

2019

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

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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



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)

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



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)	#1	#2	#3	#4	#5
Strongly agree, n (%)	13 (9.4%)	6 (4.3%)	8 (5.8%)	9 (6.5%)	11 (8%)
Agree, n (%)	110 (79.7%)	103 (74.6%)	57 (41.6%)	81 (58.7%)	81 (58.7%)
Disagree, n (%)	15 (10.9%)	29 (21%)	67 (48.9%)	41 (29.7%)	42 (30.4%)
Strongly disagree, n (%)	0	0	5 (3.6%)	7 (5.1%)	4 (2.9%)
POST (n = 131)	#1	#2	#3	#4	#5
Strongly agree, n (%)	43 (32.8%)	28 (21.2%)	27 (20.6%)	29 (22%)	35 (26.7%)
Agree, n (%)	86 (65.6%)	98 (74.2%)	87 (66.4%)	91 (68.9%)	90 (68.7%)
Disagree, n (%)	2 (1.5%)	5 (3.8%)	16 (12.2%)	19 (6.8%)	4 (3.1%)
Strongly disagree, n (%)	0	0	0	2 (1.5%)	1 (0.8%)



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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

Statistics

- Julie A. Patterson, PharmD, PhD

Data Collection

- Diana Gregory, 2019 PharmD Candidate

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