

## Mini–Medical School Programs Are an Effective Tool to Introduce Students to Osteopathic Medicine

Kathryn E. Kaye, OMS III; Alyssa L. Berns, OMS IV; Lyndsi R. Cress, OMS IV; and Andrea M. Nazar, DO

From the West Virginia School of Osteopathic Medicine in Lewisburg.

Financial Disclosures:  
None reported.

Address correspondence to  
Kathryn E. Kaye, OMS III,  
400 N Lee St,  
Lewisburg, WV 24901-1128.

E-mail: [kkaye@osteo.wvsom.edu](mailto:kkaye@osteo.wvsom.edu)

Submitted  
January 28, 2013;  
final revision received  
August 2, 2013;  
accepted  
August 21, 2013.

**Context:** Mini–medical school programs are designed to give participants, usually high school students, a more realistic perception of medicine and to leave students with a stronger desire to pursue a career in medicine.

**Objective:** To determine if the annual High School Mini–Medical School program hosted by the West Virginia School of Osteopathic Medicine increased interest in osteopathic medicine among high school students.

**Design:** A survey was conducted before and after the program to test the program’s effectiveness.

**Setting:** West Virginia School of Osteopathic Medicine’s Clinical Education Center.

**Participants:** High school students from Charleston, Fairmont, and the Greenbrier Valley in West Virginia.

**Interventions:** The participants attended an outreach program designed to interest them in a career in medicine and specifically osteopathic medicine.

**Results:** Sixty-nine participants came away with an improved understanding of a physician’s life and medical school after the program. There was a mean increase in positive responses for the survey items “I understand what medical school life is truly like” ( $P=.0066$ ) and “I understand what life as a doctor is really like” ( $P=.0004$ ). Participants left the program with a stronger desire to pursue a career in medicine ( $P<.0001$ ).

**Conclusion:** Mini–medical school programs are an effective tool to inspire high school students to pursue careers in medicine, including osteopathic medicine.

*J Am Osteopath Assoc.* 2014;114(2):109-112  
doi:10.7556/jaoa.2014.024

At a time when the United States is concerned with primary care physician shortage, it is imperative that we think of new and innovative ways to grow the ranks of all primary care physicians. In 2012, Petterson et al<sup>1</sup> reported on the impending shortage, concluding that by 2025, the United States will need more than 260,000 primary care physicians, an increase of approximately 52,000 from 2010 numbers. With the situation especially dire in rural areas, it is crucial to recruit students from these regions into programs because they are 4 times more likely than students of urban origin to stay and practice in a rural setting.<sup>2</sup>

The West Virginia School of Osteopathic Medicine (WVSOM) is dedicated to training rural primary care physicians.<sup>3</sup> The school has designed its High School Mini–Medical School program to entice students from rural West Virginia to consider osteopathic medicine as a career.

Mini-medical schools—which were first proposed by J. John Cohen, MD,<sup>4</sup> at the University of Colorado in 1989—were theorized as a way to expose high school students to the basic science of medicine very early in their education.<sup>5,6</sup> Many osteopathic and allopathic medical schools—such as the University of Connecticut,<sup>7</sup> Penn State,<sup>8</sup> the University of Missouri,<sup>9</sup> Drexel University,<sup>10</sup> and Midwestern University<sup>11</sup>—carry out similar projects and make comparable claims. The program directors at the University of Connecticut,<sup>7</sup> for example, hope that their effort will increase the diversity of students enrolled. However, an objective study of any mini-medical school program has not, to our knowledge, been conducted. The purpose of the present study was to determine if mini-medical school programs truly change the perceptions of high school students and inspire them to consider a career in medicine.

## Methods

### Study Population

Students from both rural and urban/suburban West Virginia high schools—located in Charleston, Fairmont, and the Greenbrier Valley—attended a daylong mini-medical school program at the WVSOM campus in Lewisburg. These programs were optional for students, required an application, and were held on 1 Saturday in October 2011 and 1 Saturday in March 2012. Students were required to be a sophomore, junior, or senior who had, according to a faculty member from his or her school, already demonstrated an interest in science. Students were excluded from the surveys if they did not complete parental consent forms. This study was approved by WVSOM's Institutional Review Board.

### Program and Survey

For 15 minutes before and after the program, which took place from approximately 9:15 AM to 2:45 PM, participants were asked to complete a 10-item survey. The first 4 items assessed the participant's interest in medicine and prior experience with osteopathic medicine, and items 5 through 10 asked the participant to rate his or her

understanding of medical training and practice on a Likert scale, with 1 meaning “strongly disagree” and 5 meaning “strongly agree” (*Table*).

The mini-medical school program presented a simulated emergency department case. The participants were given a partially completed SOAP (subjective, objective, assessment, plan) note and disease information cards and then were split into small groups and led through 6 different stations (central nervous system, cardiovascular, advanced cardiac life support, respiratory, reproductive, and musculoskeletal) to learn about different components of the case. Each station was run by a mix of 4 first- and second-year osteopathic medical students and was composed of hands-on activities, such as the intubation laboratory, which engaged the participants and mimicked medical practice and training. Stations were organized according to body system to facilitate learning and to reinforce the idea of the body as a unit, which is a guiding principle of osteopathic medicine.

At the program's completion, participants were asked to complete the same survey. Each participant was assigned a random 3-digit number when his or her application was processed, enabling the preprogram and postprogram responses to be matched while protecting participants' identities.

### Statistical Methods

The data were paired so that we could compare each participant's respective answers before and after the program. We used SPSS (version 16, IBM Corporation) to analyze the data by using the Wilcoxon signed rank test, a nonparametric statistical hypothesis test used to compare repeated measures. A value of  $P < .05$  was considered statistically significant.

## Results

### Response Rate

Sixty-nine of 80 participants (86.3%) completed both surveys. Participants who completed only 1 survey were excluded. Incomplete surveys were still analyzed if there were any matched data available.

**Survey Data**

After completing the program, a statistically significant number of participants changed their opinion on several of our survey items from the pre- to postprogram surveys (Table).

After the program, participants felt they had a better understanding of the following items: medical school life ( $P=.0004$ ); the life of a doctor ( $P=.0066$ ); and the disparity between doctors on television shows and in movies vs doctors in real life ( $P=.0039$ ). Compared with participants' responses in the first survey, more participants' responses in the second survey disagreed with the notion that a good physician should be emotionally distant from patients ( $P=.001$ ) and with the statement "I could never be a doctor" ( $P<.0001$ ).

Sex was not a statistically significant factor in participant responses.

**Comment**

The WVSOM High School Mini-Medical School program successfully provided an overview of osteopathic medicine to high school students and gave them insight into the process of becoming and working as a physician. Participants left the program feeling that they had a more realistic perception of both the field of medicine and medical school. As evidenced by the statistically significant change in the responses to the statement, "I think a good physician should be emotionally distant from patients," many participants were not aware of the emotional connection a physician can forge with patients. Most importantly, a statistically significant number of participants in this program left with a stronger desire to pursue a career in medicine. Students who attended this program changed their opinions about becoming physicians. We believe the results from the present study vali-

**Table.**  
**Survey Responses of High School Participants Before and After Attending**  
**the West Virginia School of Osteopathic Medicine Mini-Medical School Program (N=69)**

Survey Item	Before	After	P Value
<b>Yes/No Response Items,<sup>a</sup> No. (%) agreement</b>			
Medicine is interesting to me.	64 (90.0)	55 (100.0)	NA
I know an osteopathic physician or medical student.	38 (47.4)	45 (85.7)	.0003
I am interested in a career in medicine.	64 (90.0)	54 (95.0)	NA
I am interested in a career as an osteopathic physician.	31 (55.6)	38 (68.4)	.0329
<b>Likert Scale Response Items,<sup>b</sup> mean score</b>			
I understand what medical school life is truly like.	2.62	3.67	.0004
I understand what life as a doctor is really like.	2.48	3.62	.0066
I think TV Shows and Movies are a very accurate portrayal of life as a doctor.	1.95	1.43	.0039
I would like to pursue a career in medicine but it isn't worth it.	1.67	1.57	.0412
I think a good physician should be emotionally distant from patients.	2.10	2.05	.0001

<sup>a</sup> The total number of responses for each question vary because some participants left items blank.

<sup>b</sup> Five-point Likert scale, with 1 indicating "strongly disagree" and 5 indicating "strongly agree."

**Abbreviation:** NA, not available.

date the use of mini-medical school programs as recruiting tools.

Students from rural counties are 4 times more likely to practice in rural communities than students from urban communities.<sup>2</sup> Our research shows that mini-medical school programs are effective in changing both a participant's view of medicine and his or her intention to pursue a career in medicine. Using mini-medical school programs to recruit students from within these rural communities could be an effective way to create future rural providers. Longitudinal research is needed to demonstrate the efficacy of these programs in this regard.

This study is limited by its small population. Whereas participants were from different areas in West Virginia, they nonetheless represented a fairly homogeneous population, composed mostly of individuals from rural areas who planned to remain in the state. The present study looks only at the immediate effects of the program, and the change in attitudes that we found may diminish over time. There may be some confounding preconceptions because participants were from areas that potentially are served by physician graduates from WVSOM and thus might also receive care from them.

Longitudinal research on the efficacy of these outreach programs in converting these local students to future medical school applicants would be helpful in determining the long-term effects of outreach programs. Future research should be on a larger scale and investigate a population different than the 1 represented here (eg, surveying medical students themselves as to whether mini-medical school programs affected their decision to become physicians).

## Conclusion

Mini-medical school programs are effective, at least in the short term, in persuading high school students to consider careers in medicine. Increasing the enrollment of rural students in medical school is essential to solving the extreme shortage that is already present in these rural areas.

## Acknowledgments

*We thank Katherine M. Druetzler, OMS IV, and Lance C. Ridpath, MS, for all their hard work on this project. Without them, the Mini-Medical School program would not have happened. We also thank the staff of the WVSOM Clinical Evaluation Center and WVSOM's classes of 2014 and 2015 for their outstanding effort and dedication.*

## References

- Petterson SM, Liaw WR, Phillips RL, Rabin DS, Meyers DS, Bazemore AW. Projecting US primary care physician workforce needs: 2010-2025. *Ann Fam Med*. 2012;10(6):503-509. doi:10.1370/afm.1431.
- Hyer JL, Bazemore AW, Bowman RC, Zhang X, Petterson S, Phillips RL. Rural origins and choosing family medicine predict future rural practice [Graham Center Policy One-Pagers section]. *Am Fam Physician*. 2007;76(2):207. <http://www.aafp.org/afp/2007/0715/p207.html>. Accessed August 1, 2013.
- Stokey JR, Baker HH, Nemitz JW. How the West Virginia School of Osteopathic Medicine achieves its mission of providing rural primary care physicians. *J Am Osteopath Assoc*. 2000;100(11):723-726.
- 2010 Award for Public Engagement With Science recipient. American Association for the Advancement of Science website. <http://www.aaas.org/page/2010-award-public-engagement-science-recipient>. Accessed July 15, 2013.
- Weiss R. Mini-medical school showcases medical careers to school children. *Health Prog*. 1998;79(5):69.
- Bly J. What is medicine? recruiting high school students into family medicine. *Can Fam Physician*. 2006;52:329-334.
- Health Careers Opportunity Programs. University of Connecticut School of Medicine website. <http://medicine.uchc.edu/prospective/hcop/>. Accessed July 15, 2013.
- Thorndyke LE, Bixler BJ, Carubia JM. The Penn State Mini Medical School: a prescription for community engagement in health care issues and research. *J Higher Ed Outreach Engagement*. 2004;10(1):47-60.
- Community members invited to take a seat at mini-medical school. Midwestern University website. <http://www.midwestern.edu/news-and-events/university-news/community-members-invited-to-take-a-seat-at-mini-medical-school-.html>. Updated February 8, 2013. Accessed July 15, 2013.
- Mini-Med School. Drexel University College of Medicine website. <http://www.drexelmed.edu/home/OtherPrograms/MiniMedSchool.aspx>. Accessed July 15, 2013.
- Summer fellowships—mini-medical school. The University of Missouri School of Medicine website. <http://medicine.missouri.edu/education/summer-mini-med.html>. Accessed July 15, 2013.