Preparing students to become residents with the use of online collaborative learning

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Erik Langenau, DO, MS, FAAP, FACOP
Chief Academic Technology Officer

Robert Lee, DO, MS, FAAP, FACOP
Online Clinical Preceptor
Disclosures

• None
Learning Objectives

- Describe online collaborative learning (OCL)
- Explain the benefits of OCL for learners, particularly for those at geographically dispersed clinical training sites.
- Explain how OCL promotes self-directed learning and practice-based learning & improvement (PBLI).
<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Format</th>
<th>Facilitators</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 min</td>
<td>Welcome and Introduction</td>
<td>Large Group Discussion</td>
<td>Langenau and Lee</td>
</tr>
<tr>
<td>5 min</td>
<td>Online Collaborative Learning</td>
<td>Didactic Presentation</td>
<td>Langenau</td>
</tr>
<tr>
<td>5 min</td>
<td>Model at PCOM</td>
<td>Didactic Presentation</td>
<td>Langenau</td>
</tr>
<tr>
<td>10 min</td>
<td>Pediatrics Example</td>
<td>Didactic Presentation</td>
<td>Lee</td>
</tr>
<tr>
<td>5 min</td>
<td>Transition to residency</td>
<td>Didactic Presentation</td>
<td>Lee</td>
</tr>
<tr>
<td>30 sec</td>
<td>Wrap up and Conclusion</td>
<td>Large Group Discussion</td>
<td>Langenau and Lee</td>
</tr>
</tbody>
</table>
Welcome

HELLO
my name is

Philadelphia College of Osteopathic Medicine
Online Learning

• Definitions
  – eLearning
  – Asynchronous
  – Online Learning
  – Blended Learning
  – Web-enhanced Learning
  – Online Collaborative Learning

• Technologies
• Gaming
• Trends
• Role of instructor
# Asynchronous versus Synchronous

## Asynchronous
- Different time
- **Examples**
  - Discussion Boards
  - Content review
  - Menu Driven Simulations (CLIPP, Doc.Com)

## Synchronous
- Same Time
- **Examples**
  - Webconference
  - Teleconference
  - Live Simulations (Second Life)
## Online Tools

<table>
<thead>
<tr>
<th>Title</th>
<th>Publisher</th>
<th>Description</th>
<th>Advantage</th>
<th>Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virtual Patient Simulations</td>
<td></td>
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</tr>
<tr>
<td>3DiTeams</td>
<td>Duke University Medical Center</td>
<td>Emergency department team training with virtual simulation controlled by an instructor</td>
<td>![Icon]</td>
<td>Purchase download</td>
</tr>
<tr>
<td>At-Risk in Primary Care</td>
<td>Kognito</td>
<td>CME- and CNE-approved online virtual patient simulations in various clinical scenarios</td>
<td>![Icon]</td>
<td>Publisher website</td>
</tr>
<tr>
<td>CliniSpace</td>
<td>Innovations in Leanin, Inc</td>
<td>3D, immersive, virtual simulation team training in acute, critical care, and daily medicine</td>
<td>![Icon]</td>
<td>Purchase download</td>
</tr>
<tr>
<td>DecisionSim</td>
<td>Kynectiv, Inc</td>
<td>Faculty create virtual patient scenarios and use them to evaluate participants at all levels</td>
<td>![Icon]</td>
<td>Purchase download</td>
</tr>
<tr>
<td>CLIPP</td>
<td>MedU</td>
<td>Online patient cases for education using a medical home model</td>
<td>![Icon]</td>
<td>Free website access</td>
</tr>
<tr>
<td>HumanSim</td>
<td>Virtual Heroes</td>
<td>Medical schools may commission immersive 3D interactive virtual scenarios for health care training</td>
<td>![Icon]</td>
<td>Publisher website</td>
</tr>
<tr>
<td>i-Human</td>
<td>i-Human Patients, Inc</td>
<td>Online interactive, competency-based virtual patient encounters</td>
<td>![Icon]</td>
<td>Purchase download</td>
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</tbody>
</table>


# Online Learning

<table>
<thead>
<tr>
<th>Proportion of Content Delivered Online</th>
<th>Type of Course</th>
<th>Typical Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>Traditional</td>
<td>Course with no online technology used — content is delivered in writing or orally.</td>
</tr>
<tr>
<td>1 to 29%</td>
<td>Web Facilitated</td>
<td>Course that uses web-based technology to facilitate what is essentially a face-to-face course. Uses a course management system (CMS) or web pages to post the syllabus and assignments, for example.</td>
</tr>
<tr>
<td>30 to 79%</td>
<td>Blended/Hybrid</td>
<td>Course that blends online and face-to-face delivery. Substantial proportion of the content is delivered online, typically uses online discussions, and typically has some face-to-face meetings.</td>
</tr>
<tr>
<td>80+%</td>
<td>Online</td>
<td>A course where most or all of the content is delivered online. Typically have no face-to-face meetings.</td>
</tr>
</tbody>
</table>

Online Collaborative Learning (OCL)

- Three main tenants
  - Discourse
  - Collaborative Learning (e.g. groups, interaction)
  - Knowledge building
- Facilitated small groups
- Learner-centered, self-directed
- Online or eLearning, often asynchronous
- “Computer-Supported Collaborative Learning”
PCOM Model

- Blackboard
- Content
- Discussion Boards
- Group Assignments
- Blogs
- Online training (Open School)
- Menu-driven simulations
PCOM Model: Online Clinical Preceptor

- CD: Course Director
- P: Preceptor / Site Director
- OP: Online Clinical Preceptor
- S: Student
Announcements

New Announcements appear directly below the repositionable bar. Reorder by dragging announcements to new positions. Move priority announcements above the repositionable bar to pin them to the top of the list and prevent new announcements from superseding them. The order shown here is the order presented to students. Students do not see the bar and cannot reorder announcements.

Create Announcement

New announcements appear below this line

Welcome to Pediatrics
Posted on: Sunday, September 25, 2016 8:30:28 PM EDT

Hi, everyone:

To supplement your Pediatric Clerkship at your clinical sites, each student will be participating in the Blended Learning Supplement. During the 4-week rotation, you will have the unique opportunity to supplement your clinical experience with a number of e-learning modules on Blackboard. These e-learning activities are designed to round out your education with topics and subjects that you may not be exposed to during your clinical experience. These e-learning activities are organized by weeks. All students are expected to actively participate in both clinical and e-learning activities. The discussion board is a tool for sharing thoughts and ideas about the topic assignment each week. This is meant to replicate the robust discussions that take place in traditional classrooms.

Best,
Robert Lee, DO (Online Preceptor)
Pediatrics

- Organized into weekly activities over the 4 week pediatric clerkship
- Learning objectives and activities outlined for each week
- Learner centered activities to supplement patient encounters and lectures at clinical training sites
- Competency-based medical education from medical school to residency to unsupervised clinical practice
<table>
<thead>
<tr>
<th>Week 1</th>
<th>Topics</th>
<th>Clinical Activities</th>
<th>Online Collaborative Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Communication</td>
<td>Patient Log</td>
<td>Modules</td>
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<td></td>
<td>Well Visits</td>
<td>SOAP Note</td>
<td>Introduction Blog</td>
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<td>Discussion Board</td>
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<td>CLIPP Cases</td>
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<tr>
<td>Week 2</td>
<td>Anticipatory Guidance</td>
<td>Patient Log</td>
<td>Modules</td>
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<td></td>
<td>Developmental Milestones</td>
<td>SOAP Note</td>
<td>Discussion Board</td>
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<tr>
<td></td>
<td>Vaccination</td>
<td></td>
<td>EZIZ online vaccine training</td>
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<td></td>
<td>CLIPP Cases</td>
</tr>
<tr>
<td>Week 3</td>
<td>Clinical Guidelines</td>
<td>Patient Log</td>
<td>Modules</td>
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<tr>
<td></td>
<td>Osteopathic Medicine</td>
<td>SOAP Note</td>
<td>Discussion Board</td>
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<td></td>
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<td>Pediatric OMT Quiz</td>
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<td></td>
<td>CLIPP Cases</td>
</tr>
<tr>
<td>Week 4</td>
<td>Infant and Childhood Diseases</td>
<td>Patient Log</td>
<td>Modules</td>
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<td></td>
<td>Clinical Resources</td>
<td>SOAP Note</td>
<td>Discussion Board</td>
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<td>Reflection Blog</td>
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<tr>
<td></td>
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<td></td>
<td>CLIPP Cases</td>
</tr>
</tbody>
</table>
Video Demonstration
Discussion Board

• Also known as message boards, discussion forums, and online forums
• Online bulletin board for discussion and debate over various topics
• Asynchronous
• “Think before you speak”
• View responses and perspectives of all your classmates
Several communication strategies mentioned in the video include education, exposure, and inclusion. While there are modifications necessary due to the age of the patient, I think there are more similarities than differences between pediatric and adult patients. For example, adult patients may show fear or anxiety of medical equipment that they have never encountered - just as the pediatric patient does with the "mystifying" stethoscope. The common denominator in many of these communication strategies appears to be addressing the fear and anxiety of patients in a clinical setting.

In my experience, the largest hurdle has been addressing "multiple patients" during the same visit. It's difficult to maintain focus on the older pediatric patient while including the parent/family member in the history taking, exam and medical decision making process. In younger patients, it's a little easier simply because their contribution to the history taking process is usually limited, although the physical exam may be more difficult.

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RE: Communication Strategies

Hello,

It is very interesting how you explained that fear and anxiety of being in a doctor office in pediatric patients is similar to adults patients. I agree that it would be helpful for the either patients to have the physician explain what they are doing and address the anxiety. However, it might not work for all pediatric patients age groups or it might work differently for each age-group. For example, school-age patients would appreciate the physician explaining the what they are doing and why. However, toddlers and infant might not. In this case, showing the patients that the equipments are harmless by let them touch the medical equipments or even playing with them.

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RE: Communication Strategies

Hi!

Brings up a important challenge in the examination room. What do you do if your have older child/teen and parent in the same room?

I don't think there is a "correct" answer to this scenario. I personally try to be inclusive by talking back and forth between the patient and the parent. Another big consideration is what kind of parent you are dealing with.

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RE: Communication Strategies

I believe that every older child/teen is entitled to privacy as long as they are not hurting themselves or others. It is also a situation where you will have a more honest patient if the parent is not in the room and the last thing you want is to be treating a patient incorrectly because they are not honest with you.
CLIPP Cases

• MedU. Computer-Assisted Learning in Pediatrics Program (CLIPP)
• 32 interactive virtual patient cases designed to encompass the learning objectives of COMSEP

• Examples:

  1. Evaluation and Care of the Newborn Infant - Thomas

  5. 16-year-old girl's health maintenance visit - Betsy

  8. 6-day-old with jaundice - Meghan

  12. 10-month-old with a cough - Anna

  16. 7-year-old with abdominal pain and vomiting - Isabella

  28. 18-month-old with developmental delay - Anton
Before you enter the room, you wonder if there are additional risks for Rose's pregnancy given her young age.

**Question**

What medical risks exist for the infant of an adolescent mother as compared to an infant born to a woman who is 20 or older? (Select all answers that apply.)

**Multiple Choice Answer**

- A. Increased frequency of chromosomal abnormalities, such as trisomy 21.
- B. Increased risk for lower birth weight secondary to pregnancy-induced hypertension.
- C. Increased likelihood for vertically acquired (transmission from mother to fetus) HIV, gonorrhea, and syphilis.
- D. Poorer developmental outcomes.

You approach Rose's birthing room.
A one-stop shop for immunization training and resources.

**EZIZ Training**

- Start lessons or find out more below.

**The VFC Program**

**VFC Program Requirements (15 min.)**
- Identify responsibilities of the Vaccine Coordinator;
- Identify responsibilities of the Provider of Record;
- Comply with California VFC Program requirements

**Vaccine Management Plan (10 min.)**
- Review and print the Vaccine Management Plan template

**Storage and Handling**

**Storing Vaccines (20 min.)**
- Prepare refrigerators and freezers for vaccine storage;
- Store vaccines in refrigerators and freezers;
- Safeguard refrigerator and freezer power supplies

**Monitoring Storage Unit Temperatures (34 min.)**
- Read and record current, minimum (MIN), and maximum (MAX) temperatures;

**Refrigerator and Freezer Temperature Logs (2 min.)**
- Review and print California VFC temperature logs

**Vaccine Inventory Management**

**Conducting a Vaccine Inventory (19 min.)**
- Identify vaccine brand name and packaging;
- Enter lot numbers, expiration dates, and total doses on hand on VFC Inventory Form for all VFC vaccines

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Transition to Residency

- Use of milestones is still a new concept in undergraduate medical education
- At GME level, milestones used as framework for determining resident performance within the six ACGME Core Competencies
- OCL is more than just repository of medical knowledge
- Pediatric Milestones and Osteopathic Recognition Milestones incorporated into our OCL
- Looking at selected milestones for OMS-3 learner
## Osteopathic Recognition Milestones

### Patient Care 3: Patient Management

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inconsistently incorporates osteopathic principles to promote health and wellness in patients with common conditions</td>
<td>Incorporates osteopathic principles to promote health and wellness in patients with acute and chronic conditions</td>
<td>Incorporates osteopathic principles to promote health and wellness in patients with complex conditions</td>
<td>Mentors others to incorporate osteopathic principles in patient care</td>
<td>Role models and teaches the effective integration of osteopathic principles to optimize patient health</td>
</tr>
<tr>
<td>Inconsistently integrates history, examination, diagnostic testing, and medication management into osteopathic patient care plan</td>
<td>Integrates history, examination, diagnostic testing, and medication management into osteopathic patient care plan, with supervision</td>
<td>Independently integrates history, examination, diagnostic testing, and medication management into osteopathic patient care plan</td>
<td>Independently integrates history, examination, diagnostic testing, and medication management into osteopathic patient care plan in complex patients</td>
<td>Serves as role model and teaches the effective use of osteopathic focused history, examination, diagnostic testing, and medication management to minimize the need for further diagnostic testing or intervention</td>
</tr>
<tr>
<td>Inconsistently performs osteopathic structural examination and diagnoses somatic dysfunction appropriate to patient condition</td>
<td>Performs osteopathic structural examination and diagnoses somatic dysfunction appropriate to patient condition, with supervision</td>
<td>Independently performs accurate and complete osteopathic structural examination and diagnoses somatic dysfunction appropriate to patient condition</td>
<td>Independently performs accurate and complete osteopathic structural examination and diagnoses somatic dysfunction appropriate to complex patients</td>
<td>Role models and teaches accurate and complete osteopathic structural examination and diagnoses somatic dysfunction appropriate to complex patients</td>
</tr>
</tbody>
</table>

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# Pediatrics Milestones Project

<table>
<thead>
<tr>
<th>Not yet Assessable</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
</tr>
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<tbody>
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<tr>
<td>Either gathers too little information or exhaustively gathers information following a template regardless of the patient’s chief complaint, with each piece of information gathered seeming as important as the next. Recalls clinical information in the order elicited, with the ability to gather, filter, prioritize, and connect pieces of information being limited by and dependent upon analytic reasoning through basic pathophysiology alone.</td>
<td>Clinical experience allows linkage of signs and symptoms of a current patient to those encountered in previous patients. Still relies primarily on analytic reasoning through basic pathophysiology to gather information, but has the ability to link current findings to prior clinical encounters allows information to be filtered, prioritized, and synthesized into pertinent positives and negatives, as well as broad diagnostic categories.</td>
<td>Demonstrates an advanced development of pattern recognition that leads to the creation of illness scripts, which allow information to be gathered while simultaneously filtered, prioritized, and synthesized into specific diagnostic considerations. Data gathering is driven by real-time development of a differential diagnosis early in the information-gathering process.</td>
<td>Creates well-developed illness scripts that allow essential and accurate information to be gathered and precise diagnoses to be reached with ease and efficiency when presented with most pediatric problems, but still relies on analytic reasoning through basic pathophysiology to gather information when presented with complex or uncommon problems.</td>
<td>Creates robust illness scripts and instance scripts (where the specific features of individual patients are remembered and used in future clinical reasoning) that lead to unconscious gathering of essential and accurate information in a targeted and efficient manner when presented with all but the most complex or rare clinical problems. These illness and instance scripts are robust enough to enable discrimination among diagnoses with subtle distinguishing features.</td>
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<table>
<thead>
<tr>
<th>E-learning Components</th>
<th>Examples</th>
<th>Milestones Domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekly Discussion Board</td>
<td>“After watching the Introduction to Pediatric Exam video, identify communication strategies that may help you interact with children and families”</td>
<td>ICS1. Communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds</td>
</tr>
<tr>
<td>Virtual patient encounters</td>
<td>Pediatric Computer-Assisted Learning in Pediatrics Program (CLIPP)</td>
<td>PC1. Gather essential and accurate information about the patient</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PC6. Make informed diagnostic and therapeutic decisions that result in optimal clinical judgment</td>
</tr>
<tr>
<td></td>
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<td>MK2. Critically evaluate and apply current medical information and scientific evidence for patient care</td>
</tr>
<tr>
<td>Video demonstration</td>
<td>Newborn Examination video</td>
<td>PC5. Perform complete and accurate physical examination</td>
</tr>
<tr>
<td>Website links</td>
<td>HEEADSSS 3.0 on contemporarypediatrics.modernmedicine.com</td>
<td>ICS1. Communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PC9. Counsel patients and families</td>
</tr>
</tbody>
</table>
What are you doing at your institution?
Reflections and Take Home Points
Thank You

Erik Langenau, DO, MS, FAAP, FACOP
Chief Academic Technology Officer, PCOM
ErikLa@PCOM.edu

Robert Lee, DO, MS, FAAP, FACOP
Online Clinical Preceptor, PCOM
RobertLee@PCOM.edu
References

- Stravredes T, Hereder T. A guide to online course design. 2014