



# Correlation between Preparation Methods and Performance-Based Assessment Pass Rates among First-Year Pharmacy Students

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## BACKGROUND

- Pharmacy schools must meet a wide range of criteria in order to become accredited by Accreditation Counsel for Pharmacy Education (ACPE). Assessments are a large part of education and there is an increasing emphasis on the assessment of aspiring healthcare professionals
- A large component of hands-on learning for Southern Illinois University Edwardsville (SIUE) pharmacy students is performance-based assessments (PBAs) that occur twice per semester and are designed to mimic pharmacy tasks commonly performed in the real-world setting

## OBJECTIVES

- To examine PBA pass rates of first-year pharmacy students and how these pass rates relate to the study methods and time spent preparing for these PBAs
- Use the information found with the results to create a best practice study guide and timeline for future students

## METHODS

### Study Design

- Cross-sectional retrospective study
- First-year pharmacy students underwent four different PBAs as part of the curriculum in the Skills lab course (2 per semester)
- After completion of the PBA, a survey document was posted to a learning management system containing 5 questions that asked students how much time they spent preparing, study methods used, how prepared they felt, what they could have done to be more prepared, and any constructive feedback for faculty
- Pass/fail results were matched with each students' survey answers and was de-identified before undergoing analysis via Microsoft Excel

### Study Sample

- Inclusion criteria:* All first year pharmacy students enrolled in Skills Lab
- Exclusion criteria:* students who chose not to complete the survey

### Statistical Analysis

- Data analysis of each PBA was completed separately as each PBA was vastly different
- Time spent preparing (hours) was analyzed using mean and standard deviation
- Most common study methods were analyzed using descriptive statistics
- Free-text questions were separated into categories and presented as general themes

## RESULTS

### PBA Tasks Performed:

- Fall PBA 1: Drug utilization review (DUR), voicemail transcription, and prescription verification
- Fall PBA 2: Sterile preparation, error identification in medication preparation, and calculations
- Spring PBA 1: Non-sterile compounding
- Spring PBA 2: Counseling on one prescription and one nonprescription medication

Table 1. Fall PBA 1 Results

<b>Number of Hours Spent Preparing by Students who Passed on First Attempt</b>	3.5 hours (outside of class time) <ul style="list-style-type: none"> <li>This was the average number of hours spent studying outside of class time by all students who passed this PBA on their first attempt. 147 students passed out of 156 total students</li> </ul>
<b>Most Successful Preparation Methods</b>	<ul style="list-style-type: none"> <li>Review in-lab assignments (127/147, 86%)</li> <li>Attend the pre-PBA discussion session offered the week before the PBA (pay attention, take good notes, etc.) (125/147, 85%)</li> <li>Review feedback from instructors on graded pre-lab and in-lab assignments (113/147, 77%)</li> </ul>
<b>Things that Students Wish They Would Have Done</b>	<ul style="list-style-type: none"> <li>Start preparing sooner and more gradually</li> <li>Spend more time practicing DURs, especially with a timer</li> <li>Study Top 200 Drugs</li> <li>Review notes and graded assignments more</li> <li>Practice with a peer</li> <li>Relax</li> </ul>

Table 2. Fall PBA 2 Results

<b>Number of Hours Spent Preparing by Students who Passed on First Attempt</b>	2.7 hours (outside of class time) <ul style="list-style-type: none"> <li>This was the average number of hours spent studying outside of class time by all students who passed this PBA on their first attempt. 105 students passed out of 155 total students</li> </ul>
<b>Most Successful Preparation Methods</b>	<ul style="list-style-type: none"> <li>Review pre-lab assignments (100/105, 95%)</li> <li>Practice calculations (93/105, 86%)</li> <li>Practice technique with a peer (86/105, 82%)</li> </ul>
<b>Things that Students Wish They Would Have Done</b>	<ul style="list-style-type: none"> <li>Spend more time practicing sterile technique, especially with instructor watching</li> <li>Practice more with error videos</li> <li>More practice with a peer</li> <li>Relax</li> </ul>

## RESULTS CONTINUED

Table 3. Spring PBA 1 Results

<b>Number of Hours Spent Preparing by Students who Passed on First Attempt</b>	2.9 hours (outside of class time) <ul style="list-style-type: none"> <li>This was the average number of hours spent studying outside of class time by all students who passed this PBA on their first attempt. 120 students who passed out of 153 total students</li> </ul>
<b>Most Successful Preparation Methods</b>	<ul style="list-style-type: none"> <li>Review pre-lab assignments (120/120, 100%)</li> <li>Practice calculations (111/120, 93%)</li> <li>Review in-lab assignments (95/120, 79%)</li> </ul>
<b>Things that Students Wish They Would Have Done</b>	<ul style="list-style-type: none"> <li>Practice more calculations</li> <li>Attend more in-lab practice sessions</li> <li>Look over notes and example videos again</li> </ul>

Table 4. Spring PBA 2 Results

<b>Number of Hours Spent Preparing by Students who Passed on First Attempt</b>	4.5 hours (outside of class time) <ul style="list-style-type: none"> <li>This was the average number of hours spent studying outside of class time by all students who passed this PBA on their first attempt. 139 students passed out of 152 total students</li> </ul>
<b>Most Successful Preparation Methods</b>	<ul style="list-style-type: none"> <li>Review pre-lab assignments and own notes (125/139, 90%)</li> <li>Practice with a friend (112/139, 81%)</li> </ul>
<b>Things that Students Wish They Would Have Done</b>	<ul style="list-style-type: none"> <li>Spend more time practicing with counseling</li> <li>Review notes and drug information more</li> <li>Go over rubric and previous counseling sessions</li> </ul>

## CONCLUSION

- We found that students who spent more time studying were not more likely to pass their PBA than those who spent less time studying; in many cases students who spent less time studying were more likely to pass than those who spent more time studying
- A more accurate prediction for PBA success was the study methods that students used to prepare
- Patterns and correlations were found in the results to create a best-practice study guide with study recommendations for future pharmacy students including recommended hours spent studying outside of class and the most successful preparation methods