BACKGROUND/RATIONAL

Medical education has driven multiple innovations in curriculum, however high stakes standardized board examinations have remained universally accepted measures of minimal competency. When identifying students at risk for poor performance on high stakes exams, it is critical to focus on early identification for intervention. This study explored behaviors of students considered at-risk in their academic performance by focusing on approaches to question bank usage in relation to medical licensing examination performance.

**TrueLearn Q-Bank**

4200 Total Questions by System or by Subject
- > 2000 Questions (COMLEX-Styled)
- 2200 Questions (USMLE-Styled)

**OBJECTIVES**

This project assessed the following objectives.

1. What specific Q-Bank study/performance behaviors if any are associated with academic and COMLEX performance?
2. Do these specific Q-Bank study performance behaviors differ by quartile?
3. Do students in the academic risk quartile (bottom 25%) of class cohort demonstrate different Q-Bank study performance behaviors compared to peers?

**MATERIALS/METHODS**

A non-experimental retrospective design was used to investigate multiple metrics (Questions, Mode, Accuracy and Timing) of TrueLearn’s COMBANK Level 1 Q-Bank, representing study behaviors across three medical student cohorts at a single osteopathic medical school. Academic performance outcome measures included GPA, Quartile rank and COMLEX Level 1 score. Descriptive statistics, correlations, ANOVA and regression were completed to explore associations between Q-bank behaviors and academic performance.

| Table 5: Correlation of Q-Bank Variables and Performance Variables |
|-------------------------|---------|---------|---------|---------|---------|
|                        | GPA     | Early Timed Score | Late Timed Score | Unique Score | Total Score |
| COMLEX I               | .746**  | .497**            | .520**            | .627**       | .584**     |
| GPA                    | **       | .497**            | .505**            | .654**       | .639**     |
| Early Timed Score      | **       | **                | .627**            | .705**       | .687**     |
| Late Timed Score       | **       | **                | **                | .714**       | .660**     |

**RESULTS**

A sample of N=282 students (n=93; n=98; n=91) in cohorts 2017-19 were assessed in their 2nd year. Q-bank mean usage (m=2461; SD 1221). GPA (M=84.38; SD=3.5) and COMLEX (M=511.42; SD 97.47). Students in the bottom quartile demonstrated lower means for Questions (“Total-Q”, “Unique-Q”); Mode (“Early/Late Timed”, “Tutor”) and Time (“Aver Time per Q”). (See tables 1-4). Significant large positive correlations were identified between COMLEX and GPA and variables (“Early Timed”, “Late Timed”, “Total Unique Score” and “Total Score”) (See table 5). ANOVA demonstrated significant difference by quartile in scoring for questions in “Early Timed”, “Late Timed”, “Total Unique Score” and “Total Score” (See table 6). Regression model using both “Early/Late Timed”, “Unique Score”, “Total Score” (R²= .403(4), 273 = .46.12, p = .00). The model accounted for (40.3%-adjusted 39.5%) which represents a significant proportion of variance in the COMLEX scores.

**DISCUSSION/CONCLUSIONS**

As discussions of student loan debt and increased residency training competition grows, it is important for medical schools to identify study behaviors for academically “at-risk” students and develop interventions focused on increasing academic performance. Medical board preparation behaviors and study approaches fall into this critical category. The lower quartile group completed less timed questions both early on and late and had lower performance scores for early and late timed questions as well as on the total number of questions and total number of unique questions when compared to the quartile groups. These behaviors were also associated with academic performance (GPA and COMLEX 1).

**FUTURE STEPS**

Once identified it is the goal that early intervention can positively impact future academic outcomes for at risk students through development of enhanced curriculum and study strategies.