

USE OF ASSESSMENT DAYS WITHIN THE CURRICULUM TO EVALUATE STUDENT READINESS TO ENTER PRACTICE EXPERIENCES

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Objectives

- Discuss the use and application of a single-point rubric
- Discuss the utility of a dedicated assessment day for student evaluation
- Discuss the benefits of faculty participation in evaluating student performance
- Discuss the areas of assessment including teamwork, interprofessional considerations, professionalism, communication skills, unexpected outcomes, problem-solving skills, interviewing skills, and patient care solutions.

SO HOW DID WE GET TO ASSESSMENT DAYS?

What we learned from Capstone and APPE preceptor feedback?

OVERVIEW OF CAPSTONE COURSES

Defining Senior Capstone Experiences

- “The senior capstone experience is defined as a culminating course or project that is discipline-based or interdisciplinary; the course and/or experience concludes during the final year of study and is reserved for senior students (senior status is typically defined by credit-hours obtained).”
 - National Survey of Senior Capstone Experiences, 2011
- Vary by:
 - Major
 - Institution

Capstone Courses in Pharmacy

- Capstone courses provide an opportunity to solidify preparedness for advanced pharmacy practice experiences (APPE).
- Capstone courses provide an excellent opportunity to inform curricular change.
- Although capstone courses have been described in pharmacy education, the content and design of these courses vary.
- Discussion of capstone course content and evaluation serves as a guide for institutions adding or redesigning a capstone course

Capstone Courses in Pharmacy

- Application of knowledge
- Higher-level learning
- Transition or bridge to APPE (rotations)
- Build confidence
- Develop time management skills
- Solidify professional skills
- Evaluate practice-ready

OHIO NORTHERN'S CAPSTONE COURSE

Ohio Northern University (ONU)

- Small private university in rural Ohio
- Colleges of Arts & Sciences, College of Business Administration, College of Engineering, College of Law, College of Pharmacy
- ACPE accredited Raabe College of Pharmacy has 1000 of the 3300 students on campus
- Pharmacy is a direct entry o-6 program
 - Only 8 schools in the US are o-6 direct entry

ONU Curricular Design

- Pre-pharmacy curriculum
 - P1, P2, and P3 year
 - Profession of Pharmacy sequence each semester
 - Self-care
 - Pharmaceutical sciences
 - Lifetime Wellness course
 - IPPE community and institutional

ONU Curricular Design

- Upper division
 - P4 and P5 year
 - Biomedical sciences
 - Professional pharmacy skills sequence
 - Therapeutic modules
 - Pharmacy Administration module
 - Special Populations module
 - Capstone module
 - IPPE elective

ONU Curricular Design

- P6 year
 - APPE rotations
 - 9 rotations with both required and elective choices
 - All over the country
 - Completed between June following capstone to the next April before graduation
 - Capstone is the transition between didactic and experiential education

Third Year (P3)			
Fall	CH	Spring	CH
Physiology 1 BIOL 3311	4	Physiology 2 BIOL 3321	4
Biochemistry PHBS 3411	3	Biochemistry PHBS 3421	3
OTC/Home Diagnostics PHPR 3311	3	Immunology PHBS 3751	3
Gen Ed	3	Pharmaceut. Science Module-1 PHBS 3311	2
Open Elective(s)	2	Professional Pharmacy Skills 1- PHPR 3021	3
POP-5 PHPR 3011	2	Gen Ed	3
Bioscience Lab BIOL 3221/Open Elective	1		
Fourth Year (P4)			
Fall	CH	Spring	CH
Pharm Science Module-2 PHBS 4321	7	Biomed Sciences Module-2 PHBS 4441	6
Biomed Sciences Module-1 PHBS 4431	5	BSPC Module-1 PHPR 4411	6
Professional Pharmacy Skills 2 PHPR 4011	3	BSPC Module-2 PHPR 4421	6
Open Elective(s)	3		
Fifth Year (P5)			
Fall	CH	Spring	CH
BSPC Module-3 PHPR 5431	5.5	Pharmacy Administration PHPR 5501	6
BSPC Module-4 PHPR 5441	3.5	Capstone PHPR 5461	6
BSPC Module-5 PHPR 5451	3.5	Special Populations PHPR 5531	3
BSPC Module-6 PHPR 5471	5.5	Open Elective(s)	3
Sixth Year (P6)			
Fall	CH	Spring	CH
Advanced Practice Rotations PHPR 6501	4	Advanced Practice Rotations PHPR 6506	4
Advanced Practice Rotations PHPR 6502	4	Advanced Practice Rotations PHPR 6507	4
Advanced Practice Rotations PHPR 6503	4	Advanced Practice Rotations PHPR 6508	4
Advanced Practice Rotations PHPR 6504	4	Advanced Practice Rotations PHPR 6509	4
Advanced Practice Rotations PHPR 6505	4		

ONU Co-Curricular

- Competence in Standard 4 elements, and some of the affective domain-related elements of Standard 3 may be well served by student involvement in experiences that complement, augment, and/or advance what is learned in the formal didactic and experiential curriculum
- Such experiences are termed 'co-curricular'
- Co-curricular activities and experiences can be developed by the college or school or by student professional organizations or external groups, such as local or state pharmacy associations.
- Co-curricular experiences linked/mapped to one or more educational outcomes in Standards 1–4 are the most useful to students so that they can evaluate their development needs in required areas and seek experiences to grow professionally

ACPE "Practice Ready"

- Standard 24.3 (ACPE 2016)
- "24.3. Student achievement and readiness–The assessment plan measures student achievement at defined levels of the professional competencies that support attainment of the Educational Outcomes in aggregate and at the individual student level.
- In addition to college/school desired assessments, the plan includes an assessment of student readiness to:
 - Enter advanced pharmacy practice experiences
 - Provide direct patient care in a variety of healthcare settings
 - Contribute as a member of an interprofessional collaborative patient care team."

Capstone Course at ONU

- Designed in 1991 for those students tracking into the PharmD degree rather than completion of the BSpH
- Modified in 1998 as part of the transition from a BSpH to a PharmD (ACPE mandatory switch to all PharmD in 2000)
- Course was designed to prepare students for APPE
- Initially designed as a full 10 week quarter until semester transition (9 quarter hours)
- Semester transition resulted in a 6 credit hour course offered during the last 8 weeks of spring semester of P5 year

Capstone Course Objectives

- Designed for the student to utilize prior accumulated pharmacy education and apply the learned principles to organizing and synthesizing relevant information to describe, optimize, and critique drug therapy
- Advanced pharmacy practice experience (APPE) preparedness

Capstone Course Composition

- Therapeutics review
- Development and evaluation of projects likely encountered on APPE
- Introduction to new, advanced material

Summative and Formative Evaluations

	Individual	Group
Written	<ul style="list-style-type: none"> • Written journal club assignment • Individual SOAP notes • Professional written communication 	<ul style="list-style-type: none"> • New drug review paper
Verbal	<ul style="list-style-type: none"> • Verbal case presentation • Verbal journal club discussion • Patient counseling with documentation • MTM session with documentation • OSCE 	<ul style="list-style-type: none"> • Disease state review • New drug review presentation
Examinations	<ul style="list-style-type: none"> • Post-comprehensive • Drug product • Final 	
Other	<ul style="list-style-type: none"> • Group/peer/self-evaluation • Interprofessional education (IPE) survey • Preparedness survey completion • Professional meeting attendance • MTM and ACLS certification 	<ul style="list-style-type: none"> • IPE session

Student Outcomes

- Objectives mapped to:
 - CAPE outcomes (2013)
 - ACPE Educational Outcomes 1-4 (2016)
 - ACPE Appendix 1 (2016)

Student Outcomes Mapped

- Example: Professional written communication assignment
 - Retrieve, evaluate, and apply current drug information to respond to requests for medication-related information and clearly communicate a complete, accurate, and relevant response.

- CAPE outcomes
 - 3.1-Problem solving
 - 3.2-Educator
 - 3.3-Patient advocacy
 - 3.6-Communication
 - 4.4-Professionalism

Student Outcomes

- Example: Professional written communication assignment
 - Retrieve, evaluate, and apply current drug information to respond to requests for medication-related information and clearly communicate a complete, accurate, and relevant response.

- ACPE standards 2016—Appendix 1 and Educational Outcomes
 - Clinical chemistry
 - Pharmacology
 - Ethics
 - Pharmacoeconomics
 - Professional communication
 - Professional development
 - Patient assessment
 - Pharmacotherapy (including self-care)

Assessment Plan

Course evaluation

- Preparedness survey
- Focus group
- Formal course evaluation

Foundational knowledge

- Examinations

Assessment Plan

Self-evaluation

- Counseling evaluation
- Journal club evaluation
- Case evaluation
- Preparedness survey

Peer-evaluation

- Presentation evaluation
- Journal club evaluation
- Case evaluation

Assessment Plan

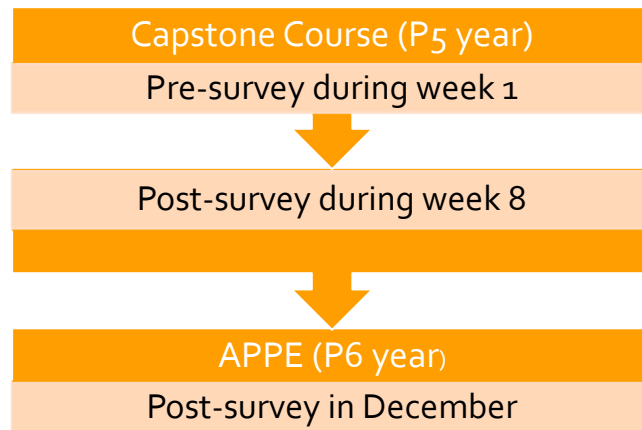
Skill development

- Rubric-based evaluation

Professionalism

- Group evaluation

Preparedness Survey



Preparedness Survey: 2018 graduates

- All enrolled students (n=146) responded to P5 pre-survey
- 94.5% of enrolled students (n=138) responded to P5 post-survey
- Sixty students responded to APPE survey (41.1%)

Preparedness Survey Data

	Pre	Post	APPE
I feel prepared for APPE/I felt prepared for APPE following completion of capstone	41.2%	94.9%*	90%
I have adequate therapeutic knowledge to provide patient care	54.8%	85.5%*	78.4%
I feel confident in my ability to successful on APPE	67.6%	93.5%*	100%**
I feel confident in my ability to apply knowledge to practical applications	48.6%	85.5%*	88.4%**
I feel confident in my therapeutic knowledge	39.2%	71%*	91.7%

Data presented = percent that agreed or strongly agreed with the statement

*Significant improvement pre v. post course

**Significant improvement post course v. APPE

Preparedness Assessment

- Perceptions on readiness and confidence improved significantly during the course
- High level of agreement about course value
- APPE survey provides additional information about course value and student confidence/readiness

Preparedness Assessment

- Students have low confidence in APPE-readiness at the start of the course
- Inform course level improvement and program assessment
 - Need to develop student's ability to think critically and apply knowledge prior to capstone

CAPSTONE COURSE

OSCE

Capstone Objective Structured Clinical Exam (OSCE)

- Students are assigned a “patient” and complete a patient interview
- Students are provided with background information regarding the patient prior to the interview
- Following the patient interview, students will develop a recommendation for the patient’s concern, which is presented to a “provider”
- Students will then counsel the patient on the recommendation.

Capstone Objective Structured Clinical Exam (OSCE)

- Graded on a pass/fail scale using rubric criteria from similar assignments
- Students were remediated if failing the initial attempt after individual review with a faculty member
- Students must pass the assessment prior to completing the course
- Utilized P4 students as “patients”
- Integrate skills assessed formatively prior in the course as a “stand-alone” assignments

Capstone Objective Structured Clinical Exam (OSCE)

- Implemented in 2017
 - All students passed the OSCE assessment with 9 students needing remediation (6.2%)
 - Only 2 of these 9 students required remediation of other skill-based assignments earlier in the course

Impact of Assessment Days in Capstone

- 2017 cohort
 - Had exposure to assessment days in their P5 year
 - 41.2% agreed or strongly agreed they felt APPE-ready compared to 23.2% in the prior year at the start of the capstone course
 - 48.6% agreed or strongly agreed they felt confident in my ability to apply knowledge to practical applications at the start of the capstone course compared to 47.7% in the prior year
 - 9 students (6.2%) needed OSCE remediation

Impact of Assessment Days in Capstone

- 2018 cohort
 - Had exposure to assessment days in P4 and P5 years
 - 42.2% agreed or strongly agreed they felt APPE-ready at the start of the capstone course
 - 52.4% agreed or strongly agreed they felt confident in my ability to apply knowledge to practical applications at the start of the capstone course
 - No OSCE remediation
- Current P3 class is the first cohort to benefit from these exercises during their entire didactic education

Future Directions

- Assess impact of lower-level student participation
- Development of course activities if student confidence and abilities grow
- Challenge of closing the loop

ASSESSMENT DAY DESIGN AND IMPLEMENTATION

Assessment Day

- Assessment Committee recommendation to create assessment days
- Each year (P1 to P5) is mapped to educational outcomes with the goal of enhancing/evaluating “practice-ready”
- Some outcomes are longitudinal
- Other outcomes by class/knowledge at that point
- Role-play with faculty/APPE students
- 5th year has paid actors during Special Populations course
- Some require phone call
 - Some to student
 - Others require student to call

Assessment Days

- All levels and all semesters evaluate communication (verbal and nonverbal, organization and flow, and professionalism)
- P1 (Spring semester only)—interaction with provider, HIPPA, reason for encounter, med allergies, patient history
- P2
 - Fall—interaction with patient with new prescription, allergies, omissions and errors
 - Spring—Rx/Label/Profile, omissions and errors,
- P3
 - Fall—SCHOLAR MAC self-care counseling and math IV infusion
 - Spring—Patient counseling related to prescription product/verification of meds
- P4
 - Fall—patient counseling case outpatient screening (BP, glucose, lipids) and patient history
 - Spring—team exercise with med error in hospital with state board of pharmacy involved, nursing involved (IPE)
- P5
 - Fall—is an unknown situation
 - Spring—special populations patient and teamwork, MTM with patient interview and developing medication action plan
 - Spring capstone—OSCE

The First Assessment Day

- P5 Fall 2016
- Outcomes included professionalism, communication, interviewing skills, problem-solving based on an unknown
- Student given only partial information
- Instructor/evaluator given additional information
- Student required to interview, analyze information, and provide a recommendation
- Pass or remediate (not graded and not tied to a course)
- Evaluator used design rubrics designed by assessment team
- WHAT HAPPENED?
- Lots of tears!
- Faculty were a bit shocked!
- What we learned!

The First Assessment Day

- Handout
- Case of serotonin syndrome (unknown)
- Students had been exposed in the didactic curriculum to serotonin syndrome including exam questions.
- Rubric was time consuming for the faculty plus faculty give immediate feedback
- Results:

- Changes:
 - Re-evaluate the rubric
 - Add simple yes/no questions for faculty

2018 Assessment Day: P5 Unknown

- Handout
- Noted changes
- One column rubric
 - Why are we using?
 - Provided a means to really get to the outcomes
 - Easier for the faculty to use/assess

P3 Assessment Day Example

- Provide feedback in class to entire class
- This is now becoming the model
- Individual feedback immediate
- Individual feedback rubric
- Individual feedback remediation if necessary
- Class feedback
 - Powerpoint with statistics (P3)
 - Breakout groups to discuss case (P5)

P₃ ASSESSMENT DAY: EXAMPLE OF THE REPORT DONE FOR THE CLASS DURING CLASS

Assessment Goals

What we were assessing

- the student will be required to use the Scholar-MAC approach.
- Students are expected to know doses for medication recommendations
- Community case will assess 1. patient communication (Scholar-MAC) and 2. ability to recommend product to patient (including dose) OR...refer patient to doctor
- Hospital case will assess 1. inter-professional communication and 2. ability to perform hospital specific pharmacy calculation

Statistics

- 33% will need to practice again
- S—4% missed
- C—11.4% missed
- H—not assessed
- O—3.4% missed
- L—14.8% missed
- A—17% missed
- R—41.7%

Statistics

- M—18.2% missed
- A—22.7% missed
- C—18.2% missed
- Dose—35.2% missed
- Recommendation—25%
- Bolus—35.2% missed
- Maintenance dose—43.2%

Community Case 1:

- Community
 - HS is a 60yo female, who has been having trouble going to the bathroom multiple times/day.
- HPI: (Student to ask SCHOLAR questions)
 - Urinating 10 times/day
 - Trouble sleeping at night, because she is getting up at night to pee
 - This is the first time experiencing these problems
- Medications: Centrum Silver multivitamin daily
- Allergies: NKDA
- Conditions: otherwise healthy
- SH: denies alcohol, tobacco, or drug abuse (student doesn't need to ask this)
- FH: nonsignificant (student doesn't need to ask this)

Community Case 1: Answer

- Correct recommendation: (patient is a candidate for OTC therapy)
 - Oxytrol patch
 - Apply to abdomen, hips, or buttocks every 4 days
 - Expect symptom improvement within 2 weeks
 - Side effects: dry mouth, constipation, skin irritation

Community Case 2

- JA is a 70yo male, retired teacher, who presents with complaints of worsening allergy symptoms. Patient does not want any nasal product to spray up his nose – he is in a lot of pain from a recent broken nose, and would prefer a pill.
- HPI: (Student to ask SCHOLAR questions)
 - Complaints of runny nose, sneezing, watery eyes
 - No congestion is present with the symptoms
 - Haven't tried anything yet for allergy symptoms
 - No real history of allergies in the past; several years ago took Benadryl® and it worked but made him sleepy during day
- Medications: Flomax 0.4mg daily
- Allergies: NKDA
- Conditions: BPH, several prostate problems, and urinary issues. Was recently playing with his grandson and has a broken nose.
- SH: denies alcohol, tobacco, or drug abuse (student doesn't need to ask this)
- FH: nonsignificant (student doesn't need to ask this)

Community Case 2: Answer

- Correct recommendation: (patient is NOT a candidate for an oral allergy/antihistamine medication due to BPH/prostate problems)
 - Refer to provider

Community Case 3

- AR is a 45yo male who comes to your pharmacy with complaints of congestion. Patient does not want a nasal spray due to his bloody noses and would prefer a pill.
- HPI: (Student to ask SCHOLAR questions)
 - Congestion present for two days now
 - Hasn't tried anything right now for symptoms
 - No other cold or allergy symptoms present, just congestion
 - Having a hard time breathing through nose; uncomfortable
- Medications: Lisinopril 40mg daily
- Allergies: NKDA
- Conditions: uncontrolled HTN for 5 years (current BP is 160/98 mmHg), severe bloody noses throughout lifetime
- SH: AR is a truck driver and drives 14 hours/day. He is worried about products making him sleepy. Denies alcohol, tobacco, or drug abuse. (student doesn't need to ask this)
- FH: nonsignificant (student doesn't need to ask this)

Community Case 3 Answer

- Correct recommendation: (patient is NOT a candidate for an oral decongestant b/c of uncontrolled HTN)
 - Refer to provider

Community Case 4

- DB is a 65yo female who presents with mild muscle pain after gardening yesterday. Patient does not like the smell of topical products, would like an oral medication.
- HPI: (Student to ask SCHOLAR questions)
 - Arms and back are a little sore, no other complaints
 - Hasn't tried anything yet for the pain
 - No fever or other problems present; just mild muscle pain
 - Resting makes it feel better, but DB is an active 65y/o
- Medications: Prilosec 20mg daily
- Allergies: aspirin (hives, difficulty breathing)
- Conditions: discharged from hospital with recent GI bleed
- SH: denies alcohol, tobacco and drug abuse (student doesn't need to ask this)
- FH: nonsignificant (student doesn't need to ask this)

Community Case 4 Answer

- Correct recommendations: (patient is a candidate for OTC therapy)
 - Tylenol 325mg
 - Max 9 tablets/day
 - One tablet (325mg) q4-6hprn pain...or...
 - Two tablets (650mg) q6hprn pain
 - Tylenol 500mg
 - Max 6 tablets/day
 - One tablet (500mg) q4-6hprn pain
 - Self-care max dose ~3g/day
 - Interval can vary as long as the TDD does not exceed self-care max dose – should be q4-6hprn for pain.

Hospital Case Comments

- Algorithm selection
- Math
- Bolus Dose
- Maintenance Dose
- Is there a maximum dose?

Hospital Case 1

- HS fell in the middle of the night while getting up to go to the bathroom. She presented to the hospital with a horrible bruise on her leg and was diagnosed with a DVT. MD decided to initiate heparin. RN is calling you for an initial Heparin bolus dose (in units) as well as the maintenance dose (in ml/hr) for this new heparin patient. The hospital's standard Heparin IV bag used for maintenance infusion is 25,000 units of Heparin in 500ml D5W.
- Height: 5'5"
- Weight: 160lbs.
 - Student should use DVT protocol-round answers to whole numbers

Hospital Case 2

- JA was playing with his grandson when he had sudden chest pain. He was diagnosed with an MI. MD decided to start heparin. RN is calling you for an initial Heparin bolus dose (in units) as well as the maintenance dose (in ml/hr) for this new heparin patient. The hospital's standard Heparin IV bag used for maintenance infusion is 25,000 units of Heparin in 500ml D₅W.
- Height: 5'9"
- Weight: 200lbs
 - Student should use Cardiac protocol-round answers to whole numbers

Hospital Case 3

- AR presented to the hospital last night with a DVT after sitting in his truck for a particularly long shift. MD started heparin. RN is calling with a PTT result of 46 asking for dose adjustment recommendations. The current maintenance Heparin dose for AR is at running at 2000 units/hr which = 40ml/hr. What is the correct recommendation for the re-bolus (in units) as well as the new maintenance dose rate (in mL's/hr)? The hospital's standard Heparin IV bag used for maintenance infusion is 25,000 units of Heparin in 500ml D₅W.
- Height: 6'2"
- Weight: 250lbs
 - Student should use DVT protocol-round answers to whole numbers

Hospital Case 4

- DB presented to the hospital with chest pain after gardening yesterday. MD started heparin for MI. RN is calling with a PTT result of 38 asking for dose adjustment recommendations. The current maintenance Heparin dose for DB is running at 709 units/hr which = 14ml/hr. What is the correct recommendation for the re-bolus (in units) as well as the new maintenance dose rate (in mL's/hr)? The hospital's standard Heparin IV bag used for maintenance infusion is 25,000 units of Heparin in 500ml D5W.
- Height: 5'2"
- Weight: 130lbs
 - Student should use Cardiac protocol –round answer to whole numbers

TAKE AWAY

Process

- Tally results
- Report to faculty, to students, to assessment committee
- Recommendations generated to help “close the loop”
- Track cohorts longitudinally
- Look at capstone OSCE results
- Remediate students who “need to practice again”
- Summary report attached in packet (handout)

Students

- Requested to do more of this type of assessment
- They liked the practice and the application to more “real world” situations
- Initial nervousness has diminished (less tears) with the understanding of how the assessment days work and the purpose
- Students like the feedback
- Interesting to listen to the students talk about the case later
- Allows issues to be brought into a case that is related to work experience (not all intern anymore), so insurance issues, diversity issues
- Found that students will fall back on what they know in the face of unknowns

Faculty

- Groaning stage
- After the first P5 assessment day, had buy in
- They could see first-hand how the students performed when challenged with a difficult problem
- Realized that the students were not thinking of themselves as pharmacists and health care professionals—not necessarily looking at the big picture when it came to patient needs (falling back on what they know)
- Faculty leave assessment day with great ideas for changes in their courses/modules to give the students more practice
- Faculty requested that the students get results in class
- Faculty have incorporated this type of assessment within their courses in addition to assessment day (more practice)
- Some have added a verbal exercise as part of the final exam
- Faculty requested to simplify the rubric (are they competent—yes or no)

Who does the work (i.e. good news—we all do)?

- Module/Level Faculty
 - Each level works together to create cases, etc
 - All faculty help with evaluations on the day no matter the level
 - Faculty provide course time within the course for a complete day of assessment
 - Faculty teams evaluate data and consider course/curricular changes
 - Director of Assessment helps with rubrics/ideas on teams
- Assessment Committee
 - Reading results
 - Tracking cohorts
 - Interacting with faculty for curricular change
 - Providing feedback to curriculum committee
 - Includes data for University Assessment reports from college as well as ACPE AAMS and self-study data
- Curriculum Committee
 - Director of Assessment sits on both committees and reports results to curriculum committee
 - Mapping of curriculum
 - Mapping of assessment days
 - Mapping to Entrustables

QUESTIONS!

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