Teaching Interdisciplinary Medication Safety: Engaging Learners From the Classroom to the Clinic

Amanda Place, PharmD, BCACP
Clinical Pharmacist
St. Vincent Health

Kyle E. Hultgren, PharmD
Director | Center for Medication Safety Advancement
Purdue University College of Pharmacy

The authors of this presentation have nothing to disclose.

Objectives

• Identify current challenges in teaching medication safety
• Describe the case based approach to teaching medication safety and other interactive approaches for teaching medication safety in the classroom
• Compare high and low fidelity simulation models and their roles in teaching medication safety
• Describe methods for engaging medical residents, pharmacy residents, and pharmacy students in medication safety activities
The Challenge

- Paper charts or EMRs?1
- Insulin vials and syringes vs. insulin pens?
- Standard concentration of a bag of norepinephrine?
- Batch dispense medications or one dose at a time?


Train Scientists, not Machines

- Ask “Why” it is not performing as expected
- The goal is to train students to learn how to assess a medication use process or system
- Measure its current level of performance
- What are strategies that we can use to decrease error in various processes
Simulating Safety

Creating memories

- Why do we remember some things in great detail and others with less clarity?
- We love our jobs! But can we remember every patient on every day, every year?
- Key: need to create a trigger or a story to correlate lessons learned

Safety Simulation – High Fidelity

Often large, expensive, but very intensive training facilities meant to mimic as near a lifelike situation as possible with immediate feedback on the same systems providing feedback in the native environment.
Safety Simulation – Low Fidelity

Often smaller, inexpensive tabletop situations that require minimal equipment that is most often representative in nature rather than a lifelike imitation of a natural environment.

Course Model

1) Didactic course work in class
   - Identifying adverse events
   - Classifying these events
   - Background and assessment of environment and all contributing factors to the event
   - Root cause analysis (RCA)

- Goal: cover a host of topics that broaden the student’s understanding of the medication use process and where challenges exist
## Course Model

2) Group Case Analysis
- Assign groups of 5 team members
- Provide a detailed patient case
- Groups must identify the adverse events, all associated factors, and describe what happened
- Provide a root cause for the event
- Identify how to eliminate or mitigate the chance for this error in the future
- Measurement: demonstrate improvement
  Overall presentation skills in a timely manner

## Sample Case

- Cases are typically 10-15 pages of data
- Describe the facility
  - Students will present one community pharmacy case and one health system pharmacy case
- Environment/technology
- Narrative of the event
- Additional data
- Goal is to mimic as much data as possible
Course Model

3) Evaluation
   - Provide a rubric to all students well in advance of the presentation so that they will know exactly how they will be evaluated on their presentation
   - Stress individual areas and the importance of connecting issues

<table>
<thead>
<tr>
<th>Task Name</th>
<th>Topic 1</th>
<th>Topic 2</th>
<th>Topic 3</th>
<th>Topic 4</th>
<th>Topic 5</th>
<th>Topic 6</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development Questions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course Model</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course Evaluation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course Material</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-class Notes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daily Plan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task Notes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Goal

• Train students to be effective safety professionals by training them to look at systems and offer improvements
• Avoid the absolute or definitive answer
• Prepare students to present cases effectively and offer up improvements in difficult times

Questions

Cases and transformation

• Transformative Learning = change in perspective?
• Confronting healthcare challenges without patient harm
• Application of learning to diverse situations
• Reinforcing previously learned lessons
Levels of Learners

<table>
<thead>
<tr>
<th>Experience</th>
<th>PGY1/Interns</th>
<th>PGY2s and beyond</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited and/or classroom-based</td>
<td>Limited and/or classroom-based</td>
<td>PGY1-level training and patient care experience</td>
</tr>
<tr>
<td>training</td>
<td>training</td>
<td></td>
</tr>
<tr>
<td>Present concepts</td>
<td>Present concepts in an event-based format</td>
<td>Review concepts with prospective review</td>
</tr>
<tr>
<td>Teach non-linear problem solving</td>
<td>Teach and/or model non-linear problem solving</td>
<td>Model, coach, and facilitate non-linear problem solving</td>
</tr>
<tr>
<td>Discuss culture and appropriate</td>
<td>Discuss and review culture and</td>
<td>Develop specific follow-up based on patient-centric events</td>
</tr>
<tr>
<td>types of event follow-up</td>
<td>describe specific event follow-up</td>
<td></td>
</tr>
<tr>
<td>Supplement with case-based topic reviews and medication safety updates</td>
<td>from historical events</td>
<td></td>
</tr>
</tbody>
</table>

Teaching Concepts

- Thinking outside the box vs. “what is the box?”
- Move foundational information into practice
- Present usual facts from a different perspective
- Relate new information to accepted norms
PGY1s and Interns

PGY1 Residents
- Review and discuss a selection of previously reported medication safety events.
- Discuss specific types of errors or risk situations (high-alert, look-alike/sound-alike, EHR-related: faulty defaults, deleted medications).
- Review components of the outpatient medication use process that may contribute to medication safety events or near-misses by reviewing 8 to 10 relevant cases from the PCC.
- Discuss the impact of patient health literacy on medication safety and complete a health literacy self-assessment. (Newest Vital Sign)
- Complete a medication safety-focused chart review to practice focusing on safety instead of just therapeutics.
- Review the process of reporting an error within the ambulatory care setting at the PCC.
- Review, discuss, and follow-up, and enter a reported event into the electronic ERS system.

PGY2s and Beyond

PGY2
- Review, discuss, analyze and follow-up, and enter a reported event into the electronic ERS system.
- Conduct a safety review of pre-selected patient charts (1-3 as determined by the resident prior to the meeting with pharmacy).
- Review resident-specific medication orders utilizing EHR queries. Reviews may include:
  - Renal dosing of medications
  - Appropriate use of high-alert medications
  - Identification of high risk drug interactions
  - Review of deleted medications
  - Evaluation for the presence of "faulty defaults"
  - Assessment of the use of Beer's list medications in the elderly
- Provision of evidence-based background to support appropriate medication adjustments based on the above criteria.
- Development of a personal plan to implement safety-related process improvements to address any concerns identified in the above queries.
Teaching versus Marketing

Medication Safety “Fishmail”
Ambulatory Pharmacy Services

...A FISHY MYSTERY...
THE ASA LOVE-DRUG CAPER!

Fact or Fiction?

Your expertise with solving look-alike/sound-alike (LASA) mysteries has become known far and wide, and you are called to testify as an expert witness in a robbery case. The pair of thieves broke into a clinic in search of some “Oxy’s” and are being prosecuted for theft. They are countering by using the clinic because they feel like they were victims of a LASA event. They would like the clinic to be fined for poor signage regarding at-risk LASA medications. In addition, they are seeking damages because after use of the “oxy” that they stole, they developed feelings of empathy and bonding towards their neighbors and stronger-than-normal feelings of affection for each other.

You are asked to determine if they were, indeed, victims of a LASA event, and if so, what drug? What do you tell the jury?

Questions