Student Outcomes in a Summer Pipeline Anatomical Sciences Course as a Predictor of Performance in Gross Anatomy in a Condensed Medical School Curriculum

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Collaborative Team Members

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Underrepresented in Medicine

- “Underrepresented in medicine means those racial and ethnic populations that are underrepresented in the medical profession relative to their number in the population.” (AAMC)

- Includes underrepresented minorities (URM) – African-Americans or blacks, Latinos and Native Americans, and those from disadvantaged backgrounds.

Alterating the Course: Black Males in Medicine (AAMC, 2015)
http://www.aamcdiversityfactsandfigures2016.org
Summer Program for Future Doctors (SPFD)

- Established in 1978
- 8-week program includes >220 hours of medical curriculum:
  - Anatomical Sciences, Biochemistry, Neuroscience and Physiology
- Non-matriculating and matriculating participants
- URM, disadvantaged and non-traditional students are encouraged to apply
The Link Between SPFD, Anatomy and BSOM Student Performance

- **Strong performance / consistent improvement in SPFD**
- **Increased probability of admission into medical school**
- **Performance in Medical Gross Anatomy and Embryology at BSOM**
- **Predictor of USMLE Step 1 Scores**

Fletcher and Musick, FASEB 2013, Vol. 27
The Link Between SPFD, Anatomy and BSOM Student Performance

Strong performance / consistent improvement in SPFD

Anatomical Sciences

Performance in Medical Gross Anatomy and Embryology at BSOM

Increased probability of admission into medical school

Predictor of USMLE Step 1 Scores

Fletcher and Musick, FASEB 2013, Vol. 27
Research Questions

1. Does performance in SPFD Anatomical Sciences correlate with outcomes in the first-year BSOM Medical Gross Anatomy and Embryology course?

2. In Medical Gross Anatomy and Embryology, do students that participated in SPFD have higher final course averages than BSOM cohort peers who did not participate in the program?
Study Design

- **BSOM Medical Gross Anatomy and Embryology**
  - 16-weeks long course taught in Block 1 of 1st year
  - Human gross anatomy (lectures, flipped classrooms and cadaver dissection), human embryology (lectures) and radiology (flipped classrooms)

- **SPFD Anatomical Sciences**
  - Taught throughout the SPFD program (8-weeks)
  - Human anatomy lectures + anatomy laboratories (prosected specimens)
  - Histology lectures + 2 laboratories (starting in 2017)
1. Does Performance in SPFD Anatomical Sciences Correlate with Outcomes in Medical Gross Anatomy and Embryology?


<table>
<thead>
<tr>
<th>Year</th>
<th>Course</th>
<th>Correlation</th>
<th>Significance (2-tailed)</th>
<th>SPFD Anatomical Sciences</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>Medical Gross Anatomy and Embryology</td>
<td>R</td>
<td>0.026</td>
<td>0.729*</td>
</tr>
<tr>
<td>2017</td>
<td>Medical Gross Anatomy and Embryology</td>
<td>R</td>
<td>0.248</td>
<td>0.345</td>
</tr>
<tr>
<td>2018</td>
<td>Medical Gross Anatomy and Embryology</td>
<td>R</td>
<td>0.025</td>
<td>0.667*</td>
</tr>
<tr>
<td>2016-2018</td>
<td>Medical Gross Anatomy and Embryology</td>
<td>R</td>
<td>0.001</td>
<td>0.564*</td>
</tr>
</tbody>
</table>
Moderate, positive correlations between student performance in SPFD Anatomical Sciences and Medical Gross Anatomy and Embryology (*= p≤0.05).
2. In Medical Gross Anatomy and Embryology, do students that participated in SPFD (SPFD-P) have higher final course averages than BSOM cohort peers who did not participate in the program (SPFD-NP)?
Medical Gross Anatomy and Embryology - Comparison of Final Course Averages

A.

<table>
<thead>
<tr>
<th>BSOM Cohort (Entering Year)</th>
<th>SPFD-P</th>
<th>SPFD-NP</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>86.68  (n=9)</td>
<td>80.88 (n=69)</td>
</tr>
<tr>
<td>2017</td>
<td>86.24  (n=13)</td>
<td>84.87 (n=66)</td>
</tr>
<tr>
<td>2018</td>
<td>85.33  (n=11)</td>
<td>83.74 (n=66)</td>
</tr>
<tr>
<td>2016-2018</td>
<td>86.06  (n=33)</td>
<td>83.13 (n=201)</td>
</tr>
</tbody>
</table>

p = 0.053
Discussion

❖ Results of this study suggest that achievement in SPFD Anatomical Sciences, as measured by final course averages, serves as a predictor of performance in Medical Gross Anatomy and Embryology in a condensed medical school curriculum.

❖ Future areas of investigation include:
  ❖ Use of performance in SPFD Anatomical Sciences to gauge the need for early academic intervention for incoming BSOM medical students
  ❖ Impact of SPFD on underrepresented learners as medical students
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