

Increasing Medical Trainees' Empathy Through Volunteerism and Mentorship

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ABSTRACT

BACKGROUND: Within medical education, there have been recent calls for increased understanding and exposure to poverty to increase trainees' empathy toward the underserved. Students participating in Michigan Cardiovascular Outcomes Research and Reporting Program research program volunteered at World Medical Relief (WMR) in Detroit, Michigan, a nonprofit organization which recycles medical equipment for developing countries and within greater Detroit. Participants' perceptions of the underserved were measured before and after the experience.

METHODS: Preliminary questionnaires were given to participants prior to and after exposures at WMR. Questionnaires examined participants' attitudes toward the underserved, knowledge of medical supply reuse, and their perceived ability to impact change. *P* values of <.025 were considered significant.

RESULTS: A total of 39 participants completed the survey, 77% previously volunteered, 33% had volunteered internationally. Participants were >4× more likely than previously to have knowledge of the variety of recycled medical supplies at WMR. Prior to volunteering, 48.7% of participants gave little thought to how excess medical supplies could be collected versus 0% after exposure. Participants were 1.5× more likely to agree that the experience was enhanced working with their peers and 2.7× more likely to consider starting their own organization/intervention for medical supply donations. Those participants that never previously volunteered were 1.3× more likely to do so with encouragement from a mentor.

CONCLUSIONS: Encouraging exposure to such service programs resulted in enhanced knowledge of community resources and increased motivation to participate in outreach and belief of individual responsibility to care for the underserved. Incorporating volunteerism into traditional education programs offers the opportunity to build awareness and interest in students reaching out to the underserved.

KEYWORDS: Medical education, underserved, medical reuse, mentorship

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Introduction

Current medical education research indicates that there is limited understanding of medical trainees' views and attitudes toward the indigent and how to best encourage future physicians to participate in outreach to the poor.¹ Recent research indicates that medical student graduates are less idealistic and humanistic and more cynical than when initially entering medical school.^{1–8} Thus, there is a call for increased understanding and exposure to poverty to increase trainees' empathy toward the underserved. As well, there is growing acknowledgment for mentorship and role modeling to guide the formation of socially responsible physicians.¹

Medical equipment reuse/recycling has increased in the past 2 decades. Countries that otherwise may have been without medical interventions now rely on a steady inventory of recycled medical resources that otherwise would have been disposed.^{9–11} World Medical Relief (WMR) is a not-for-profit organization in Southeast Michigan that distributes surplus

reused medical equipment, laboratory instruments, and medications to the medically underserved locally and internationally. World Medical Relief support is from surrounding hospitals and the United Foundation.¹²

Due to the University of Michigan's (UofM) active role in medical reuse, a volunteer curriculum at WMR was developed for MCORRP's (Michigan Cardiovascular Outcomes Research and Reporting Program) summer research institute participants. Student participants had the opportunity to volunteer at WMR 4× during their MCORRP internship. A total of 25 to 30 students participated in each 4- to 5-hour outing, which was supervised by MCORRP staff who were not in a role to evaluate students. All students participated at least twice. Activities included learning about WMR, the groups they serve, sorting, packing, and organizing supplies and medications. The goals of the volunteer experience were to (1) introduce students to the concept of recycled medical goods and (2)



through mentorship, encourage drive to help the underserved and increase trainees' empathetic understanding of poverty. In a newly implemented service component with MCORRP, we examined the attitude and knowledge of students prior to and after their exposure to the WMR program.

Methods

Curriculum format

The UofM MCORRP research summer institute is offered to 20 to 29 students studying both prehealth and medicine. Built into the research curriculum is time dedicated to understanding the medical equipment reuse and recycling phenomenon while incorporating dedicated volunteer sessions in inner-city Detroit at WMR. Medical faculty mentorship and structured discussions were offered throughout the summer.

All students and MCORRP staff participated in these WMR experiences, each lasting 5 hours. Faculty mentorship occurred at weekly MCORRP meetings. The study was approved by the Institutional Review Boards of the UofM Medical School.

Baseline questionnaires were used prior to their participation in the WMR experience. Surveys were matched by self-designed, confidential, individual identifiers and were administered postexperience to the same participants after completing the 4 volunteer sessions. Neither questionnaire was mandatory.

Data collection instrument

There were 23 identical items comprised on both the pre-exposure and postexposure questionnaires, with 5 additional questions on the postexposure survey regarding participants' attitudes toward WMR and the associated mentoring. Age, sex, race, and other demographic variables were included. Students were queried whether they had previously volunteered out of the country, done previous volunteer work, or donated to charitable organizations. Using a 5-point Likert scale, the students and staff were asked to quantify the degree to which they agreed or disagreed on each survey item. The 23 knowledge and attitudinal domains included 7 items on knowledge of WMR medical supply reuse, 3 on mentorship, 5 on personal responsibility to the underserved, 6 on attitudes toward service, 1 on self-initiative and ability to impact change, and 1 on experience enhancement with classmates. The follow-up questionnaire contained an additional 5 questions regarding how the exposure and mentorship affected the overall experience. Surveys were developed locally.

Statistical analysis

Survey data was classified into 2 groups for statistical analysis: surveys completed prior to and after WMR exposure/mentoring. Each questionnaire was directly paired using the participants' confidential identifiers. Unpaired survey questionnaires were excluded from analysis.

Likert scale responses were scored as follows: 5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, and 1 = strongly disagree. Means, standard deviations, and medians were calculated for each query. All reported *P* values were 2-tailed. A *P* value of $\leq .025$ was considered statistically significant due to multiple comparisons and a lower *n*. The 23 questions pre-exposure and postexposure were scored separately; a composite was not calculated for question categories. Responses to questions were scored 1 through 5. Changes in responses between pre-exposure and postexposure were also calculated. To examine relationships among demographic categories and responses to survey questions as well as changes in responses between pre-exposure and postexposure, multiple χ^2 analysis was used. Comparisons for responses to questions pre-exposure to postexposure were compared using a paired Wilcoxon signed rank test.

Results

In total, 39 participants completed both surveys: 51% were men with most aged 17 to 25 years (84.6%), 61% were pre-health undergraduates, and 25.6% were medical students. Most the participants were nonminority (71.2%). Most had previous volunteer experience (77%) and 33% had volunteered internationally and 74.4% stated that they were self-motivated to volunteer.

Participants expressed a deeper understanding of recycled medical supplies. Their knowledge of WMR and similar institutions and its role increased dramatically from pre-exposure to postexposure ($P < .001$). Participants were 4 \times more likely to have obtained knowledge of medical supply reuse. In addition, 48.7% of those participating had given little to no thought about excess medical supplies versus 0% after the experience.

Participants were 1.5 \times more likely to demonstrate agreement that their experience was enhanced by working with their peers ($P = .003$). In addition, after the experience, participants were 2.7 \times more likely to start their own intervention for medical supply donations ($P = .007$). Those stating that they had not volunteered previously indicated being 1.3 \times more likely to initiate volunteer work with the mentor encouragement (Figure 1).

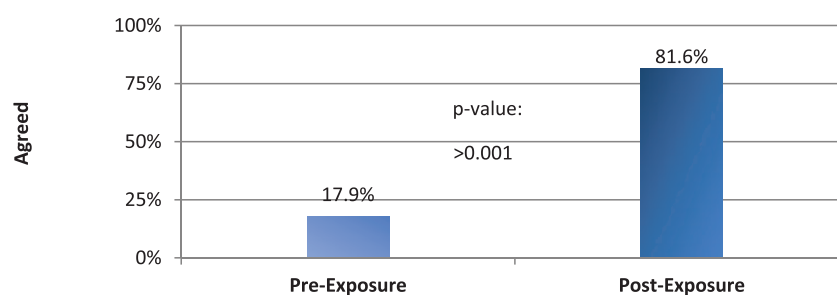
Postexposure, 97% indicated agreement/strong agreement that they would encourage hospitals to recycle surplus medical supplies; 88% would like to donate time, money, or supplies to WMR or a similar organization; and 74% indicated wanting to return independently to volunteer.

Students expressed overall positive comments on their volunteer exposure at WMR.

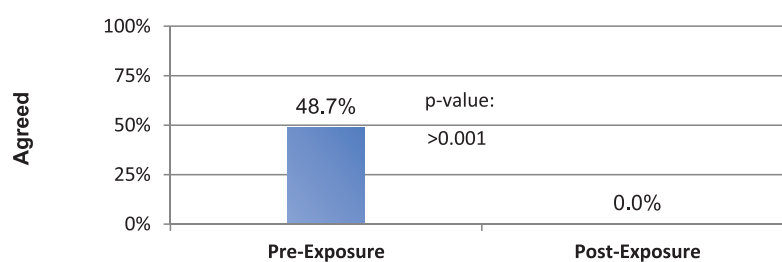
Discussion

The push in health education to encourage social outreach and volunteerism has been integrated into medical curriculum.¹ Most medical schools are providing service opportunities attempting to promote positive attitudes toward the underserved.^{13–17} Various initiatives have been implemented

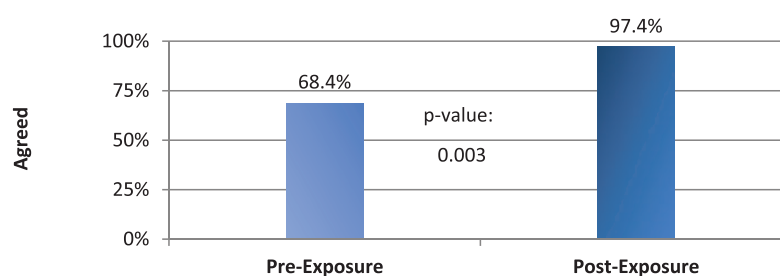
"I have knowledge of the volume and variety of recycled medical supplies available for donation"



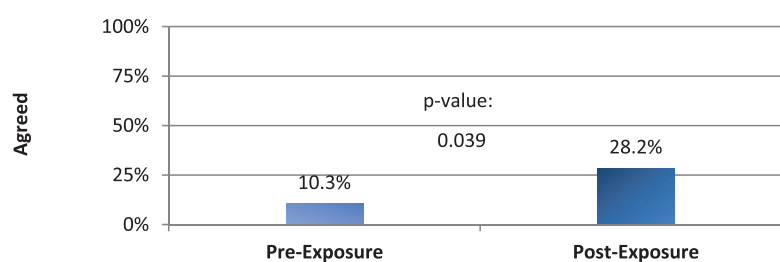
"I have given little thought to how excess medical supplies could be collected"



"My experience as a volunteer in a WMR organization is enhanced by going with my peers"



"If there were no organizations like WMR, I would consider starting my own similar organization"



"I am more likely to volunteer for the medically underserved if I am encouraged by a mentor"

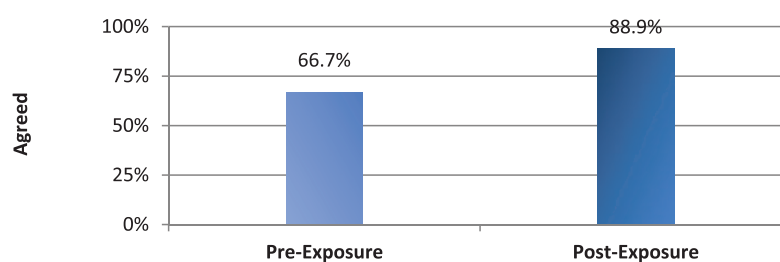


Figure 1. Responses on awareness and motivation.

throughout the world to raise awareness of the medical needs of the underserved and increase cultural competence.^{13,14,16–21} Despite the considerable interest, only a small cohort of studies

address this topic.⁵ There is a call for expanded and longitudinally based training curriculum to increase overall empathy, enthusiasm, and idealism.^{1,2,4,16,17,22,23}

In the past 2 decades, more institutions have participated in donating reused medical equipment to provide developing nations additional supplies to further close the gap on medical disparities.^{9–11} Many medical centers, including UofM and its specific program “My Heart—Your Heart,”²⁰ have been instrumental in this process.^{12,20,24–28} We demonstrated that prior to volunteering participants in our MCORRP, summer research institute had had given little thought to excess medical waste and reuse (48.7%) with 0% after the exposure. They were 4× more likely to have knowledge of recycled medical supplies after their experience. In addition, 97% indicated that they would encourage hospitals to send surplus medical supplies to organizations such as WMR. As future medical leaders and providers, their knowledge and positive experiences will help contribute to further charitable donations to countries of great need. Moreover, our study showed that participants were more apt to volunteer when encouraged to so with a mentor. The importance of role modeling in changing attitudes cannot be overstated. Our findings show that exposure to the underserved with targeted educational experiences and reflection with mentorship can further cultivate outreach and empathy. Our study also showed that volunteer experiences are enhanced with peers.

Participants also revealed that they would be more likely to start their own outreach after their experience volunteering at WMR. This suggests that service exposure leads to increased motivation and initiative not only to continue volunteer work but also to start one's own project. Most (88%) of the participants indicated wanting to donate time, funds, or supplies to WMR-like organizations while indicating desire to continue this type of work. Due to growing availability and acceptance of medical supply reuse, our project is reproducible and a similar program can be organized at other medical schools/centers, such as volunteering or gathering supplies for WMR or other like organizations.

The primary advantage of our interventional study is that we assessed the same cohort prior to and following the volunteer exposure. To better determine the limitations of our study, we must consider potential selection bias that may be inherent in this group of students. Those enrolled were a highly motivated group of students, and 77% of the students had already participated in volunteer activities. In addition, one must consider bias of social desirability and participants' conscious/unconscious desire to present themselves in the most favorable light. Because the program was a volunteer program, students may be inherently more empathetic in nature, thus introducing a bias in those studied.

There are several limitations inherent in this study. Our sample size ($n=39$) was limited. To better analyze the sustainability and longitudinal effects of the findings, a follow-up study would be essential determine how the attitudes expressed in the post WMR exposure translate into subsequent actions. In addition, more research in the role of

mentorship is important for further understanding trainees' motivations and professional formation.

Our results are congruent with other projects aimed at enhancing medical education's focus on the underserved.^{15–19,21–23} Unique to our study is evidence that these educational experiences are enhanced with peer enhancement and mentorship through role modeling.

Conclusions

Encouraging a sustained interest in the needs of the medically underserved is an essential component of our educational process if we hope to successfully train physicians who will work with the marginalized in our society and abroad. The number of medically underserved is rising throughout the world, thus making it vital to maintain curricula, and faculty role models who help shape students' attitudes toward the poor and “promote an ethic of social responsibility.”²⁵ Our volunteer program, which allows exposure to the care of the underserved, resulted in increased motivation to participate in this outreach, enhanced knowledge of community resources, and an increased belief of individual responsibility to care for the underserved. Incorporating volunteerism into traditional educational programs offers the opportunity to build awareness and interest in outreach to those in most need.

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Author Contributions

KBD designed the study, drafted and critically revised the manuscript. AL and NC revised the manuscript and helped with data gathering. DM did all the statistics and revised the manuscript. KAE and BJLH helped design the study and critically revise the manuscript. All authors read and approved the manuscript.

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