LETTER

Integration of the Pharmacists' Patient Care Process into a Comprehensive Disease Management Course Series

To the Editor: The recent article by Gonyeau and colleagues assessed the implementation of the Pharmacist Patient Care Process (PPCP) into the learning curriculum at Northeastern University College of Pharmacy (NUCOP). The PPCP is a standardized patient assessment tool that requires the use of therapeutic knowledge and communication skills. The PPCP was incorporated into NUCOP's Comprehensive Disease Management (CDM) series coursework and student comprehension was evaluated in multiple choice examinations over four consecutive semesters during P2 and P3 years. The study concluded that students had the highest mean examination scores (a surrogate marker for understanding) on the PPCP "collect" step and the lowest mean scores on the "planning" and "follow up" steps.

Gonyeau and colleagues stated that a limitation of this study is that the PPCP was integrated in their P2 and P3 years, despite previous research demonstrating primary endpoint value of introducing the process during the P1 year.² This limitation is more significant than disclosed because the previous research also incorporated the PPCP teaching more consistently over one semester (150 hours per week), as opposed to the current methodology used. In fact, 11% of the NU COP faculty "did not have clear understanding of . . . of the five steps of the PPCP." Confusion among faculty understanding of the PPCP as a byproduct of inconsistent teaching will inflate barriers to student understanding.

PPCP introduction in the curriculum as a lecture series was another significant limitation not disclosed by the authors. Student ability to effectively recall and communicate understanding of therapeutic concepts is a vital component of the PPCP. A study by Lucas and colleagues showed that a flipped classroom (pharmacy student-led discussions) can lead to significantly higher retention rates of therapeutic concepts.³ In addition, a study by McLaughlin and

colleagues determined that a flipped classroom significantly increased both student engagement ($p<.001$) and attendance ($p=.03$).⁴ Had the PPCP been introduced in the curriculum more effectively, student understanding of the steps may have increased.

Lastly, there may be more effective means to evaluate student comprehension of the PPCP than through multiple choice examination questions. Pharmacy students with specific achievement goals, motivation, and learning styles will perform differently in various assessment types that measure understanding and depth of knowledge.⁵ Multiple choice questions lend better performance for pharmacy students with "performance-approach" goals as described within "achievement goal theory," meaning these students primarily are motivated to outperform colleagues.⁵ While difficult to accomplish and perhaps outside the scope of this study, disclosure of the pharmacy student achievement goal demographic information would increase transparency into whether survey bias is present in the authors' conclusion.

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