Incorporation of the PPCP into the Pharmacy Lab

AACP Lab SIG Webinar
Thursday, March 30th, 2017

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Objectives

By the end of the webinar, attendees should be able to...

- Describe the Pharmacists' Patient Care Process (PPCP)
- Incorporate the PPCP into a pharmaceutical sciences lab dealing with pharmaceutics / pharmacy compounding
- Apply the PPCP to activities in a pharmacy practice lab dealing with three practice areas: community, acute care, and ambulatory care
- Incorporate the PPCP in performance based assessments throughout the pharmacy practice laboratory curriculum
Pharmacists' Patient Care Process

Pharmacists use a patient-centered approach in collaboration with other providers on the health care team to optimize patient health and medication outcomes.

Using principles of evidence-based practice, pharmacists:

**Collect**
The pharmacist assures the collection of the necessary subjective and objective information about the patient in order to understand the relevant medical/medication history and clinical status of the patient.

**Assess**
The pharmacist assesses the information collected and analyzes the clinical effects of the patient’s therapy in the context of the patient’s overall health goals in order to identify and prioritize problems and achieve optimal care.

**Plan**
The pharmacist develops an individualized patient-centered care plan, in collaboration with other health care professionals and the patient or caregiver that is evidence-based and cost-effective.

**Implement**
The pharmacist implements the care plan in collaboration with other health care professionals and the patient or caregiver.

**Follow-up: Monitor and Evaluate**
The pharmacist monitors and evaluates the effectiveness of the care plan and modifies the plan in collaboration with other health care professionals and the patient or caregiver as needed.
Incorporation of the PPCP into a Pharmaceutical Sciences Lab dealing with Pharmaceutics / Pharmacy Compounding
Midwestern University - Glendale

- Offers an accelerated, 3-year, year-round Pharm.D. program beginning in the summer
- In which, a 4-quarter pharmaceutics-related course sequence takes place during the PS1 year
- Pharmaceutics I and II are specifically offered during the 2nd and 3rd quarters of this sequence and both have a significant pharmacy compounding lab component
Pharmacy Compounding Lab

- ~150 students are broken up into three 3-hr sections each week for a total of 17 weeks
- 6-8 lab instructors are used per section to maintain an ~8:1 student:instructor ratio
- The lab instructors have regularly included ...
  - The two course coordinators / pharmaceutics faculty members
  - A certified pharmacy technician (ie. our lab technician)
  - Several P2 students taking my teaching & learning elective
  - A community pharmacist (ie. one of our community partners)
  - Several P3 students completing our community partner APPEs
Pharmacy Compounding Lab

- The overall objective of the lab is to further apply the lecture material while developing basic compounding skills.
- Most of the lab assignments are centered upon a particular prescription and involve the completion of several corresponding activities and/or questions.
- Each week’s assignments are contained within a separate lab packet that is distributed to the students at the beginning of each lab.
Pharmacy Compounding Lab

- The students typically begin by attempting to answer each of the questions associated with the prescription to be compounded.
- Upon completion, the students meet with their respective lab instructors as a group to review their completed work and to prepare for the compounding activities.
- The students then proceed to individually complete the compounding activities.
Incorporation of the PPCP

Case: FD is a 36 month old, 39.6 lb pediatric patient suffering from seizures.

Additional Information: In cocoa butter, the DF for phenytoin is 1.3 and the DF for phenytoin sodium is 1.9.

Prescription:

<table>
<thead>
<tr>
<th>Name: Fyodor Dostoyevski</th>
<th>Date: 10/17/16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address: 567 N 59th Ave., Glendale AZ 85308</td>
<td></td>
</tr>
</tbody>
</table>

Rx

Phenytoin 180 mg
Cocoa Butter qs
M.ft. dtd supp #6

Sig. i/pr hs

Refill 4 times

Dispense as Written

Alyosha Karamozov
Substitution Permissible
Incorporation of the PPCP

ASSESS

1. Phenytoin is the active ingredient in which brand name products? In what routes of administration / dosage forms are the brand name products available? What are the common uses for phenytoin?

Brand Name Products:

Routes of Administration / Dosage Forms:

Common Uses:

2. Why might the prescribed route of administration / dosage form be more appropriate for this patient than those of the commercially-available products? What are the disadvantages of the prescribed route of administration / dosage form as compared to those of the commercially-available products?

3. Why should cocoa butter be used instead of PEG to compound this product?
Incorporation of the PPCP

PLANNING

4. In this particular case, should phenytoin be used in the free acid or sodium salt form? (why/why not?)

5. Calculate the amounts of each ingredient needed for this prescription and complete the corresponding question:

   Based upon the given density factor, which has a greater density, phenytoin sodium or cocoa butter?

6. Fill-in the following compounding procedure:

   a. Spray a paper towel with a small amount of lubricant, wipe down the inner surface of the aluminum molds, and close the molds.

   b. Weigh ______ phenytoin sodium and ______ cocoa butter (after breaking into smaller pieces) using a(n) ____________________________ balance.

   c. Place the cocoa butter in a 100-ml beaker and using a hot water bath slowly melt the cocoa butter to an opaque, creamy liquid with gentle stirring.

   d. Gently stir the phenytoin sodium into the cocoa butter until uniform.

   e. When pourable, quickly pour the mixture into at least ______ mold cavities being sure to fill each cavity with excess mixture.

   f. Chill the suppositories until solid (~10-15 min) and scrape off the excess from the tops.

   g. Remove the suppositories, wrap in foil, and dispense in a plastic baggie.
Incorporation of the PPCP

**IMPLEMENT**

7. Properly compound and package the phenytoin prescription as well as document the filling of the prescription and prepare a prescription label.

**Back of the Prescription**

*Prescription Label Here*

*Auxiliary Label Here*

*Auxiliary Label Here*

*Auxiliary Label Here*
8. Based upon your assessment of the information initially collected, what are some of the key things you would want to monitor regarding the effectiveness of the plan that has been implemented?
Student Feedback

Please indicate the extent to which you agree with each of the following statements regarding the incorporation of the Pharmacists Patient Care Process (PPCP) into the non-sterile lab portions of Pharmaceutics I & II (i.e. the ‘collect, assess, plan, implement, and follow-up’ format):

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Not Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incorporation of the PPCP format appropriately modeled the PPCP</td>
<td>71%</td>
<td>27%</td>
<td>1%</td>
<td>0%</td>
<td>1%</td>
</tr>
<tr>
<td>Incorporation of the PPCP format was consistent with its inclusion in other MWU-CPG courses</td>
<td>74%</td>
<td>24%</td>
<td>1%</td>
<td>0%</td>
<td>1%</td>
</tr>
<tr>
<td>Incorporation of the PPCP format improved my understanding of the PPCP</td>
<td>67%</td>
<td>27%</td>
<td>1%</td>
<td>1%</td>
<td>4%</td>
</tr>
<tr>
<td>Incorporation of the PPCP format facilitated my understanding of the course material</td>
<td>66%</td>
<td>29%</td>
<td>2%</td>
<td>0%</td>
<td>3%</td>
</tr>
<tr>
<td>Incorporation of the PPCP format enhanced the course material’s applicability to practice</td>
<td>69%</td>
<td>26%</td>
<td>1%</td>
<td>1%</td>
<td>3%</td>
</tr>
</tbody>
</table>

n=151-152 for each survey question, resulting in a response rate of 99%
Lessons Learned

- From a course perspective, the incorporation of the PPCP required minimal modifications to already existing coursework; however, this was mostly because the labs had been previously designed to apply pharmaceutics concepts to pharmacy practice.

- In addition, the incorporation of the PPCP enabled an even greater application to practice and was perceived to have facilitated student understanding of the course material.

- From a PPCP perspective, the labs enabled an incorporation using ‘real world’ examples that seems to have appropriately modeled the PPCP and improved student understanding of the PPCP.

- Ultimately, this incorporation demonstrates the feasibility of integrating the PPCP into pharmaceutical sciences courses in a fashion that also appears to be consistent with other courses.

- However, the effectiveness of such an integration is highly dependent upon having both a pharmaceutical and a practice perspective as well as training all course facilitators to overtly describe and consistently model the PPCP.
Discussion
Apply the PPCP to activities in a pharmacy practice lab dealing with three practice areas: community, acute care, and ambulatory care.
University of Iowa

- Learning & Living Curriculum implemented in Fall 2015
  - 4-year curriculum
  - 5 semester lab sequence
    - Foundations of Pharmacy Practice I & II
    - Applications of Pharmacy Practice I, II, & III
- 3 clinical faculty dedicated to teaching in lab
  - 1 instructional services specialist
  - Academic rotation students
First exposure

- Fall P1 year
  - Introduction to PPCP
  - 2 class sessions (2 hours each)
  - Problem-based learning
    - Searching for facts, gaps, learning issues
    - 6 groups of 9-10 students plus a facilitator
Collect

- Emma presents to your pharmacy’s prescription counter wanting to buy some mineral oil and pick up her prescriptions.
  - What do we know?
  - What do we want to know?
Collect

Further Case Information:
Emma is a 78-year-old woman who you know fairly well. She has been coming into your practice for the last several years. She is always friendly and wants to talk about how she is doing health wise and about her family (her dog and cat). She states she wants the mineral oil for her bowels as they have not moved for 5 days and she needs to know how much to take. Today, she also wants to pick up her prescriptions: Tylenol with Codeine #3® 1–2 every 4–6 hours PRN, Librax® 1 BID PRN, and prazosin 2 mg BID.

- Repeat process
- Generate learning issues
- Present answers to small group
Assess

- What is your initial assessment?
- What do you need to find out to confirm or change your assessment?
  - Generation of learning issues
  - Present answers to small group
Plan, Implement, Follow-up

- Each group develops plan
- Groups present plan to class
- Large group discussion on how to implement
Discussion
Community Practice

- Fall P2 year
  - Self-care
  - Immunizations
Ambulatory Care

- Spring P2 year
  - Patient interview
    - Ambulatory care clinic
      - Anticoagulation
      - Chronic disease management
Acute Care

- Fall P3 year
  - Patient work-up
  - Present patient to preceptor/faculty
Discussion
Incorporate the PPCP in performance based assessments throughout the pharmacy practice laboratory curriculum
Assessment Methods

- Performance based assessments (PBAs)
  - Patient interview/presentation
  - Documentation
## PPCP in PBAs

<table>
<thead>
<tr>
<th></th>
<th>Collect</th>
<th>Assess</th>
<th>Plan</th>
<th>Implement</th>
<th>Follow-up</th>
<th>Document</th>
<th>Communicate</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1 Fall</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>P1 Spring</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>P2 Fall</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>P2 Spring</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>P3 Fall</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>P3 Spring</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

**Notes:**
- *X* indicates the action has been completed.
Performance Based Assessments

- Fall P1
  - Medication history
- Spring P1
  - New prescription counseling
- Fall P2
  - Comprehensive medication review
Performance Based Assessments

- Spring P2
  - Ambulatory care follow-up visit
- Fall P3
  - Hospitalized patient work-up
- Spring P3
  - Capstone course
What Went Well

- Editing previously created activities
- Show the students multiple real-world activities using PPCP
Things to Improve

- Focus on acute care activities
- Consciously use PPCP terminology in every lab
Lessons Learned

- Integrate PPCP into previously created activities
- Multiple exposures help students remember the process
Discussion
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