

Pharmacy Student Perceptions and Outcomes Associated with a Simulated Electronic Medical Record Pharmacotherapy Case Studies Elective

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Objective

To compare the Clinical Foundation Scores (CFS) between students who completed a simulated pharmacotherapy case studies (SPCS) elective course compared to standard curriculum. Secondary objectives were to compare individual components of the CFS and perceptions of both the elective course and preparedness for APPE experiences.

Background

Analyzing patient cases is an integral component to student pharmacists’ journey to become a licensed practitioner. Cases grant students the opportunity to:

- Apply knowledge learned in the classroom to real-life scenarios
- Develop a plan, allowing students to critically think about patient care issues

We hypothesize that by using a simulated electronic medical record (EMR) in a classroom environment, a more realistic approach to solving patient cases can be provided to students allowing them to develop vital critical thinking skills.

Methods

This was a prospective, open-label, cohort study of third-year student pharmacists. All students enrolled in the core-curriculum therapeutics course were eligible for inclusion. Students voluntarily enrolled in a 6-week SPCS elective which incorporated simulated EMRs, group case discussions, and layered learning to deliver content. Remaining students not enrolled in the elective served as the control group for comparison

- Primary Endpoint
 - Clinical Foundation Score
 - Final numeric therapeutics course grade
 - Script concordance test
 - Health science reasoning test
- Secondary endpoint
 - Student perceptions of the course
 - Compare individual components of CFS



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Results

Characteristic	Intervention (n=14)	SD	Control (n=16)	SD	p value
Age, years	26.2	2.4	29.6	8.8	0.157
Female Gender, %	93	-	44	-	0.0067
Prior degree, %	36	-	31	-	1
Cumulative Grade Point Average (GPA) ^a	3.31	0.47	3.36	0.5	0.764
Semester GPA ^a	3.06	0.57	2.95	0.67	0.615
Clinical Foundation Score ^b	70.7	4.27	67	6.49	0.082
Therapeutics Final	81.6	5.55	77.9	8.65	0.186
Script Concordance Test	58.8	4.7	57.7	6.85	0.62
Health Science Reasoning Test	71.6	8.7	65.3	20.2	0.288

^aGPA based on 4.0 scale; ^b composite endpoint with max score of 100%

100% of students also agreed (marked somewhat agree or agree) that:

- They have a better grasp on expectations of preceptors during P4 APPEs
- Patient case activities provided value to their education beyond what was gained from cases utilized in therapeutics alone

Discussion

In this short, 6-week elective that combined the use of a simulated EMR, small group case discussion, and layered learning, a trend towards an improvement in groups clinical foundation score was identified. The difference seems to be driven by the difference in the student’s final therapeutics grade, although a slight trend towards a difference was also seen in the HSRT.

Student perceptions were overall positive regarding the course and its ability to enable the students to have a higher level of critical thinking that will potentially enable them to be more successful during their fourth year APPEs.

There is a consideration that equally weighting the three components of the CFS may not result in an accurate assessment of a student’s ability to critically think. In addition, it should be noted that the students that chose to take the elective may have been higher performers than those students choosing to not take the elective.

Implications

A trend towards greater clinical aptitude was seen in the intervention group with the use of EMRs and simulated patient cases. Extension of these activities throughout the curriculum may further improve readiness to practice pharmacy.

