 1: Figure it out
  • Meetings with faculty, fellows, residents, students
  • Learning Osmosis team, technology, data
  • DIY research/scholarship
Year 1 highlights

• 9 Abstracts accepted (10 conferences)
  • 15 non-Osmosis co-authors, 9 institutions
• 1 commentary
• 2 full length research manuscripts
• 1 grant (AACOM Research Grant: LECOM and AZCOM)
Evolution of research directorship

• Year 1: Figure it out
  • Meetings with faculty, fellows, residents, students
  • Learning Osmosis team, technology, data
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• Year 2: Working with a framework
  • Support Osmosis partner goals
    • Grants and scholarship
  • (legitimate) Osmosis research that aligns with business priorities
  • Advise on other educational matters
Year 2 highlights

• 2 publications accepted
  • Wikipedia, UCSF, LECOM

• 3 working manuscript drafts
  • Special issue of Medical Teacher Adaptive Learning issue
  • NBME, U Cincinnati IM residency

• Several conference abstracts under review

• Branching out:
  • Textbook
  • Faculty development and CME
  • Wikipedia
Keys to successful research partnership

• Goals alignment
  • Promote faculty success
  • Improve medical education

• Feasible goals
  • Understand limitations (e.g., skills, time)
  • Make a workable plan
  • Commit

• Resources
Where we’d like to be with research

• Develop faculty consortia
  • Disseminate best practices in implementation
  • Collaborate in scholarship
  • Highlight faculty accomplishments

• Make data access easier
  • Dashboards
  • Primary data to schools

• More learner involvement
Other areas of collaboration

- Content creation
  - Flashcards, questions, concept summaries
- Videos: Osmosis-AACOM collaboration on the Osteopathic Medicine
Collaboration Opportunities with Electronic Learning Platforms

Thank you!

Questions?