Jump! Incorporating Clinical Decision Support Processes into a Third-year Medical Student OSCE

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Disclosures

- I have no conflicts of interest to disclose

Background

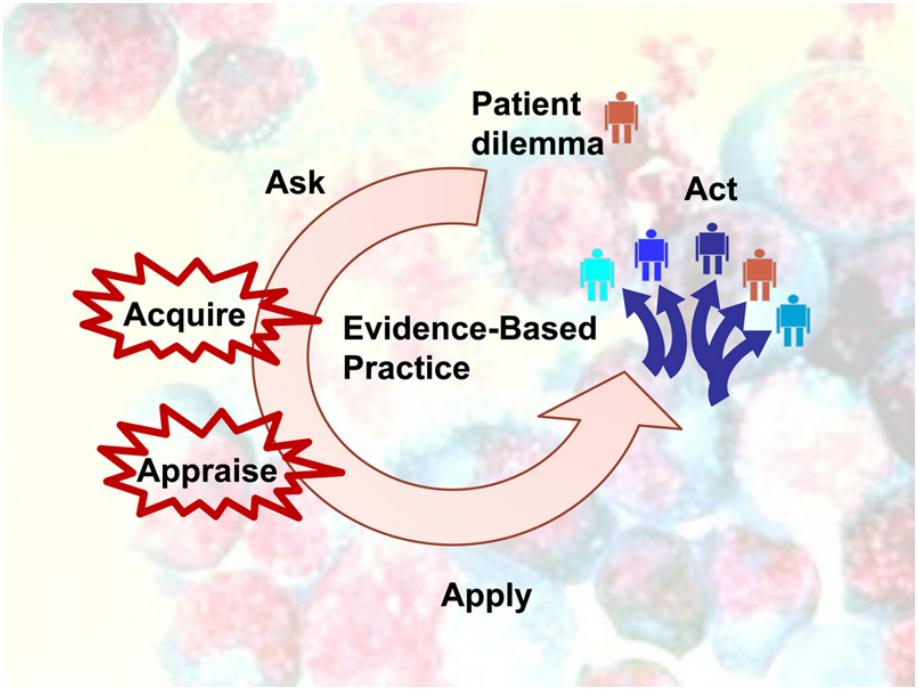
- Assessment drives learning
- Objective Structured Clinical Examinations (OSCEs) are one of the most commonly used strategies to assess medical student clinical skills
- OSCE evaluators assess medical student
  - history-taking
  - physical examination skills
  - diagnostic reasoning

Harden & Gleeson (1979) *Medical Education*
Cox, Irby, Epstein (2007) *NEJM*

Background

- In OSCE setting:
  - Students are expected to use existing knowledge to make decisions
  - Including decisions that practicing physicians often make with the support of external resources in the real clinical setting

Background



- Evidence-Based Medicine (EBM) has stressed the cycle of **Ask→Search/Acquire→Appraise→Apply** to allow practitioners to find appropriate answers to guide patient care

Rosenberg & Donald (1995) *BMJ*
Del Mar et al. (2004) *BMJ*

Background

- Some OSCEs have begun to incorporate Evidence-Base Medicine Skills
  - Used paper or computerized case scenarios
  - Assess different components of the EBM process
    - Questioning
    - Searching
    - Appraising
    - Application

Frohna et al. (2006) *Teach Learn Med*
Fliegel et al. (2002) *Acad Med*
Tudiver et al. (2009) *Fam Med*

Background

Question:

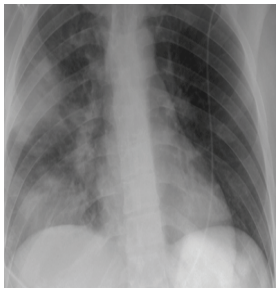
- Will access to external resources improve student knowledge and confidence in the formulation of clinical management plans in a standardized patient OSCE setting?

The Event

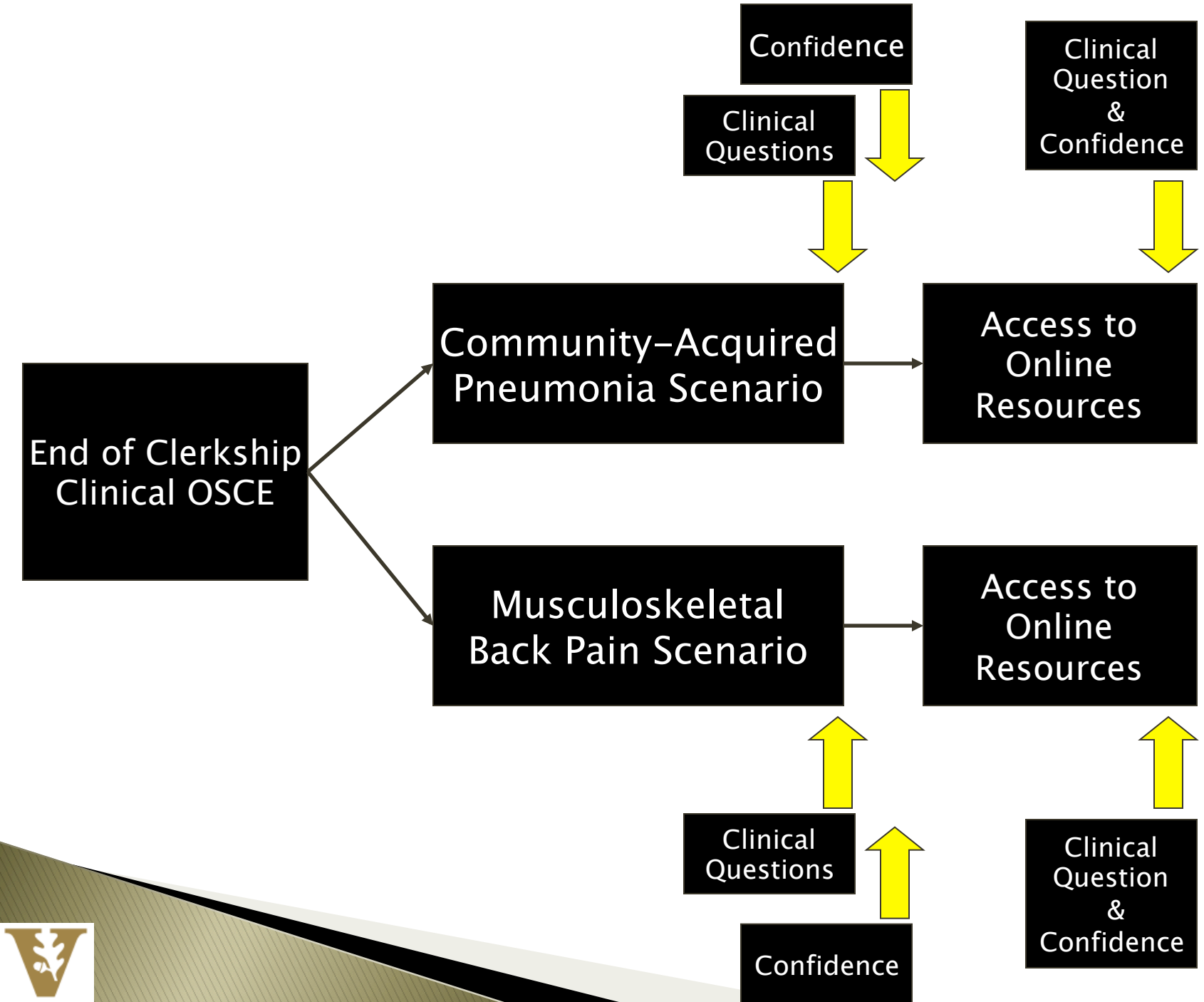
- During the end of clerkship phase OSCE
- Piloted a new exam component to assess student information retrieval and usage (EBM skills)
- Referred to as a Triple Jump Examination (TJE)
  - Attempt a task independently (internal knowledge-based)
  - Access external resources (can be formally assessed)
  - Reattempt the task (cloud-enhanced performance)

The Event

- Our students independently:
  - Assessed a standardized patient using history and physical examination
  - Answered clinical questions regarding patient management
    - Community-Acquired Pneumonia: What antibiotic regimen would you use for treatment?
    - Musculoskeletal Back Pain: What is the appropriate next step in management?



	Community-Acquired Pneumonia Scenario	**Musculoskeletal Back Pain Scenario**
Chief Complaint	Cough	Back Pain
History	- 55 y/o M or F - Productive cough x3 days -Fever, chills, SOB, Chest pain - Known sick contacts	- 38 y/o M or F - Midline lumbar pain radiating to right buttock -pain and paresthesias Radiating down right leg -Worse with use -No 'Red Flags'
Exam	- Fever - Cough - Pleuritic chest pain	- Hypertensive - Straight leg sign present - Normal motor exam and reflexes - Decreased sensation to light touch in L5 distribution
Clinical Question(s)	What antibiotic would you choose? What dose? What duration? (Free text response)	What is the appropriate next step in management? (11 multiple choice answers)
Points Awarded	2 - Antibiotic choice 1 - Dose 1 - Frequency 1 - Duration (Out of 5 Possible points) *Based on IDSA or ATS guidelines*	1 - NSAIDs, bed rest, follow-up 2 weeks 3 - NSAIDs, physical therapy, follow-up 2 weeks 0 - All other responses *Based on ACP guidelines


Confidence
Clinical Questions
Clinical Question & Confidence
End of Clerkship Clinical OSCE
Community-Acquired Pneumonia Scenario
Access to Online Resources
Musculoskeletal Back Pain Scenario
Access to Online Resources
Clinical Questions
Confidence
Clinical Question & Confidence

Results: Community-Acquired Pneumonia

Community-Acquired Pneumonia (n=52)			
	Knowledge Performance (out of 5 points) (Absolute Score)	**Knowledge Performance** (0-100 points) (Standardized Score)	**Confidence** (1-5 scale)
Pre-Cloud Access	1.64	33.0	2.69
Post-Cloud Access	4.39	87.8	4.48
p-values	<0.001	<0.001	<0.001

Results: Community-Acquired Pneumonia

Resources utilized (N=49 of 52)	# who utilized (%)
UpToDate	47 (96)
Guidelines (specifically IDSA, ATS, and/or AAFP)	17 (35)

Results: Community-Acquired Pneumonia

Community-Acquired Pneumonia **Case Search Terms**	**Number of students**	**Percent of Students**
"Community Acquired Pneumonia" (only)	43	88%
"CAP + Treatment"	35	71%
"Pneumonia" (only)	4	8%
Antibiotics by name	5	10%
"Guidelines"	1	2%

Results: Musculoskeletal Back Pain

Musculoskeletal Back Pain (n=53)			
	Knowledge Performance (out of 3 points) (Absolute Score)	**Knowledge Performance** (0-100 points) (Standardized Score)	**Confidence** (1-5 scale)
Pre-Cloud Access	1.06	35.3	3.79
Post-Cloud Access	1.47	49.0	4.21
p-values	0.026	0.026	0.002

Results: Musculoskeletal Back Pain

Resources utilized (N=47 of 53)	# who utilized (%)
UpToDate	45 (96)
Guidelines (specifically ACP and APS)	9 (19)
Primary literature	3 (6)
Internet Search Engine	10 (21)

Results: Musculoskeletal Back Pain

Back Pain Case Search

Terms

"Back Pain" (only)	16	30%
"Back Pain + Qualifier" (MSK, Radicular, Sciatica)	19	36%
"Sciatica" Included	20	38%
"MSK" Included	2	4%
"Radiculopathy" Included	7	13%

Conclusions

- Pairing an assessment of student knowledge retrieval and application with a standardized patient OSCE is feasible

- After accessing online resources, student scores showed:
  - Improvement in knowledge and confidence around appropriate management of CAP
  - Improvement in knowledge and confidence around appropriate management for MSK back pain

Conclusions

- Student choice of online resources:
  - Majority of students used UpToDate
  - Society-specific practice guidelines were the other major resource accessed
  - Searching appears to be more efficient when students had a definitive diagnosis (CAP vs MSK back pain)

Questions and Future Directions

- Does student confidence in the OSCE answer impact the time and depth of their use of external resources?

- We would like to consider several further analyses with our next assessments.
  - Screen capture to analyze specific search strategies and processes for the students
  - Analysis of time spent by students during the search for answers to the given patient care questions
  - Examination of correlations between student confidence levels and time spent searching (Preliminary evaluation suggests that low level of confidence did not lead to longer search times)