

Impact of Real-World and Real-Time Interdisciplinary Cases on Infectious Diseases

Content Knowledge and Confidence in Pharmacy Students Enrolled in an Infectious Diseases Elective Course

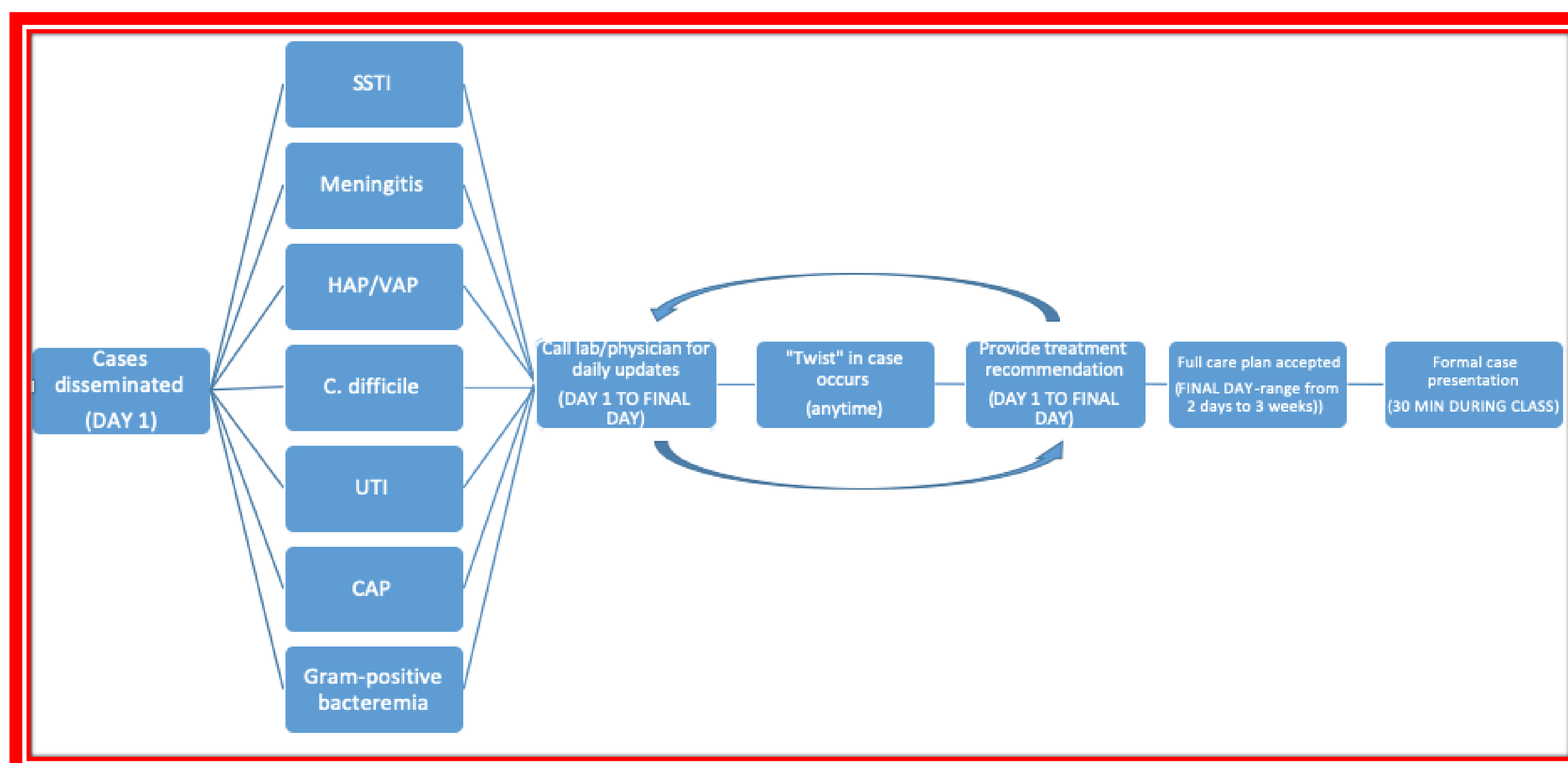
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Background

- The 2015 Accreditation Council for Pharmacy Education (ACPE) mandates that all curricula include opportunities for interprofessional team education and active learning.¹ In 2018, an "interdisciplinary" active learning infectious diseases (ID) didactic elective was created for pharmacy students in the fall semester of the third professional year at SIUE SOP.

Description of Activity



- This activity is a group project and each group will have two different cases throughout the semester. This is a progressive case and the activity mimics a real life acute care visit.
- Case Information: Each group is assigned an ID case on the first day. The first day content of the case is minimal, mimicking typical "day 1" information for an acute care visit.
- Interdisciplinary Healthcare Team: Volunteer ID pharmacists and pharmacy residents across the country play the role of microbiology lab techs and attending physician. Students call their representatives ~daily for patient updates and to make recommendations to their attending. Attendings will throw in a twist with every case (i.e. ask a drug information question, prompt a search for a specific trial) to encourage a deeper dive into a common infectious disease state.
- Activity Expectations: The case is complete when a full pharmacotherapy care plan is accepted by the attending physician. Student groups complete the case by delivering a formal case presentation to their classmates.

Methods

- OBJECTIVE:** Assess P3 student confidence level with making pharmacotherapy recommendations to a provider and infectious disease content knowledge in an ID elective
- Students were given a pre- and post- quiz/survey at the start and end of the course, respectively. This study was IRB approved.
- Questions assessed confidence as well as infectious disease content knowledge over general ID disease states (microbiology, UTI, PNA, bacteremia, HIV, meningitis, SSTI, C. diff, etc)

Methods (continued)

Survey Description (CONFIDENCE questions)	Response				
I am confident in my ability to effectively call a stranger (physician, lab technician, nurse, etc) and inquire about patient information	1	2	3	4	5
I am confident in my ability to effectively call a physician and make an evidence based recommendation about an individual patient's drug therapy	1	2	3	4	5
I am confident in my ability to effectively look up a complex drug information question as it relates to a patient and answer using evidence-based recommendations	1	2	3	4	5
How confident are you with recognizing Gram-positive organisms?	1	2	3	4	5
How confident are you with recognizing atypical organisms?	1	2	3	4	5
How confident are you with recognizing Gram negative organisms?	1	2	3	4	5
How confident are you with urinary tract infections?	1	2	3	4	5
How confident are you with the treatment of community-acquired pneumonia?	1	2	3	4	5
How confident are you with the treatment of hospital/ventilator associated pneumonia?	1	2	3	4	5
How confident are you with the treatment of infective endocarditis?	1	2	3	4	5
How confident are you with the treatment of skin and soft tissue infections?	1	2	3	4	5
How confident are you with the treatment of antifungal infections?	1	2	3	4	5

Based on 5-point Likert scale: 1=very confident; 2=confident; 3=neutral; 4=not confident; 5=very not confident

Results

Student's Perception of Confidence in Recommendations (n=63)			
Survey Question	Pre (Avg. Score, SD)	Post (Avg. Score, SD)	P-value
Effectively call a stranger and inquire about patient information	4.06, 0.88	4.48, 0.67	0.039
Effectively call a physician and make evidence-based recommendation about an individual patient's drug therapy	3.16, 0.99	4.35, 0.70	<0.001
Effectively look up complex drug information question as it relates to a patient and answer using evidence-based recommendations	3.71, 0.81	4.32, 0.64	0.0017

Based on 5-point Likert scale: 5=very confident; 4=confident; 3=neutral; 2=not confident; 1=very not confident

Results (continued)

Student's Perception of Confidence in ID Content (n=63)			
Survey Question (Confident in/with:)	Pre (Avg. Score, SD)	Post (Avg. Score, SD)	P-value
Recognizing gram positive organisms	1.89, 0.89	1.54, 0.92	0.032
Recognizing atypical organisms	2.51, 0.94	2.21, 1.04	0.092
Recognizing gram negative organisms	3.21, 1.17	2.94, 1.17	0.071
Urinary tract infections	3.05, 1.01	2.40, 1.02	0.0005
Community acquired pneumonia	2.95, 1.03	2.19, 0.94	<0.0001
Hospital/ventilator associated pneumonia	3.24, 1.06	2.30, 0.85	<0.0001
Infective endocarditis	3.22, 1.16	2.25, 1.01	<0.0001
Skin/soft tissue infections	2.51, 1.13	1.94, 0.91	0.0023

Based on 5-point Likert scale: 1=very confident; 2=confident; 3=neutral; 4=not confident; 5=very not confident

Students' Content Knowledge (n=63)			
Survey Question (multiple choice)	Pre (Avg. Score, SD)	Post (Avg. Score, SD)	P-value
Which is a Gram-positive organism?	0.95, 0.21	0.97, 0.18	0.57
Which is/are atypical organisms?	0.75, 0.44	0.79, 0.4	0.59
Which is a lactose fermenting Gram-negative rod?	0.43, 0.49	0.51, 0.5	0.37
What would be a valid empiric oral antibiotic for cystitis?	0.71, 0.45	0.71, 0.45	1
Which antibacterial would effectively treat a patient diagnosed with CAP?	0.54, 0.5	0.78, 0.42	0.0042
If a patient is diagnosed with VAP what medication would need to be started in addition to cefepime plus metronidazole?	0.48, 0.5	0.73, 0.75	0.025
How long would you treat a patient diagnosed with infective endocarditis	0.78, 0.42	0.84, 0.37	0.4
Which organism is commonly expected to cause a skin/soft tissue infection	0.90, 0.29	0.95, 0.21	0.27

Scores reported as correct (0) or incorrect (1)

Conclusion

After taking an interdisciplinary ID elective course, pharmacy students' ID content knowledge in general ID disease states improved and they felt more confident in making therapy recommendations to physicians.

References

1. ACPE. Accreditation standards and key elements for the professional program in pharmacy leading to the doctor of pharmacy. ACPE, 2015.

All authors of this presentation have nothing to disclose; Please send any correspondence to ecady@siue.edu