Improving the Confidence of First-Year Pharmacy Students on Drug-Utilization Review (DUR) through an Online Choose-Your-Adventure Activity

Apryl N. Anderson
Virginia Commonwealth University

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Apryl Anderson, PharmD
PGY2 Resident in Academic Pharmacy
VCU School of Pharmacy
March 20th, 2019
Purpose & Background
Drug Utilization Review (DUR)

- Essential responsibility of the pharmacist
- Systematic, ongoing review of medication orders for medication-related problems (MRPs)
  - Prospective
  - Concurrent
  - Retrospective
- Ensures safe, effective, and appropriate medication use

AMCP. Drug Utilization Review. 2009.
Previous Studies

“Brown Bag” Simulations
- Across all 3 didactic pharmacy years
- Online patient cases & live “brown bag” reviews
- Students’ confidence improved with the activities
  - Pre- and post-semester survey

Patient Case Simulations
- Third-year pharmacy students
- Simulation of patient cases
- Academic performance
  - Average case accuracy 55.3%
  - Average score on exam questions 78.5%

Objectives

- Improve first-year pharmacy student’s confidence and ability to perform DUR skills

Learner Objectives

- To interpret medication-related information relative to a simulated patient case
- To formulate a clinical intervention to resolve identified medication-related problems
Description
Educational Setting

Phar523: Foundation I
- First installment in a six-semester practice-based course sequence that expands from all three didactic years

4 lab sections of ~35 first-year pharmacy students
- 1 activity facilitator
- 50 minute activity
How we teach DUR in PHAR523

Fall 2017
- Pre-reading and online quiz
- In-lab quiz
- Worksheet

Fall 2018
- Pre-reading and online quiz
- In-lab quiz
- Online choose-your-own-adventure activity
- Worksheet
Online Choose-Your-Own-Adventure Activity

- Student-selected pace
- Guided students through 4 simulated patient cases
  - Directed students to interpret drug information resources to identify MRPs
  - Asked for students to formulate and select an appropriate response to the MRPs
- Provided direct feedback to wrong responses
Academic Performance (Ability)

- In-lab quiz taken prior to the activity
  - 5 content questions
- Same quiz questions given after the activity
Student Perception Survey (Confidence)

- In-lab quiz also contained 5 questions regarding the students’ confidence in DUR skills
  - 4 point Likert-type scale
Student Perception Survey (Confidence)

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1.</td>
<td>I am confident in my ability to interpret drug utilization review (DUR) alerts.</td>
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<tr>
<td>2.</td>
<td>I am confident in my ability to selected the appropriate DUR intervention and code correctly.</td>
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<td>3.</td>
<td>I have a systematic process for approaching the DUR before dispensing a medication.</td>
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<td>4.</td>
<td>I feel confident in my ability to evaluate the clinical significance of drug interactions.</td>
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<tr>
<td>5.</td>
<td>I feel confident in my ability to address drug interactions that I identify during the DUR process.</td>
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Results
Results

Ability
Average quiz score
- Pre: 96.6%
- Post: 96.7%

p = 0.8943

Confidence
Survey responses
- All significantly improved

p < 0.001
# Confidence Survey

## PRE (n = 138)

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<tbody>
<tr>
<td>Strongly agree, n (%)</td>
<td>13 (9.4%)</td>
<td>6 (4.3%)</td>
<td>8 (5.8%)</td>
<td>9 (6.5%)</td>
<td>11 (8%)</td>
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<tr>
<td>Agree, n (%)</td>
<td>110 (79.7%)</td>
<td>103 (74.6%)</td>
<td>57 (41.6%)</td>
<td>81 (58.7%)</td>
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<tr>
<td>Disagree, n (%)</td>
<td>15 (10.9%)</td>
<td>29 (21%)</td>
<td>67 (48.9%)</td>
<td>41 (29.7%)</td>
<td>42 (30.4%)</td>
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<tr>
<td>Strongly disagree, n (%)</td>
<td>0</td>
<td>0</td>
<td>5 (3.6%)</td>
<td>7 (5.1%)</td>
<td>4 (2.9%)</td>
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## POST (n = 131)

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<td>43 (32.8%)</td>
<td>28 (21.2%)</td>
<td>27 (20.6%)</td>
<td>29 (22%)</td>
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<tr>
<td>Agree, n (%)</td>
<td>86 (65.6%)</td>
<td>98 (74.2%)</td>
<td>87 (66.4%)</td>
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<tr>
<td>Disagree, n (%)</td>
<td>2 (1.5%)</td>
<td>5 (3.8%)</td>
<td>16 (12.2%)</td>
<td>19 (6.8%)</td>
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Conclusion & Next Steps
Conclusion

First-year pharmacy students’ confidence in DUR ability improved with the online activity, no significant improvement in content knowledge assessment
Limitations

- Unpaired data for quiz scores
- Reduced number of responses in post-activity assessments
- Potential for Recall Bias
Next Steps

- Activity will be continued in PHAR523 and possibly expanded upon
- Expanding the activity to other pharmacy schools
Acknowledgements

Senior Investigator
- Lauren M. Caldas, PharmD, BCACP

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- Julie A. Patterson, PharmD, PhD

Data Collection
- Diana Gregory, 2019 PharmD Candidate
Literature Cited