



Integrating Pharmaceutics with Medication Safety: A Novel P1 Curricular Team Activity

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Abstract

Objectives: We generated a curricular activity, Integrating Pharmaceutics with Medication Safety (IPMS), to enhance learning in pharmaceutics and compounding, to highlight the importance of patient safety, and to promote critical thinking and presentation skills.

Methods: The IPMS activity was implemented over three days during pharmaceutics class for first-year pharmacy students. Teams of 6-7 members were assigned a dosage form (e.g. tablet, ointment) and were instructed to find a related drug product that was linked to an authentic medication error. Each team was responsible for preparing a report and 15-minute presentation that included composition and compounding procedure of drug product, indication(s), mechanism of action, error incident, and error prevention. A voluntary student survey assessed the activity's effectiveness in the context of Bloom's taxonomy.

Results: The survey received a 72% response rate ($n = 102$) with 93% of the students agreeing the IPMS activity enhanced awareness of the devastating effects a medication error can cause to patients and the healthcare community. 92% agreed that the IPMS activity created an environment that promoted knowledge, comprehension, application, analysis, synthesis, and evaluation of medication safety concepts. In addition, 90% agreed that IPMS maximized the knowledge integration of pharmaceutics coursework and 86% agreed IPMS strengthened their learning of compounding procedures.

Implications: The IPMS activity promoted student learning of pharmaceutics and compounding principles critical to Domain 1 foundational knowledge as outlined in CAPE 2013 and ACPE Standards 2016.

Objectives

- Through medication safety case studies,¹ we promote P1 student:
 - Learning of pharmaceutics and compounding
 - Critical thinking & presentation skills
 - Teamwork
 - Caring (Fink's Taxonomy of Learning)²
- Bridge pharmaceutics and compounding to pharmacy practice

Methods

Figure 1. What we did over block days 1, 2 & 3

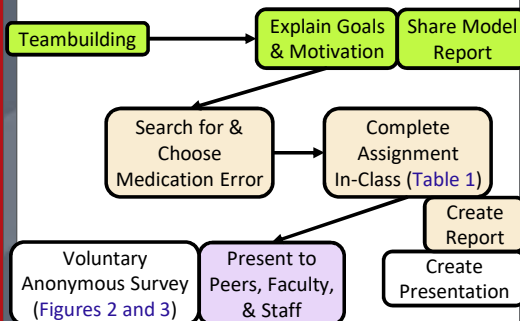


Table 1. Team assignment to create IPMS report

Search for an authentic real medication error in a compounding setting.
For your drug product, identify the dosage form, active ingredients, and excipients.
Explain the purpose of each ingredient.
Explain the drug's indication and mechanism of action.
Adapt a relevant compounding procedure to the drug product.
For your medication error case, what, when, when, and how did it happen?
Why did this error happen? Identify contributing factors.
What was the error's impact to patients, providers, and the healthcare system at large?
How could patient education prevent, or reduce the severity of, this medication error?
Create a strategy to prevent similar errors from reoccurring
What is the 1 Essential Key relevant to pharmacy practice?

Results

Figure 2. Student Perception of IPMS in Promoting Student Learning and Caring. Data are from two P1 cohorts: $n = 74$ (72%) and $n = 88$ (89%).

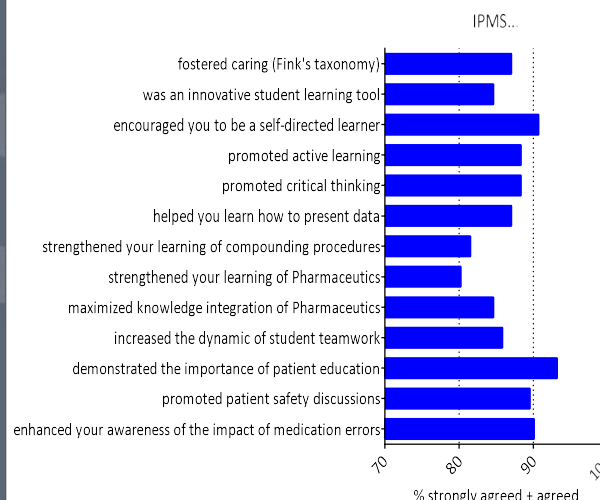
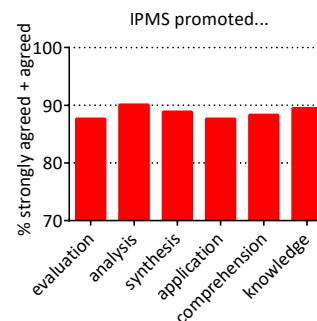


Figure 3. Student Perception of IPMS and Bloom's Taxonomy Educational Objectives.³ Data are from two P1 cohorts: $n = 74$ (72%) and $n = 88$ (89%).



Bloom's Taxonomy

Implications

- The survey received 72% and 89% response rates for the class of 2019 and 2020 ($n = 102$ and $n = 99$), respectively.
- In summary, (Figures 2 and 3)
 - 90% of the students agreed IPMS enhanced awareness of the devastating effects a medication error can cause to patients, providers, and the healthcare community.
 - 87% agreed IPMS created an environment that promoted Bloom's Taxonomy Educational Objectives for medication safety.
 - 84% agreed IPMS maximized knowledge integration of pharmaceutics concepts.
 - 81% agreed IPMS strengthened learning of compounding procedures.
- IPMS promoted student learning of pharmaceutics and compounding principles critical to pharmacy practice through medication safety case studies.

References

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