

Opening Doors to Medicine: A Research Perspective on the Early Exposure of High School Seniors to Medical and Surgical Practices

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Background

- The training of an individual to practice medicine has always been a major challenge particularly with issues such as diversity, ethics, organ failure and threat to life.
- We hypothesized that the best way to attract and prepare future generations for medical careers is to provide an opportunity for students to experience the hospital/surgical environment as an adjunct to their secondary education.
- To determine whether our belief in the positive effects of early exposure to medical and surgical practice was supported by outcomes, Dr. Herbert Dardik began a program in 1998 that enables students at senior levels in high school to shadow physicians and other hospital personnel. Some also worked in our research lab.

Methods

- Participants:** High school seniors who participated in our programs between 2002 and 2018 were asked to complete a questionnaire consisting of 19 queries regarding the influence of the program on their career choice.
- Survey of Students:** The survey focused on the usefulness and relevance of particular aspects of the program, which included:
 - Shadowing physicians in the hospital
 - Shadowing physicians in private practice settings
 - Shadowing physicians during surgery
 - Exposure to activities in the research lab.
 - Attending medical and surgical rounds and conferences
 - Interactions with doctors, mentors, nurses and staff members
 - Introduction to writing skills focused on science projects or topics.
- Students were asked to rank each activity on a scale of 1 to 5, with 1 being the *least* helpful and 5 being the *most* helpful.
- Analysis:** The data were divided into two groups. The first was composed of students who were in the program from 2001 to 2011. This period was selected since the students would have had time to complete college and enter an advanced degree program.
- The second group were students who participated from 2012 to 2018. Many of these students are just graduating from college and have not yet made their commitments to a particular advanced degree program. For this group, we were basing our analysis on their stated choice of degree program.

Results

Figure 1. Response to the survey. A total of 156 questionnaires were sent to students. A total of 62 responses (40.5% response rate) were received.

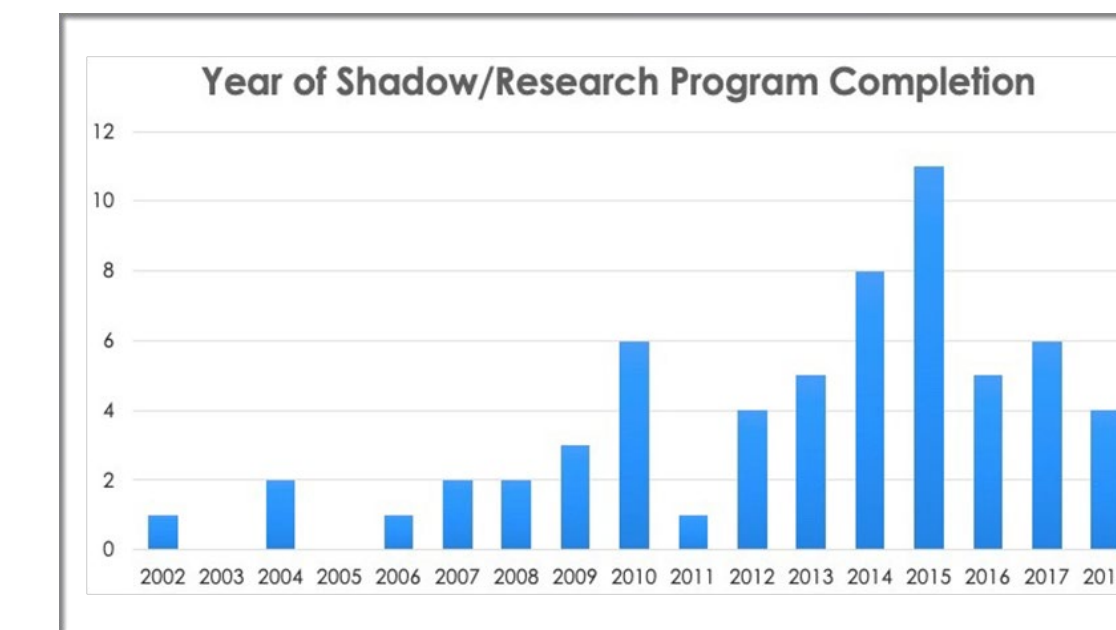


Figure 2. Highest achieved degrees of participants in the shadow/research program from 2001 to 2011. 44 responses were received from students in the shadow program, 7 from students in the research program, and 11 from students who participated in both programs.

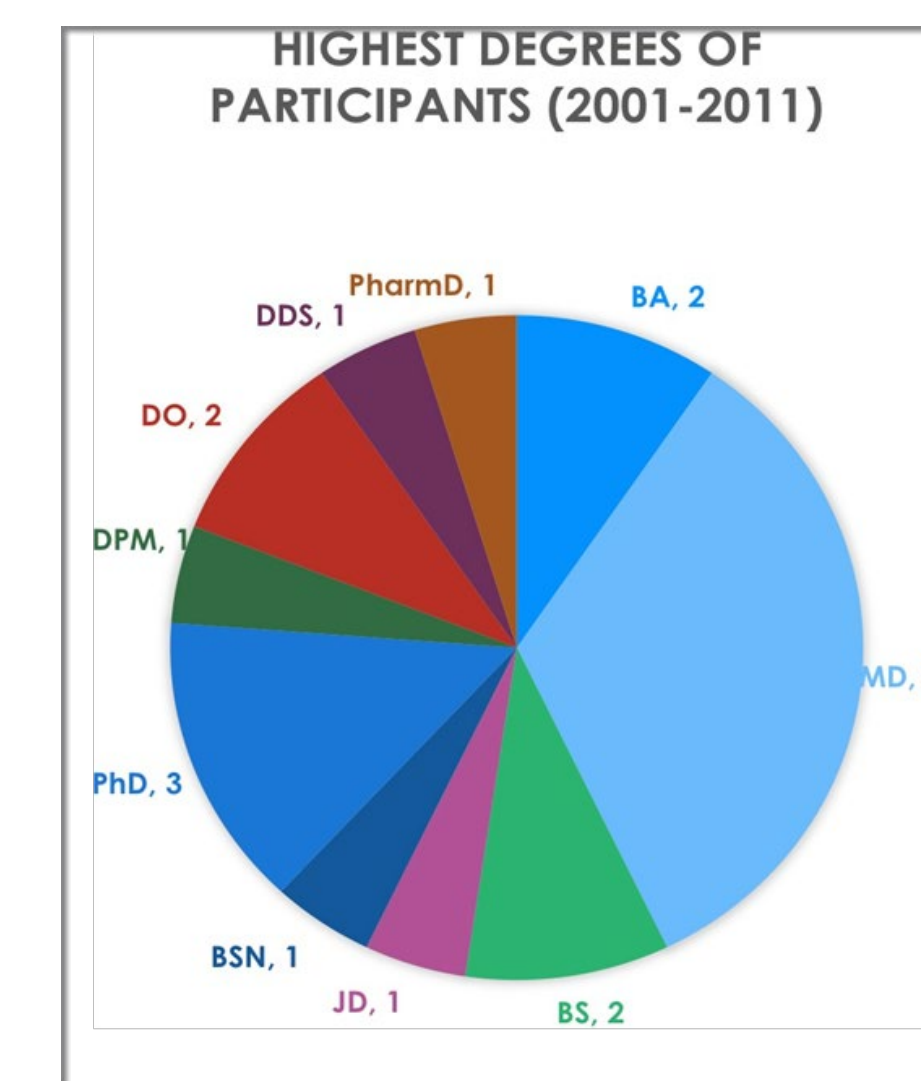
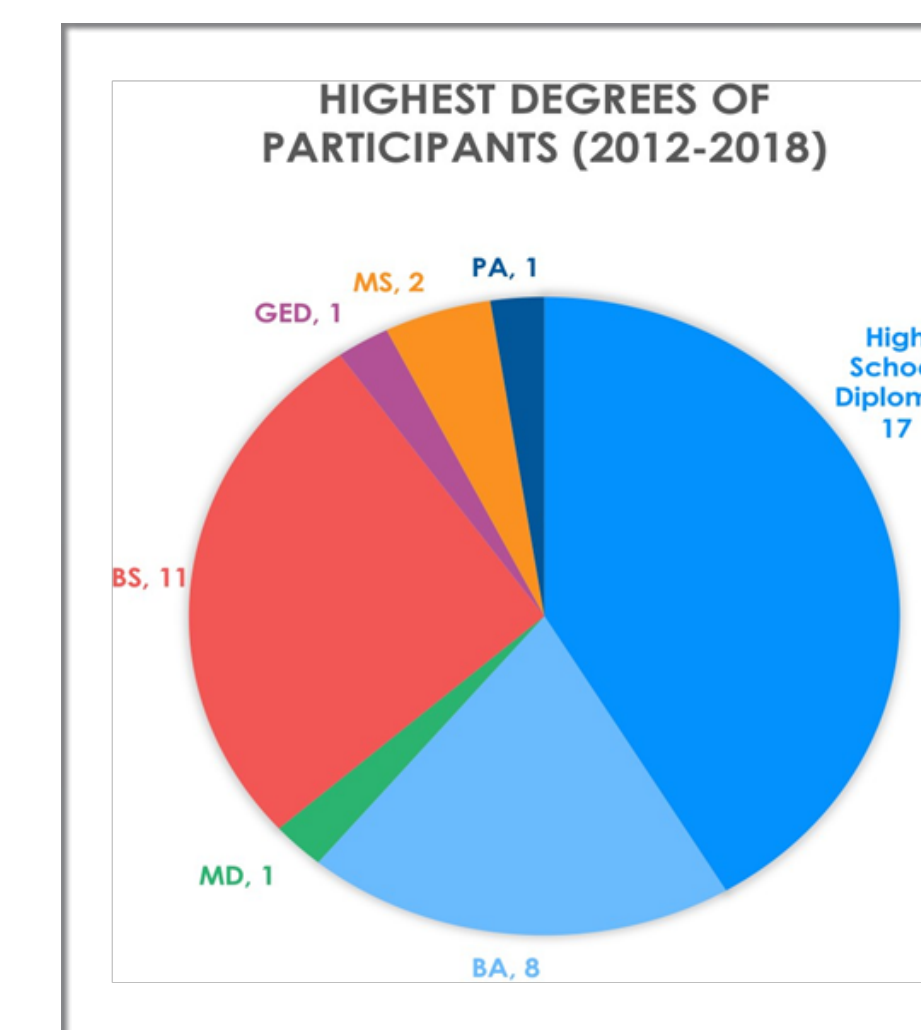


Figure 3. Highest achieved degrees of participants in the shadow/research program from 2012 to 2018. Similarly, this figure shows the highest degrees earned by students who participated from 2012-2018. However, most students in this time period have recently completed high school and have not yet had sufficient time to earn a higher degree.



Analysis of Student Preference

	Shadowing in the Hospital	Shadowing in Private Practice	Shadowing in Surgery	Working in a Research Lab	Doing Rounds	with Doctors, Mentors, and Staff
Total	4.70	4.24	4.53	4.08	4.41	4.67
Medical (MD/DO)	5.00	4.56	4.50	5.00	4.00	4.56
Medicine-Related	4.92	4.33	4.55	4.00	3.80	4.50
Other	4.68	4.17	4.55	4.08	4.15	4.71

Average Ratings for each of the surveyed categories are summarized. Compiled on a scale of 1 to 5, this table is based on 62 responses from students already in medical fields, medical-related fields and non-medical fields (listed as "other")

Summary

- The majority of responses were from students who completed the program in the past six years. Forty four responses were received from students in the shadow program, 7 from students in the research program and 11 from students who participated in both programs.
- From these responses we calculated the results based on highest earned degrees: medical (MD, DO) or medical-related (BSN, DPM, DDS, PharmD, PA) as of 2018. 9 respondents earned an MD or DO and 5 earned a BSN, DPM, DDS, PharmD, or PA. Four students are currently enrolled in medical school. Most students who graduated in the past six years are currently in training and have not had sufficient time to earn a higher degree, but are planning for careers in the medical field.
- Averages on a scale from 1 to 5 were compiled for students who are currently known to be in medical fields, medical related fields or non-medical fields. Higher numbers indicate a greater likelihood to pursue a medical or surgical career. Students working as shadows gave the highest overall rating (4.70). Differences lack significance given the small number of students but there exists a pattern that is of interest and will help in designing future programs.

Discussion

- The Englewood Health programs described here offers HS seniors the opportunity to experience aspects of medical practice. The students attended lectures, observed surgeries, shadowed physicians, and became familiar with how hospitals operate and departments interact. The purpose of this study was to determine if the program increased students' interest in pursuing a career in medicine or surgery. Information was gathered from surveys sent to students who had participated in the program from 2001 to 2018.
- These findings need to be considered in the context of a larger analysis of the goals and choices of American high school students in general. A survey conducted by the ECMC group, a Minneapolis-based nonprofit with a mission to help students succeed by supporting advancements in postsecondary education, shows that interest in pursuing a four year college degree is declining, especially among students from low-income families. **Only 2% of students nationally are planning for careers in medical fields!**
- The students in our study were recruited from schools for gifted and talented students, and many come into the program with strong educational and career goals already formed, and many planned to become physicians or surgeons from an early age. We are now beginning to draw students from less privileged backgrounds, with the hope of expanding our outreach into more diverse communities.
- We believe the data support the hypothesis that early exposure to medical practice stimulates interest in pursuing medical careers.