Project Title: Development of a Longitudinal Medical Student Advising Model to Prevent Step 1 Failure
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Background, Challenge or Opportunity: Residency match is becoming increasingly competitive as the number of US graduating medical students has grown to exceed the number of US residency spots\(^1\). Step 1 scores remain the most important indicator used by program directors in evaluating applicants for residency.\(^2\) As the University of Louisville School of Medicine curriculum transitioned away from discipline-based courses, faculty and staff expressed the need for a more formal advising structure to monitor student outcomes and effectively predict which students need intensive intervention prior to taking Step 1.

Purpose/Objectives: To develop an internal, systematic, proactive, data-driven advising system and personnel to individually assess each student and develop a plan for their success on Step 1.

Methods/Approach: A Step 1 task force was convened that included staff and faculty from the curriculum, financial aid, and student affairs offices as well as students. A multifaceted plan was designed that included 1) development of a standing Student Progress Committee, 2) development of a longitudinal database and statistical risk assessment model, 3) new school policies that require students reach a threshold score on NBME self-assessments prior to taking Step 1, and 4) a new Educational Specialist position to provide data-based advising to all students as well as intensive, individualized counseling and follow-up to the highest risk students.

Outcomes and Evaluation Strategy: A position description for the Educational Specialist has been written and interviews are complete. The Student Progress Committee’s membership has been delineated and its chair identified. Using the Class of 2018 cohort’s Step 1 results, 25 variables that indicate student success or distress were statistically analyzed, and a multivariate model was created. The model effectively predicted Step 1 Score and predicted pass vs failure results with a sensitivity of 82%, specificity of 99%, positive predictive value of 99%, and negative predictive value of 100%. This statistical model and process will be piloted with the Class of 2019 in the Spring 2017. Further adjustment of the statistical model and the required threshold score on NBME self-assessment are anticipated using the pilot data from the Class of 2019. Evaluation of effectiveness of the multifaceted intervention will be measured by comparing Step 1 percent passing and mean Step 1 score to historical norms. For high-risk students, the cost of remediation will be evaluated, including length of additional time needed for Step 1 remediation for high-risk students and additional cost incurred to student for review programs or additional tuition charges. Over time, trends in these outcomes will assist in evaluating the effectiveness of the program.

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Introduction

- The University of Louisville School of Medicine (ULSOM) has a stated goal of 100% residency match.
- In 2017, 6% of U.S. seniors failed to match into a residency.\(^1\)
- Step 1 scores remain the most important indicator used by program directors in evaluating applicants for residency and interviews.\(^2\)
- As ULSOM curriculum evolved, new data points emerged that required study to assess their relationship to Step 1 performance.
- Students benefit from expert advising to assess their probable Step 1 performance and to make informed decisions.
- To improve Step 1 performance and achieve a 100% residency match, a new approach was needed to better risk stratify and advise students.

Objective

The purpose of this project is to develop a ULSOM longitudinal, data-driven advising system that assesses each student and supports a 100% Step 1 passage for all first time test takers.

Methods

A Step 1 task force was convened to improve student advising and preparedness for Step 1 and developed four major strategies:

1. Created a Student Progress Committee to better track students longitudinally.
2. Studied available data outcomes to create statistical risk assessment model and interactive database.
3. Required a minimum score on NBME self-assessment prior to taking Step 1.
4. Developed a new Educational Specialist position to provide improved advising to all students and intensive, individualized counseling/follow-up to the highest risk students.

Results

- 25 variables from the Class of 2018 were statistically analyzed and a multivariable model was created to indicate student success or distress.
- The model effectively predicted Step 1 Score and predicted pass vs. failure results with a sensitivity of 82%, specificity of 99%, positive predictive value of 99%, and negative predictive value of 100%.
- The Educational Specialist position has been hired and will advise Class of 2019 on Step 1 success using the model.
- The Student Progress Committee’s membership and charter has been delineated and its chair identified. It will meet to review Class of 2019 prior to Step 1.
- High risk students have been offered additional advising, coaching, and elective time to prepare for Step 1.

Future Study

- This model will be validated with the Class of 2019’s Step 1 results in Fall 2017.
- Further adjustment of the model and the required threshold score on NBME self-assessment are anticipated.
- Evaluation of effectiveness will include the following measures of success:
  1. Comparison of Step 1 percent passing and mean Step 1 score to historical norms.
  2. Evaluating the cost of remediation for high-risk students, including length of additional time needed for remediation and additional cost incurred for review programs or tuition charges.
  3. Comparing match rate for the Class of 2019 and later cohorts to historical norms.

Bibliography


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