Blue Pill or Red Pill
Rediscovering the Path to Pharmacy Practice

Arkansas Association of Health-System Pharmacists

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AAHP Fall Seminar
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Little Rock, Arkansas

Conflict of Interest Disclosure

• The speaker, Willie Capers II, has no real or potential conflicts of interest related to the subject matter in this presentation.

Learning Objectives

• Assess the learning needs of pharmacy students and interns
• Demonstrate the preceptor roles in teaching clinical problem solving
• Incorporate a variety of teaching methods into the pharmacy practice experience
• Design and implement a multi-level learner team to optimize patient-centered care
• Evaluate the pharmacy practice experience to ensure alignment between the learning activities and learning objectives

Pharmacist Supply and Demand

• 135 US-based colleges/schools of pharmacy
• 63,927 total entry-level PharmD students in Fall 2014
• Class of 2014 = 13,838 (4.8%)
• 2811 PGY1 (6.5%) and 794 PGY2 (12.5%) incoming July 2015

Entry-Level Competencies for Health-System Pharmacists

• Charge:
  – To describe the competencies needed for entry-level practice in hospitals and health-systems
  – To help identify gaps in the readiness of new pharmacy graduates

• 13 member task force
• 2,445 surveys to DOPs and RPDs
• 150 participant workshop

https://www.apha-accred.org/pdf/EntryLevelCompetenciesNeededForPharmacyPracticeInHospitalsAndHealthSystems.pdf
Entry-Level Competencies for Health-System Pharmacists

- 25 competencies
  - 14 level I
  - 6 level II
  - 5 level III
- All 25 areas should be
  - Introduced in didactic courses or practice labs
  - Reinforced in IPPE/APPE rotations

Preceptor assessments are critical for all 25 competencies
- 10 addressed in IPPE
- 22 addressed in APPE

Educational Outcomes

- Foundational Knowledge
  - 1.1 Learner
- Essentials for Practice and Care
  - 2.1 Caregiver
  - 2.2 Manager
  - 2.3 Promoter
  - 2.4 Provider
- Approach to Practice and Care
  - 3.1 Problem Solver
  - 3.2 Educator

Educational Outcomes

- Approach to Practice and Care
  - 3.3 Advocate
  - 3.4 Collaborator
  - 3.5 Includer
  - 3.6 Communicator
- Personal and Professional Development
  - 4.1 Self-aware
  - 4.2 Leader
  - 4.3 Innovator
  - 4.4 Professional

ACPE Standards 2016

Focus for Experiential Education

- Standard 11 (Interprofessional Education)
- Standard 12 (Pre-APPE)
- Standard 13 (APPE)
- Standard 20 (Preceptors)
- Standard 22 (Practice Facilities)
- Appendix 2 (Expectations of APPE)
- Appendix 3 (Required Documentation)

Challenge

- How do we ensure that pharmacists have the knowledge, skills, and attitudes necessary to provide optimal patient care?
  - Assess the learning needs
  - Demonstrate the preceptor roles
  - Incorporate a variety of teaching methods
  - Implement a multi-level learner team
  - Align the learning activities and learning objectives
Case Study: Claire

- Claire is a P3 pharmacy student who has worked in her father’s pharmacy since she was a little kid.
- She loves community pharmacy because of the patient interaction
- Upon graduation, she wants to move back home and open a second location

Case Study: Buddy

- Buddy is a P4 who has no prior pharmacy experience
- He worked as an engineer for many years before going to pharmacy school
- He is unsure of what he wants to do upon graduation
- He is considering doing a residency but this is his first clinical rotation

Generations of Learners

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Communication Style</td>
<td>Classroom</td>
<td>Facilitated</td>
<td>Independent</td>
<td>Collaborative &amp; networked</td>
</tr>
<tr>
<td>Training Philosophy</td>
<td>Top down</td>
<td>Guarded</td>
<td>Hub &amp; Spoke</td>
<td>Collaborative</td>
</tr>
<tr>
<td>Work Philosophy</td>
<td>The hard way</td>
<td>Too much and I’ll leave</td>
<td>Required to keep me</td>
<td>Continuous &amp; expected</td>
</tr>
<tr>
<td>Problem-solving</td>
<td>Vertical</td>
<td>Horizontal</td>
<td>Independent</td>
<td>Collaborative</td>
</tr>
<tr>
<td>Feedback</td>
<td>No news is good news</td>
<td>Annual</td>
<td>Weekly/Daily</td>
<td>On demand</td>
</tr>
</tbody>
</table>

Assessing Learning Styles

- David Kolb (1984) – Learning Style Inventory
- Peter Honey and Alan Mumford (1986) – Learning Styles Questionnaire
- Albert Canfield (1992) – Canfield Learning Style Inventory

Pharmacists’ Inventory of Learning Styles (PILS)

- 17 questions
- Learning styles:
  - Enactors (Accommodator)
  - Producers (Assimilator)
  - Directors (Converger)
  - Creators (Diverger)

Preferred Teaching Styles

<table>
<thead>
<tr>
<th>PILS (Kolb’s) Learning Style</th>
<th>Characteristics</th>
<th>Preferred Teaching Style</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enactors (Accommodator)</td>
<td>Opportunistic, intuitive, goal-oriented, active, down-to-earth</td>
<td>Wants to know reason for learning, wants to be given resources for learning</td>
</tr>
<tr>
<td>Producers (Assimilator)</td>
<td>Organized, attention to details, rule-oriented, patient, fair-minded</td>
<td>Lectures by experts, individual homework, limited group work</td>
</tr>
<tr>
<td>Directors (Converger)</td>
<td>Practical, leaders, action-oriented, purposeful, networkers</td>
<td>Group work (with purpose), competitions, practice by doing</td>
</tr>
<tr>
<td>Creators (Diverger)</td>
<td>Creative, peace-makers, people-oriented, open-minded, free-spirited</td>
<td>Group work (no time pressure), unstructured activities, creative games</td>
</tr>
</tbody>
</table>

Austin Z. AJPE 2004;68(2) Article 37.
Case Study: Buddy

On the first day of rotation, Buddy completed the PILS. It revealed that he is focused, practical, and to the point and learns best by doing. Which of the following best describes him?

A. Enactor (Accommodator)
B. Producer (Assimilator)
C. Director (Converger)
D. Creator (Diverger)

Professional Competence

“The habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served.”


What should you know?

• What is your learning style?
• What is your teaching philosophy?
• What do you know about generational differences?
• What environmental and cultural forces affect the Millennial Learner?
• Is there opportunity for intergenerational tension?

What should you do?

• Guide and focus the millennial on their learning
• Use current eLearning technologies
• Expect aesthetically appealing presentations
• Help and support
• Encourage collaboration
• Limit multi-tasking
• Be straightforward

Cone of Learning

Miller's Pyramid
Case Study: Claire

Which of the following assessment methods would be best to evaluate Claire’s ability to compound a sterile product?

A. Calculations test  
B. Watching a video on sterile preparation  
C. Topic discussion on USP 797  
D. Shadowing the IV room pharmacist  
E. Compounding sterile products

Bloom’s Taxonomy

<table>
<thead>
<tr>
<th>Taxonomy</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVALUATION</td>
<td>Can judge the value of material based on definite criteria</td>
</tr>
<tr>
<td>SYNTHESIS</td>
<td>Creates something entirely new by putting parts together into a whole</td>
</tr>
<tr>
<td>ANALYSIS</td>
<td>Breaks down material into parts in order to understand its organizational structure</td>
</tr>
<tr>
<td>APPLICATION</td>
<td>Uses rules, methods, concepts, principles, laws, or theories in new situations</td>
</tr>
<tr>
<td>COMPREHENSION</td>
<td>Understands the meaning of new material</td>
</tr>
<tr>
<td>KNOWLEDGE</td>
<td>Recalls learned material</td>
</tr>
</tbody>
</table>

Nimmo CM, et al. Staff development for pharmacy practice.

Four Roles of a Preceptor

Preceptor provides structure, process, and support to guide the learner to make decisions and solve problems

Coaching

Student demonstrates their thinking process and preceptor provides feedback

Mentoring

Preceptor demonstrates their thinking process

Direct Instruction

Provide information for the student (lectures, demonstration, structured overview)

ASHP Resident’s Guide to the RLS, 3rd ed

Case Study: Buddy

Buddy is reviewing a patient and identifies that the patient is on moderate intensity statin therapy and has not reached their LDL goal. As his preceptor, which of the following roles is MOST appropriate to demonstrate?

A. Direct Instruction  
B. Modeling  
C. Coaching  
D. Facilitating

Learner-Centered Instruction

- Shift and share power
- Transition from expert/lecturer to coach/facilitator
- Motivate students to accept responsibility for their learning
- Align content with learning strategy
- Involve student in evaluation and feedback

Active-Learning Strategies

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem-Based Learning</td>
<td>Students are responsible for constructing their own learning. Students are assigned the problem. The preceptor guides and serves as a resource for where to find the information, does a formative assessment and provides feedback.</td>
</tr>
<tr>
<td>Case-Based Learning</td>
<td>Students are assigned a case, recommended reading(s), and/or a mini-lecture. The preceptor does a formative assessment and provides feedback.</td>
</tr>
<tr>
<td>Ability-Based Education (Assessment-as-learning)</td>
<td>Students are assigned a problem, case, or homework assignment. The student practices the ability outcome. Faculty does frequent formative assessment and feedback.</td>
</tr>
</tbody>
</table>

Gleason BL, et al. AJPE 2011;75(9) Article 186.
Active-Learning Techniques

<table>
<thead>
<tr>
<th>Technique</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Think-Pair-Share</td>
<td><strong>Think step:</strong> Students are given a problem to think about. (1-2 minutes)</td>
</tr>
<tr>
<td></td>
<td><strong>Pair step:</strong> The student discuss the problem with other students. (3-5 min)</td>
</tr>
<tr>
<td></td>
<td><strong>Share step:</strong> The student pair report the problem(s) and solution(s) to the preceptor and other students. (1-2 min)</td>
</tr>
<tr>
<td>Socratic Questioning</td>
<td>The preceptor asks the student about their thought processor, probing their assumptions, and inquiring about their evidence.</td>
</tr>
<tr>
<td>Student Presentations</td>
<td>Students are assigned a topic. The research about it and develop and execute a presentation. The preceptor has a rubric to guide the assessment and feedback.</td>
</tr>
</tbody>
</table>

Gleason BL, et al. AJPE 2011;75(9) Article 186.

Active-Learning Assessments

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return Demonstration</td>
<td>A student observes the preceptor demonstrate the procedure. Then the preceptor watches the student demonstrate the procedure.</td>
</tr>
<tr>
<td>Direct Observation</td>
<td>The preceptor watches the student perform the activity or patient care in a live environment.</td>
</tr>
<tr>
<td>Peer Evaluation</td>
<td>Another student assesses the knowledge, skills, and attitudes of the student.</td>
</tr>
</tbody>
</table>

Gleason BL, et al. AJPE 2011;75(9) Article 186.

SMART Feedback

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific</td>
<td>Describe your observations</td>
</tr>
<tr>
<td>Measurable and Meaningful</td>
<td>Describe behavior that can be observed and measured. Focus feedback on goals and objectives for the experience/task.</td>
</tr>
<tr>
<td>Accurate and Actionable</td>
<td>Limit feedback to redeemable behaviors. Determine an action plan for improvement.</td>
</tr>
<tr>
<td>Respectful</td>
<td>Focus on performance (not performer). Balance negative feedback with positive.</td>
</tr>
<tr>
<td>Timely</td>
<td>Provide frequent feedback close to the observation. Provide sufficient time for the student to improve and for you to re-assess.</td>
</tr>
</tbody>
</table>

DiVall MV, et al. AJPE 2014;78(9) Article 160.

Case Study: Buddy

You assign Buddy to review the problem list of a patient and to work with Claire to develop a plan and present it to you in the next 10 minutes. Which of the following BEST describes this technique?

A. Socratic Questioning
B. Student Presentation
C. Think-Pair-Share
D. Direct Observation
E. Return Demonstration

Bringing it all together...

<table>
<thead>
<tr>
<th>Competency</th>
<th>Addressed in Curriculum</th>
<th>Teaching/Learning Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstrate essential techniques and describe processes and facilities needed to provide sterile compounded parenteral solutions, including the basic requirements of USP 797.</td>
<td>IPPE/APPE</td>
<td>• Peer evaluation; • Culture glove finger tips after preparation</td>
</tr>
<tr>
<td>Given a real or simulated case of a patient transitioning from one care setting to another, effectively reconcile their medications and make appropriate communications to involved pharmacy providers.</td>
<td>APPE</td>
<td>• Problem-based learning cases; • Develop care plans</td>
</tr>
</tbody>
</table>

UFHealth Shands Hospital
P4 APPE
Ambulatory Care (120 hours) Adult Medicine (120 hours) Community Practice (160 hours) Specialty Practice (160 hours) Electives (480 hours)

Hatton RC, et al. AJHP 2013;70:2144-51

Complete Block-Scheduling Model

<table>
<thead>
<tr>
<th>Design</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>UFHealth Shands Hospital P4 APPE</td>
<td>• Simplified logistics</td>
</tr>
<tr>
<td>Ambulatory Care (120 hours) Adult Medicine (120 hours) Community Practice (160 hours) Specialty Practice (160 hours) Electives (480 hours)</td>
<td></td>
</tr>
<tr>
<td>P4 APPE</td>
<td>• Networking and professional relationships</td>
</tr>
<tr>
<td>Prehospital and Outpatient Care (120 hours)</td>
<td>• Longitudinal involvement in research and patient care</td>
</tr>
<tr>
<td>Adult Medicine (120 hours) Community Practice (160 hours) Specialty Practice (160 hours) Electives (480 hours)</td>
<td>• Preparation for practice and residency training</td>
</tr>
<tr>
<td>Community Practice (160 hours) Specialty Practice (160 hours) Electives (480 hours)</td>
<td>• Standardized quality and monitoring</td>
</tr>
<tr>
<td>Electives (480 hours)</td>
<td></td>
</tr>
</tbody>
</table>

UFHealth Shands Hospital
Sequential Assignment Model

**Design**
- Mercy Health P2 IPPE 20 hours
- Mercy Health P3 IPPE 80 hours
- Mercy Health 3 consecutive P4 APPEs 480 hours

**Benefits**
- Integrate IPPE learning across a course series
- Maximize efficiency of site/preceptor resources
- Continuity of learning within the facility over time

Dennis VC, et al. APJE 2014;78(3) Article 60.

Hybrid Model: Framework

**Hybrid Model: Design**

<table>
<thead>
<tr>
<th>Student</th>
<th>IPPE 1</th>
<th>IPPE 2</th>
<th>IPPE 3</th>
<th>IPPE 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student</td>
<td>Community</td>
<td>Amb Care</td>
<td>Hospital</td>
<td>Acute Care</td>
</tr>
</tbody>
</table>

**Benefits**
- Site Perspective
  - Brief orientation period and extended productive time
  - Mentor relationship with the student
  - Student as a part of the team
  - Student as a mentor to other students
- Student Perspective
  - Sequential and progressive
  - Comfortable
  - o personnel,
  - o computer system,
  - o policies and procedures, etc.
  - Part of the team

Simulation Center

- Departments:
  - Administrative Offices and Conference Areas
  - Clinical Laboratory
  - Clinical Nutrition
  - Health Information Management
  - Pharmacy (inpatient and outpatient)
  - Respiratory Therapy
- Waiting Areas
- Inpatient Rooms
  - Medical/Surgical, Critical Care, Pediatric, and Labor and Delivery
- Outpatient/Clinic Rooms
- Standardized Patients
- Low- and High Fidelity Mannequins

Summer Internship

- **Program format**
  - 8 weeks; 40 hrs/week
  - Salary (based on PY)
  - 70% medication use
  - 30% journal club, meetings, projects, and shadowing
- **Practice Opportunities**
  - Pharmacy Administration
  - Pharmacy Information Systems
  - Investigational Drug Services
  - Research
  - Education

Clark JS. AJHP 2007;64:952-4
http://www.hopkinsmedicine.org/pharmacy/internship/
Longitudinal Internship

- Program format
  - 1-2 years; 400 hours per year
  - Salary (80% of minimum level for new graduates)
- Practice opportunities
  - Pharmacy administration (inpatient and outpatient)
  - Anticoagulation, medication therapy management, psychiatry, pain management, hepatitis C, etc.
- Practice opportunities
  - Inpatient pharmacy (IV admixture, kinetics monitoring, medication reconciliation, inpatient anticoagulation, and discharge counseling)
- 67 programs available throughout the US

Multi-Level Learner Model

<table>
<thead>
<tr>
<th>Stage 4 (Proficient/5 (Expert))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacist Preceptor</td>
</tr>
<tr>
<td>PGY1 or 2 Resident</td>
</tr>
<tr>
<td>IPPE</td>
</tr>
<tr>
<td>Stage 4 (Proficient/5 (Expert))</td>
</tr>
<tr>
<td>Pharmacist Preceptor</td>
</tr>
<tr>
<td>PGY1 or 2 Resident</td>
</tr>
<tr>
<td>IPPE</td>
</tr>
<tr>
<td>Expert</td>
</tr>
<tr>
<td>Highly skilled analytic ability and performance is fluid and highly proficient</td>
</tr>
<tr>
<td>Stage 3 (Competent)</td>
</tr>
<tr>
<td>Pharmacist Preceptor</td>
</tr>
<tr>
<td>PGY1 or 2 Resident</td>
</tr>
<tr>
<td>NPE</td>
</tr>
<tr>
<td>Stage 3 (Competent)</td>
</tr>
<tr>
<td>Pharmacist Preceptor</td>
</tr>
<tr>
<td>PGY1 or 2 Resident</td>
</tr>
<tr>
<td>APPE</td>
</tr>
<tr>
<td>Stage 3 (Competent)</td>
</tr>
<tr>
<td>Pharmacist Preceptor</td>
</tr>
<tr>
<td>PGY1 or 2 Resident</td>
</tr>
<tr>
<td>APPE</td>
</tr>
<tr>
<td>Stage 2 (Advanced Beginner)</td>
</tr>
<tr>
<td>Pharmacist Preceptor</td>
</tr>
<tr>
<td>NPE</td>
</tr>
<tr>
<td>Stage 2 (Advanced Beginner)</td>
</tr>
<tr>
<td>Pharmacist Preceptor</td>
</tr>
<tr>
<td>NPE</td>
</tr>
<tr>
<td>APPE</td>
</tr>
<tr>
<td>Stage 1 (Novice)</td>
</tr>
<tr>
<td>Pharmacist Preceptor</td>
</tr>
<tr>
<td>NPE</td>
</tr>
<tr>
<td>APPE</td>
</tr>
<tr>
<td>Stage 1 (Novice)</td>
</tr>
<tr>
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</tr>
<tr>
<td>NPE</td>
</tr>
<tr>
<td>APPE</td>
</tr>
</tbody>
</table>

Case Study: JB

JB is a 65 year old female who presents to the emergency department with swelling of the left lower extremities. The patient is diagnosed with cellulitis and is started on vancomycin. Her renal function has declined over the first two days of therapy. The pharmacy team is consulted to dose and monitor the therapy.

What should the team do?

- Assess each learners achievement of the learning objectives
- Provide formative feedback to each learner
- Evaluate the IPPE and APPE interns’ assessment and plan and provide recommendations to improve the assessment and plan
- Assign level-appropriate tasks to the students and residents
- Guide the IPPE to ensure that the proper information is gathered
- Formulate a clinical plan
- Obtain all of the pertinent patient information
- Identify what medications could be causing the renal dysfunction

Case Study: Claire

- Claire has really enjoyed her IPPE rotation with you. She said that she spoke with her dad about becoming a hospital pharmacist and possibly completing a residency. He was very supportive. What would you suggest for her to do? (Select ALL that apply.)
  - Complete all of her rotations at your hospital
  - Apply for a summer internship
  - Apply for a longitudinal internship
  - Complete at least one APPE with you

Expectations of Preceptors

- Orientation
  - Arrival times, dress code, rotation schedule, etc.
  - Dates/deadlines
  - Evaluation criteria and expectations
  - Introduce student(s) to staff
  - Coach and mentor to achieve mastery of competencies
- Review coursework, interventions and provide feedback
- Identify and resolve student difficulties early
- Discuss career options
- Motivate