

Longitudinal Curriculum Design Improves Long-term Retention of Pharmacogenomics Knowledge

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BACKGROUND

Educational strategies that have been explored to improve pharmacogenomics teaching range from didactic lectures to labs that incorporate simulations and personal genotyping, each with their own strengths and limitations¹. However, course format itself has been shown to not significantly impact student's opinions on the importance of pharmacogenomics, but constant reinforcement might be needed to sustain student interest in pharmacogenomics.² Hence, we proposed and tested a longitudinal curriculum design where two teaching strategies, didactic lectures and laboratories, were used to teach pharmacogenomics across two sequential semesters.

OBJECTIVE

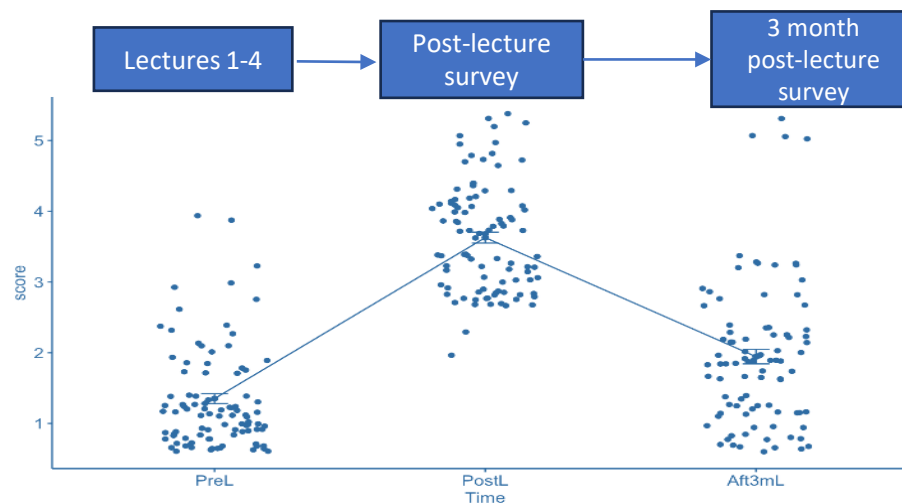
To design a longitudinal curriculum combining both lecture and lab strategies to improve students' long-term retention of clinical pharmacogenomic skills and knowledge.

METHODS

Four lectures on pharmacogenomics were offered to professional year 3 (P3) pharmacy students during the fall semester. During the spring semester, students participated in two skills laboratories followed by an implementation project. Knowledge was assessed through a written exam following the fall lectures. Students' perspectives on clinical pharmacogenomics skills prior to, immediately after, and 3 months after the lectures and laboratories were collected by electronic questionnaire using a 1-5 Likert scale.

RESULTS

Figure 1: Dot plot comparing before lecture (PreL), immediately after lecture (PostL), and 3 months after lecture (Aft3mL).



Lecture:

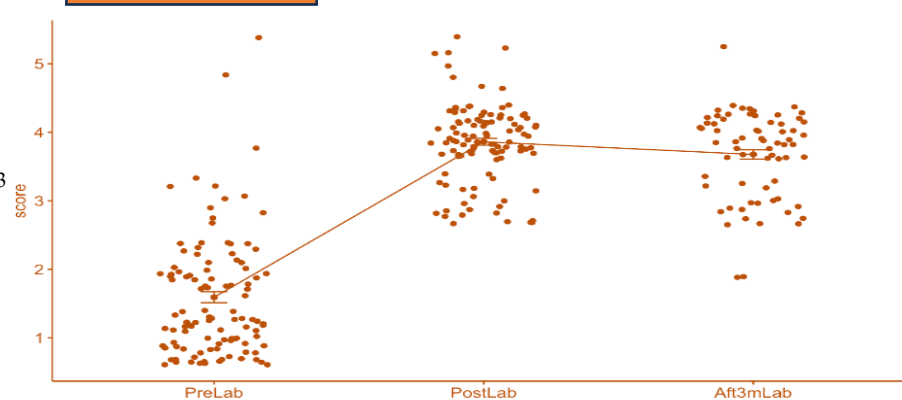
- Average exam score after 4 lectures: 79% (54%-96%)
- Immediately post-lecture: Students' perspectives improved from 1.35 to 3.63
- 3 months post-lecture: Students' perspective dropped to 1.94
- One-way ANOVA followed by Tukey multiple comparisons of means and pairwise t-test: *significant difference among all pairs (p<0.001)*

Lab:

- Immediately after two labs: Students' perspectives improved from 1.59 to 3.86
- 3 months post-lab: Students' perspective remained high at 3.68
- One-way ANOVA followed by Tukey multiple comparisons of means and pairwise t-test: *significantly lower score before lab and insignificant difference right after lab and 3 months after lab (p<0.001)*



Figure 2: Dot-plot comparing before lab (PreLab), immediately after lab (PostLab), and 3 months after lab (Aft3mLab).



CONCLUSIONS

Combination of lecture and laboratory teaching offered in two sequential semesters improves student perceptions about their clinical pharmacogenomics skills. This curriculum design not only provides long-term retention of knowledge but also could be easily adopted by other schools.

REFERENCES

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CONFLICT OF INTEREST

The authors have nothing to disclose