Supplementing Lectures with Cases, Essays and Drug Information Applications to Promote Active and Life-long Learning

David Fuentes
Pacific University

Mark Della Paolera
Pacific University

Ty Vo
Pacific University

Joseph Lassiter
Pacific University

Marianne Krupicka
Pacific University

See next page for additional authors

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Abstract
BACKGROUND: Pharmacy students are traditionally exposed to many lecture hours during pharmacotherapy modules which provide students with information. Adding active learning assignments during class may equip students with a purpose to research course concepts using drug information applications and engage in reflective writing activities both independently and with peers.

OBJECTIVE: To reduce the hours spent lecturing during the block, integrate multiple methods of active learning, and assess performance in a pharmacotherapy block.

METHODS: Pharmacy students (n = 92) in a gastrointestinal pharmacotherapy module were given only 2 hours of lecture/day in a 6-day block (total module time = 36 hrs). Each day consisted of an additional 4 hours of activities, including case story lines, essays and worksheets. One faculty member facilitated the class and used the Blackboard Learning system to communicate active learning assignments and collect students' work.

RESULTS: Students identified areas and concepts they expected to learn during the Gastrointestinal/Hepatic pharmacotherapy block. All students' expectations were met, except for the desire to learn about eating disorders. Students were most interested in learning about possible interventions a pharmacist can make as it pertains to these disease states. Specific interventions identified as necessary to improve a patient's quality of life included: specific medication recommendations; collaborating with, and referring to, other providers; providing risk factor education; and, building rapport with patients. Student performed well and showed evidence of learning using these methods.

Disciplines
Pharmacy and Pharmaceutical Sciences

Comments
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Authors
David Fuentes, Mark Della Paolera, Ty Vo, Joseph Lassiter, Marianne Krupicka, Melanie Foeppel, Pauline Cawley, and Brad Fujisaki

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Supplementing Lectures with Cases, Essays and Drug Information
Applications to Promote Active and Life-long Learning

David Fuentes, PharmD, BCPP, CGP; Mark Della Paolera, PharmD, BCPS; Ty Vo, PharmD, BCPS, CDE; Joseph Lassiter, MS, CPHIMS;
Marianne Krupicka, PharmD; Melanie Foeppl, PharmD; Pauline Caviley, PharmD; Brad Fujisaki, PharmD, BCPS.
Pacific University Oregon School of Pharmacy – College of Health Professions

Introduction

BACKGROUND: Pharmacy students are traditionally exposed to many lecture hours during pharmacotherapy modules which provide students with information. Adding active learning assignments during class may equip students with a purpose to research course concepts using drug information applications and engage in reflective writing activities both independently and with peers.

OBJECTIVE: To reduce the hours spent lecturing during the block, integrate multiple methods of active learning, and assess performance in a pharmacotherapy block.

METHODS: Pharmacy students (n = 52) in a gastrointestinal pharmacotherapy module were given only 2 hours of lecture/day in a 6-day block (total module time = 36 hrs). Each day consisted of an additional 4 hours of activities, including case story lines, essays and worksheets. One faculty member facilitated the class and used the Blackboard Learning system to communicate active learning assignments and collect students’ work.

RESULTS: Students identified areas and concepts they expected to learn during the Gastrointestinal/Hepatic pharmacotherapy block. All students’ expectations were met, except for the desire to learn about eating disorders. Students were most interested in learning about possible interventions a pharmacist can make as it pertains to these disease states. Specific interventions identified as necessary to improve a patient’s quality of life included: specific medication recommendations; collaborating with, and referring to, other providers; providing risk factor education; and, building rapport with patients. Student performed well and showed evidence of learning using these methods.

Methods

I. Development of Topic Schedule and Assessment Questions was Based on the General Course Objectives:
• Demonstrate professional judgment when conducting an efficient and complete patient interview.
• Identify patient problems and possible solutions or opportunities for referral to appropriate care.
• Provide evidence-based pharmacological and non-pharmacological recommendations to treat gastrointestinal and hepatic disorders.
• Utilize the principles of public health and health literacy to educate patients and populations of patients regarding gastrointestinal and hepatic risk factors and disorders.
• Synthesize the entire course material and skill sets to provide a comprehensive work-up and care plan for a patient presenting with gastrointestinal and hepatic disorders.

II. Development of Class Activities and Independent Learning Modules: (Sample Day 1)

<table>
<thead>
<tr>
<th>Block</th>
<th>Time of Session</th>
<th>Activities</th>
<th>Tentative Time</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM</td>
<td>(0830–1130)</td>
<td>1. Introduction and Case Activity</td>
<td>1 hour</td>
<td>Study</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Gastrointestinal Case B &amp; C Discussion</td>
<td>1 hour</td>
<td>Reflection</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Essay 2</td>
<td>1 hour</td>
<td>Write/Discuss</td>
</tr>
<tr>
<td>PM</td>
<td>(1230–1530)</td>
<td>1. Focus on disease lecture</td>
<td>1 hour</td>
<td>Study</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Think-Pair-Share exercise</td>
<td>1 hour</td>
<td>Write/Discuss</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gastrointestinal Case A (1 hour)</td>
<td>1 hour</td>
<td>Reflection</td>
</tr>
</tbody>
</table>

III. Communicating Class Schedule and Expectations to Students:
• An introduction lecture was given demonstrating forthcoming activities; Students were also given an inventory on what they hoped to learn during the course.

Discussion

Students’ Perceptions of the Course
• Students’ expectations (according to the pre-course inventory were all met) with the exception of 2 students’ expecting to learn in-depth information regarding eating disorders – those are typically discussed during our psychiatric pharmacotherapy module.

1. 82.6% agreed and strongly agreed the course was well-organized
2. 94.1% agreed and strongly agreed the course broadened topic knowledge
3. 81.2% agreed and strongly agreed activities/discussions were helpful
4. 95.2% termed the course’s rigor as “about right”
5. 84.7% reported they understood 76–100% of the course material

Student Essay Summary

Students successfully wrote essay comparing and contrasting various disorders. In one essay (results shown here), students compared and contrasted liver and pancreatic disorders to a 21 year old female in her second year in college.
• Students scored an approximate average of 3.5-3.6 (out of a 1-4 scale) regarding how well they: understood the concepts; organized their essays; and, presented accurate information.
• Students scored an average of 1.1 (out of a 1-4 scale) in the area of applying the principles of health literacy to a patient education opportunity
• Students, like educators, may also over-estimate the capabilities and base knowledge of their audience

Students’ Aggregate Performance

On average, students achieved a 96% score on the examination for this course with the highest being a 100%. The lowest score for course exam was 83%.

Conclusions

• Students do not need exclusive lecturing in order to learn. A course can be modified to include activities that promote students’ self-discovery through active and life-long learning behaviors and strategies.

• Students also perceive the reduction in lecture time and increased “hands-on” applications as effective teaching methods.

Contact Information

David G. Fuentes, PharmD BCPP CGP
Assistant Professor
Pacific University Oregon
Hillsboro, Oregon
dfuentes@pacificu.edu