Anesthesiologists Outreach to Help Build Our Future Healthcare Workforce

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Background

- The AAMC estimates a shortage of up to 139,000 physicians by 2033 [1].
- Part of the solution includes early community outreach with a healthcare pipeline targeting grades K-12 through STEM curriculum.
- Anesthesiologists use science, technology, engineering, and math in their daily work and are perfectly suited to lead these efforts.
- In partnership with a national nonprofit organization, Project Lead The Way (PLTW), we integrate our medical expertise to the STEM curriculum through interactive and engaging learning experiences.
- PLTW high school graduates are nearly 3x as likely to major in STEM versus non-PLTW graduates [2].

Project Description

- Due to the COVID-19 pandemic, educational activities were adapted to an online curriculum using video conferencing platforms.
- PLTW teachers from 3 local high schools host online classrooms. We lead multiple sessions held over several days that are approximately one hour long.
- In each session, anesthesiologists teach lessons on airway anatomy, cardiac and respiratory monitoring, and crisis resource management in the OR while encouraging student participation.
- Sessions end with a Q&A connecting students, teachers, and physicians to promote interest into healthcare fields

In-Person Outreach in 2019

Virtual Outreach in 2021 and 2022

Lessons Learned and Discussion

- Since 2021, we've learned ways to adapt to virtual teaching sessions to continue community outreach events in the time of the COVID-19 pandemic.
- We asked students what they would like to learn more about next time so we could incorporate their feedback into future sessions. Some of their responses included:

"Other tools used maybe because the were so foreign looking and interesting."

"More about the medicine and how it affects the body"

"Next time I would like to learn more about the machine with the anesthesia"

"Crisis Management and what happens in an emergency in the OR"

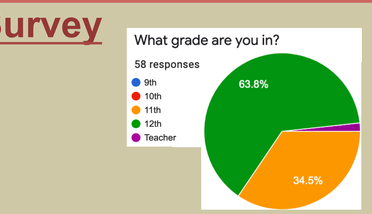
"What their daily jobs consist of/ dealing with the mental toll of being a doctor"

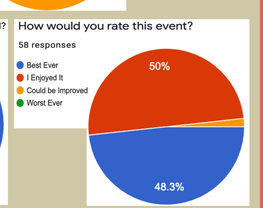
Community Partnership and Acknowledgements

We would like to acknowledge all of our community partners including PLTW, state legislators, and our local high schools. A special thank you to CSA for helping to fund annual specialty training for teachers.

2022 Outcomes: Post-Simulation Survey

- Stanford Anesthesiology Department and the CSA in collaboration with state legislators have reached hundreds of high school students over the past 4 years through PLTW.
- 58 survey responses were obtained with 80% from Leland high school and 20% from Willow Glen high school.
- 100% of participating high school students would recommend this workshop to a friend. 48% rated the event as the "best ever" with almost all of the remaining students indicating they "enjoyed it."
- High school students broadened their knowledge on basics of a mechanical ventilator, cardiac and respiratory monitors during a surgical procedure, intubation techniques, observed ultrasound of neck vessels, and potential pathways to medicine.





What was your favorite part of the day and why?
"Discussing how things work within the OR at any given moment, whether it be intubation or monitoring."

"Seeing the hands on process of inserting the breathing tube"

"I liked hearing about how each of the anesthesiologists got to be where they are today and talk about their experiences because it made them feel more relatable"

What are three things that you learned that you are going to share with others?
"Anesthetics can be combined for different patient needs; Mentorship and self advocacy is crucial; Many people change majors and specialties, follow your passion"

"I learned about how oxygen is delivered to patients, how to tell the difference between veins and arteries through an ultrasound, and about different paths to get into the medical field"

"Even if you're struggling now, you can still make it to medical school and succeed! Also find people to mentor you and help you find your path. Lastly veins collapse really easily and arteries don't and you can see that in an ultrasound."

Recommendations

- Anesthesiology is one of many great medical specialties to engage STEM students. Each specialty can offer a unique perspective on healthcare, thus engaging a wider audience of students in medicine.
- All residency programs should consider engaging their community and state legislators by leading community outreach efforts to increase the healthcare pipeline with the support of their department and institution.

References

1. The Complexities of Physician Supply and Demand: Projections From 2018 to 2033. AAMC. June 2020. https://bit.ly/3vmpXh7
2. Pike, Gary and Kirsten Robbins (2014). Using Propensity Scores to Evaluate Education Programs. Indiana University-Purdue University-Indianapolis.