The ACOPE Standards encourage schools of pharmacy to provide an environment that fosters lifelong learning. Metacognitive activities allow learners the opportunity to think about what they know and how it should be applied, as well as plan strategies for learning what they do not know.¹

The exam autopsy provides students with a formal process to practice metacognition through reflection on exam performance. Students reviewed missed questions and categorized the rationale for missed items, identify trends in the types of questions missed and plan for future learning through reflection on their successes and opportunities for improvement.

### OBJECTIVES

**Primary Objective**

To develop and implement a multi-campus, collaborative exam autopsy process to promote metacognitive development in students.

**Secondary Objectives**

To assess the effects of the exam autopsy process on students’ confidence and perceived impact on learning learning.

To identify opportunities for procedural improvement prior to a quantitative investigation of the effects of exam autopsy on student performance.

### RESULTS

**Post-exam self-assessment survey**

<table>
<thead>
<tr>
<th>Location</th>
<th>Enrolled students, no.</th>
<th>Professional year</th>
</tr>
</thead>
<tbody>
<tr>
<td>NU-SOP</td>
<td>139</td>
<td>P2, Comprehensive Disease Management course</td>
</tr>
<tr>
<td>UAMS</td>
<td>113</td>
<td>P2, Pharmaceutics II</td>
</tr>
<tr>
<td>UAM</td>
<td>07</td>
<td>P2, Integrated module</td>
</tr>
<tr>
<td>URI</td>
<td>112</td>
<td>P1, Integrated course</td>
</tr>
</tbody>
</table>

**Effect of exam autopsy process on confidence**

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

### METHODS

**Implementation**

- Presentation to introduce metacognition theory and connect exam autopsy process with how students learn
- Modeled the practice of how to use exam autopsy with participating students
  - Introduced six types of test-taking errors²
  - Exam review conducted within 10 days of exam

- Exam autopsy form completed during review after each exam
- PESA results re-distributed to participating students using mail merge for students to use in preparation for following exam

### DISCUSSION

#### Successes

- Positive feedback from students at all schools
- Scheduled exam review sessions saved faculty time in team-taught courses by eliminating multiple one-on-one meetings during office hours
- Enhanced collaboration among faculty members in team-taught courses

#### Challenges

- Some students and faculty members did not see the value or purpose of using the exam autopsy process over the ExamSoft® Strengths and Opportunities Report
- Students felt that the information from the exam was useful, but struggled with how to apply the newly learned information to their learning
- Student participation in post-exam self-assessment surveys decreased over the duration of the semester initial use of exam autopsy
- Exam autopsy form was time-intensive, as students were unfamiliar with the process

### Future Directions

- Implement a metacognition inventory to assess impact of exam autopsy process on metacognitive development
- Encourage faculty to reference learning strategies that may help students to apply information gathered during the exam autopsy process

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¹ Popham DL. Why we need thinking to learn. Academe 2008;94:16-18.


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**REFERENCES**
