Beyond Grades: Assessing Individual Student Achievement of Learning Outcomes

University of Colorado Skaggs School of Pharmacy & Pharmaceutical Sciences
Introductions

Kari L. Franson, PharmD, PhD, BCPP
Associate Dean for Professional Education

Jason M. Brunner, PhD.
Director of Assessment

Ralph J. Altiere, PhD
Professor and Dean
Program Outcomes

1. Review methods for assessing attainment of learning outcomes at the individual student level.

2. Discuss implications of each assessment method as they relate to program, curricular, and student outcomes.

3. Develop a basic assessment plan that could be implemented at your home institution.
Program Agenda

- 30 minute discussion introducing the topic.
- 35 minute session to collaboratively develop an assessment approach that can be used at your institution.
- 25 minutes to share and discuss approaches.
Purpose of Assessment

1. **Assessment OF learning**
   » Summative and meant to grade/certify achievement

2. **Regulatory Requirement**
   » **ACPE STANDARD 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

3. **Assessment FOR learning**
   » Support and advance student learning
Current Environment

- MAPPING – LOTS and LOTS of Mapping

Professional Competencies
- Regulators
- Professional Organizations

Program Educational Outcomes
- Administration
- Faculty; Tracks
- Clinical Partners

Course Outcomes
- Course Leads
- Instructors
PHRD 7095  
Pharmacotherapy 7  
Course Syllabus

Course ABOs are:

- Collect appropriate patient data to make an assessment (ABO #1)
- Conduct a patient-centered assessment (ABO #2)
- Design, implement, evaluate and adjust a patient-centered pharmacy care plan (ABO #3)
- Retrieve, evaluate, and utilize professional and lay information in a critical and scientific manner that enhances the practice of pharmacy (ABO #8)
- Exhibit the highest standards of professional and ethical behavior in pharmacy practice (e.g., honesty, integrity, tolerance, confidentiality, care and compassion, respect for others, responsibility) (ABO#11)
- Maintain professional competency and professional stewardship (ABO #12)
- Communicate effectively using multiple strategies to improve health outcomes (ABO#14)
Grading

- Grading for the course will be weighted as described below:
- Quizzes 1-5: 10%
- Activity Evaluation: 15%
  - Chemotherapy Order Activity: 5%
  - Integrated Comprehensive Case: 10% (Written: 7%, Verbal 3%)
- Written Examinations: 45%
  - Each exam: 15%
- IPPE Activity: 2.5%
- Participation Evaluation: 2.5%
- Final Cumulative Examination: 25%

<table>
<thead>
<tr>
<th>Score Range</th>
<th>Grade</th>
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<tbody>
<tr>
<td>92.50-100%</td>
<td>A</td>
</tr>
<tr>
<td>82.50-86.49%</td>
<td>B</td>
</tr>
<tr>
<td>72.50-76.49%</td>
<td>C</td>
</tr>
<tr>
<td>62.50-66.49%</td>
<td>D</td>
</tr>
<tr>
<td>89.50-92.49%</td>
<td>A-</td>
</tr>
<tr>
<td>79.50-82.49%</td>
<td>B-</td>
</tr>
<tr>
<td>69.50-72.49%</td>
<td>C-</td>
</tr>
<tr>
<td>60-62.49%</td>
<td>D-</td>
</tr>
<tr>
<td>86.50-89.49%</td>
<td>B+</td>
</tr>
<tr>
<td>76.50-79.49%</td>
<td>C+</td>
</tr>
<tr>
<td>66.50-69.49%</td>
<td>D+</td>
</tr>
<tr>
<td>&lt;60%</td>
<td>F</td>
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</table>
Students are assessed and assigned grades
Feedback to the student

Bill

- Quizzes 1-5: 80%
- Activity Evaluation: 88%
- Written Examinations: 71%
- IPPE Activity: 100%
- Participation Evaluation: 76%
- Final Examination: 72%

FINAL GRADE = B-

Ann

- Quizzes 1-5: 100%
- Activity Evaluation: 82%
- Written Examinations: 91%
- IPPE Activity: 90%
- Participation Evaluation: 100%
- Final Examination: 92%

FINAL GRADE = A
# Assessment Committee Course Review

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<tr>
<th>GRADE</th>
<th>Fall 2016</th>
<th>Class 2018</th>
<th>P3 Year</th>
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<tr>
<td></td>
<td>IPD</td>
<td>SemRes</td>
<td>Phageno</td>
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<tr>
<td>A</td>
<td>131</td>
<td>147</td>
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<td>5</td>
<td>3</td>
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<tr>
<td>B+</td>
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<td>29</td>
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<td>B</td>
<td>1</td>
<td>23</td>
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<td>B-</td>
<td>6</td>
<td>10</td>
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<tr>
<td>C</td>
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</tr>
<tr>
<td>D+</td>
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<td>D</td>
<td>2</td>
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| % ≥ C- | 98.7 | 99.3 | 99.4 | 99.4 | 99.4 | 99.4 | 95.5 |
| GPA   | 3.81 | 3.96 | 3.41 | 3.67 | 3.68 | 3.07 | 2.82 |
| # students | 155 | 153 | 154 | 154 | 154 | 155 | 155 |
Final Cumulative Examination
Final Cumulative Examination

- ABO2: Conduct a patient-centered assessment (68%)
- ABO3: Design, implement, evaluate and adjust a patient-centered pharmacy care plan (77%)
- ABO14: Communicate effectively using multiple strategies to improve health outcomes (89%)

- ABO2: Conduct a patient-centered assessment (97%)
- ABO3: Design, implement, evaluate and adjust a patient-centered pharmacy care plan (94%)
- ABO14: Communicate effectively using multiple strategies to improve health outcomes (59%)
## Across the Curriculum

<table>
<thead>
<tr>
<th>Course</th>
<th>Bill Course Grade</th>
<th>Course</th>
<th>Ann Course Grade</th>
<th>Course</th>
<th>ABO14: Communicate effectively using multiple strategies to improve health outcomes</th>
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</thead>
<tbody>
<tr>
<td>PHRD5065 – Patient Centered Comm 1</td>
<td>A</td>
<td>NA</td>
<td>C</td>
<td>NA</td>
<td>62%</td>
</tr>
<tr>
<td>PHRD5965 – Patient Centered Comm 2</td>
<td>B-</td>
<td>NA</td>
<td>C+</td>
<td>NA</td>
<td>68%</td>
</tr>
<tr>
<td>PHRD 7095 – PT 7</td>
<td>B-</td>
<td>68%</td>
<td>A</td>
<td>68%</td>
<td>69%</td>
</tr>
<tr>
<td>PHRD 7995 – Capstone</td>
<td>B</td>
<td>77%</td>
<td>A</td>
<td>63%</td>
<td>63%</td>
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<tr>
<td>APPE Rotation 1</td>
<td>F</td>
<td>F</td>
<td>F</td>
<td>F</td>
<td>F</td>
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How are pharmacy programs moving towards ASSESSMENT FOR LEARNING?

1. Milestone Evaluation
   A. Capstone Courses and/or Practicums
   B. Cumulative Evaluations

2. Systematic mapping and tracking of learning outcomes
Capstone Courses and Clinical Experiences

- Linkages from experiential-to-didactic-to-APPE rotations
- Formative and summative assessments
  - OSCEs
  - Clinical experiences
  - Case studies
  - Written and verbal exams
- Grades indicate preparedness
  - Learning outcome assessment
  - Remediation
Capstone Courses and Clinical Experiences

APPE-Readiness

- P3 Spring Adv. IPPE
  - Clinical Skills
  - Professionalism
  - Communication

- P3 Spring Capstone
  - Clinical Skills (OSCE, Exams)
  - Knowledge (Exams)

Practice Ready

- P4 Intersession
  - Affective Domain
  - Clinical Knowledge
  - Drug Information
# Capstone Courses and Clinical Experiences

<table>
<thead>
<tr>
<th>Advanced IPPE</th>
<th>Clinical Capstone</th>
<th>Intersession</th>
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</table>
| • 6-week clinical rotation that mimics a fourth year rotation.  
• Students engage directly with patients and members of the care team.  
• Graded on same A-F scale with same outcomes as APPE rotations with adjusted performance standards.  
• Complete assignments for Capstone.  
  • Patient Education  
  • Drug Information  
  • Patient Cases | • 9-week course  
• Students practice and refine skills through individual and collaborative activities using clinical patient cases and activities relevant to clinical pharmacy practice.  
• Prepares students for P4 APPEs by simulating real patient care environments and activities.  
  • Written and Verbal Exams  
  • OSCEs  
  • Patient Cases | • <1 week course for P4 students.  
• Occurs before APPE 6 & 7 to provide opportunities for improvement.  
• Integrates APPE experiences for faculty feedback and assessment to provide a near final assessment.  
• Practical application of  
  • Patient cases  
  • Clinical pearls  
  • Drug information |
**Cumulative Evaluations**


<table>
<thead>
<tr>
<th>105 (84%) schools responded</th>
<th>Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 50% have cumulative assessment programs</td>
<td>• Written &amp; Oral (n=15)</td>
</tr>
<tr>
<td>• 12% were in development</td>
<td>• Only a written (n=29)</td>
</tr>
</tbody>
</table>

**Timing of Cumulative Exam**

<table>
<thead>
<tr>
<th>Prior to APPE rotations (n=18)</th>
<th>Only an oral (n=6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Every didactic year (n=19)</td>
<td></td>
</tr>
<tr>
<td>Every semester (n=7)</td>
<td></td>
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</table>

**Stakes**

<table>
<thead>
<tr>
<th>Low- &amp; High-stakes (n=18)</th>
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</thead>
<tbody>
<tr>
<td>Low-stakes (n=19)</td>
</tr>
<tr>
<td>High-stakes (n=10)</td>
</tr>
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</table>
Cumulative Evaluations: Step-Exams

Example:

- Mixed method approach to encourage students to practice continual lifelong learning and retention of the curriculum.
  - National standardized exam (Pharmacy Curriculum Outcomes Assessment) and Objectively Structured Clinical Examination
  - Annually
  - Formative in first and second years
  - Summative in third year and tied to progression to fourth year
Mapping and Tracking

- Learning outcomes are mapped to course level assessments (e.g., quizzes, exams, OSCEs, projects)
- >80% of U.S. pharmacy programs are using software (e.g., ExamSoft) to track learning achievement
- Data is aggregated, reported, and reviewed at:
  - Student level – individual achievement of learning outcomes
  - Course level – achievement of learning outcomes for the class
  - Program – achievement of ABOs at designated intervals for the program including program year, cohort, or track
# Mapping and Tracking

## Exam Report
- Auto-generated report
- High-level exam summary
- Estimated exam quality
- Final exam distribution

## Student Report
- Sample Report B: End of exam report provided to students.
- Auto-generated report
- High-level comparison of student performance
- Break exams down by learning outcomes to help students understand where they need to focus

## Program Report
- Sample Report C: Longitudinal report used by administrators to identify student's trajectory, can be aggregated by cohort, class, or demographics.
Mapping and Tracking

- Programs are using this as a method to provide formative feedback to students and review curriculum
- Set minimum benchmarks for learning outcomes for each level
  - Separate from course grades
  - Evaluated in terms of achievement and developmental opportunities
    - Advising and remediation for students
    - Evaluation of curriculum and course/program assessments
    - Curricular alignment and scaffolding
Activity

35 minute session to collaboratively develop an assessment approach that can be used at your institution that models assessment for learning.

» Focus on learning outcomes rather than grades
  ▪ Achievement and development
Activity: Questions to consider

- How will students receive the information and how should they use it; how will they monitor their progress?
- What is the role of the faculty (assessment development/oversight, advising)?
- How would the data be used at a student, course, programmatic level?
- How should remediation occur?
- What are the implications for individual courses (assessments, content, exercises)?
- What resources would be needed?