Teaching Antiviral Pharmacology Through a Standardized Patient Encounter in Preclinical Medical Education: A Pilot Study

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Background

- In recent years, organizations have called for the expansion and improvement of clinical pharmacology education.
- Standardized patient (SP) encounters are an under-researched technique to allow for the application of pharmacology knowledge into a clinical setting.

Objective

Evaluate effectiveness of SP encounters as method for teaching clinical pharmacology during MS1 Virology course.

Methods

- 8-case SP series; one case tasked MS1s with developing treatment plan for shingles
- Students prepared treatment plan (5 min), then discussed recommendations with SP (10 min) (Figure 2)
- SPs prompted students with questions on mechanism of action, route, adverse effects
- Randomized crossover design (Figure 1); half of students did SP encounter then 3 USMLE style MCQs; other half completed tasks in reverse order.
- Voluntary post-event evaluation survey

Study Design

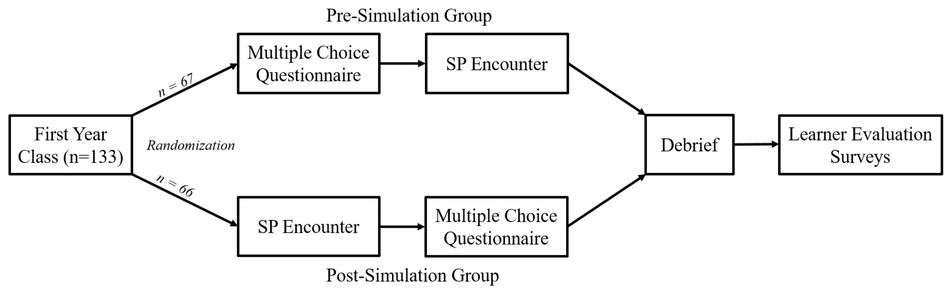


Figure 1: Randomized crossover design, indicating pre/post-simulation groups.

Results

Question: Topic	Pre-Simulation Group n (% correct)	Post-Simulation Group n (% Correct)	p-value
Q1: Medication Selection	50 (74.6%)	46 (69.7%)	0.53
Q2: Mechanism of Action	53 (79.1%)	53 (80.3%)	0.86
Q3: Adverse Effects	20 (29.9%)	29 (43.9%)	0.092

Table 1: Results of the 3 item USMLE-style questionnaire for pre- and post-simulation groups. P-values were calculated using chi-square tests.

Survey Item	Responses
How relevant was shingles pharmacology case to your role as a future physician?	Extremely or quite relevant: 86%
Small-group format appropriate?	Yes: 100%
Pace, duration of activity appropriate?	Yes: 89%
Effectiveness of shingles pharmacology case for practicing each task?	Extremely or quite effective:
• Select most appropriate antiviral for stable shingles patient	80%
• Describe mechanism of action for select antiviral(s)	75%
• List adverse effects associated with antivirals used for shingles	75%
• Explain to patient how to minimize/avoid adverse effects	66%
• Identify diagnostic test to assess kidney function for patient on these meds	64%
How effective was the debrief session of the shingles pharmacology case for helping you identify each of the above learning objectives?	Extremely or quite effective: 70%

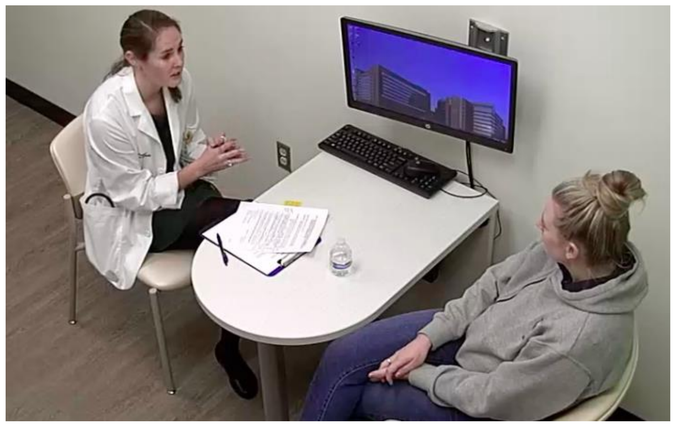
Table 2: Learner evaluation survey results (response rate: 44 of 133, 39%)

Results

- Knowledge performance on antiviral selection and mechanism of action was similar between groups (Table 1)
- Post-sim group performed better on adverse effect item (although not statistically significant)
- Students assessed SP encounter as very effective learning experience (Table 2)

Conclusions

- SP encounters can be used as opportunities for knowledge application and basic/clinical science integration during realistic clinical encounters, as early as first year of med school
- Positive learner evaluations indicate this instructional approach can be applied to pharmacology-focused encounters for preclinical courses



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