

# Does an Integrated Curriculum Lead to Improved Confidence to Practice?

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## Objective

The objective of this study is to evaluate the impact of an integrative approach with a PharmD curriculum on student confidence and attainment of terminal performance outcomes that require a strong foundation in both basic and clinical sciences.

## Background

Our 2006 ACPE reaccreditation report spurred curricular revision to move therapeutics earlier than the P3 year to "help students see the relevance of other course material offered in the early years of the program." The new curriculum's overarching goal is to incorporate basic science content and examples relevant to pharmacy practice through a multidisciplinary approach to teaching.

There are two key course series at the heart of the University of Maryland PharmD integrated curriculum. Pathophysiology, Pharmacology, and Therapeutics (PP&T) is a 27-credit, nine-course, three-semester series beginning in the spring of the P1 year. This series is a system based approach to understanding pathologic mechanisms, the relationship of these mechanisms to subjective and objective findings, disease progression, and potential targets of treatment. Integration of these concepts is emphasized in complex disease cases in the P3 Pharmacotherapy courses.

Abilities Lab is a series of 6 courses that occur each semester during the first three years of the curriculum. This course series is designed to correspond to therapeutic concepts in PP&T and Pharmacotherapy, to introduce and reinforce contemporary pharmacy practice skills necessary for advanced rotations. Self-paced activities include pre-lab readings and pharmaceutical calculations, medical terminology, and drug knowledge; live exercises include lab sessions, discussions, reflective journaling, and self-development assignments. The sequence includes Objective Structured Clinical Examinations (OSCEs), quizzes and high stakes practical examinations, and written exams to assess self-paced study.

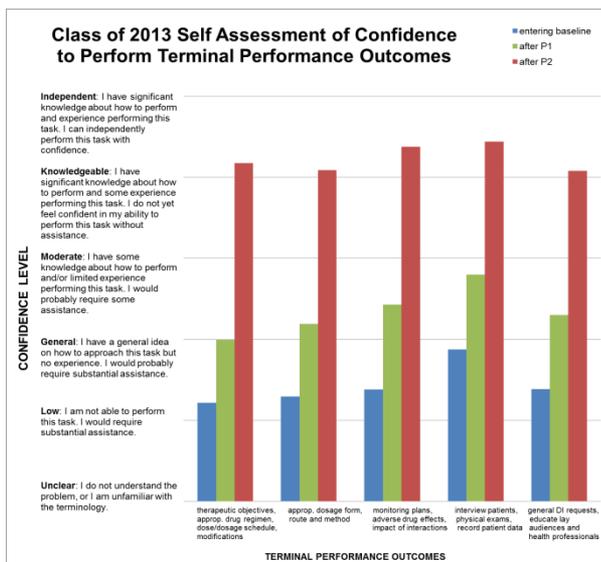
By the end of their P2 year, students have completed the three-semester PP&T series as well as four semesters of Abilities Labs. At this point in the curriculum, students are performing capably when asked to apply their basic science knowledge to assess and interpret patient data in single disease state scenarios.

## Methods

During the process of curricular revitalization, the school established 63 terminal performance outcomes or TPOs; 16 broad statements, each with sub-outcomes, that describe specific abilities that all of our graduates are expected to competently perform in order to fulfill their professional responsibilities. The TPOs form the "Strategic Plan" for our PharmD curriculum. Each course is mapped to the TPOs and builds toward attainment of these goals through its course objectives, learning activities and assessments. Data related to integrated content were then consolidated into practice themes for the purpose of this presentation.

A survey tool was developed that presents three case scenarios followed by a list of tasks that would be essential to addressing the problem(s) in each case. Each task is anchored in the school's terminal performance outcomes. Students are asked to envision themselves in each case scenario and rate their current ability/confidence to perform the tasks.

Students in the Class of 2013 were given the survey as a baseline assessment shortly after admission, in the spring of their first professional year, and in the spring of their second professional year.



## Results

The confidence scale was translated into a numerical scale of zero to five in order to calculate the average confidence level per class. Student confidence increased during their first two years of the PharmD curriculum.

## Conclusions and Limitations

- Analysis of data from the first two professional years indicates that students are gaining confidence in their knowledge and ability to perform simple therapeutic decision making by integrating knowledge of basic and clinical sciences, and are progressing toward becoming confident pharmacy practitioners.
- The new integrated curriculum was implemented in Fall 2009; therefore, we have only two years of data.
- We are still in the process of validating the confidence scale. Averages for the Class of 2014 are similar for the entering baseline and post-P1 surveys.

## Literature Review

A thorough literature search indicates the approach of incorporating teaching basic science content relevant to pharmacy practice in the early stage of the PharmD program is commonly utilized; however, there is little data demonstrating the impact of such an approach.

Current examples from schools of pharmacy include focused seminars (1) and electives focused on a single disease state (2). The literature also reveals similar examples in both nursing (3) and medical education (4). In these fields there is also a paucity of studies demonstrating outcomes or impact.

## References

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