

Exposing Pharmacy Students to Public Health Concepts through Volunteering in the Medical Reserve Corps

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Abstract

Pharmacy students at the University of Kansas School of Pharmacy's regional campus were exposed to the Medical Reserve Corps (MRC), a volunteer-based network that organizes locally to improve the health and safety of their communities. The school partnered with the local Medical Reserve Corps to provide students' opportunities to fulfill co-curricular requirements and facilitate an application-based learning environment for public health concepts. The objective of the study was to explore the relationship between volunteering in the MRC and pharmacy students' ability to meet educational outcomes and reinforce beliefs about their profession's role in public health. Twenty-one students completed a survey addressing their ability to meet educational outcomes and identify the role of pharmacists in public health. Pharmacy students strongly agreed their past participation (mean 4.57) and future volunteering (mean 4.48) within the MRC would continue to help them better understand their role in public health. Pharmacy students strongly agreed (means ranging from 4.43 to 4.71) that they were able to fulfill educational outcomes related to knowledge, skills, and attitudes pharmacy graduates should possess. The positive responses gathered warrants expanding the partnership to include more student healthcare disciplines as well as looking for further opportunities to engage students in public health initiatives. Pharmacy schools should look to adopt similar partnerships with MRC units.

Keywords: Pharmacy students, public health, situated learning, interprofessional education, medical reserve corps

Description of the Problem

Pharmacy schools are charged with incorporating educational opportunities to meet various outcomes.¹ The Accreditation Council for Pharmacy Education (ACPE) includes public health as a required topic to be covered in the didactic curriculum.² The expectation is students reach a level of practice readiness for each topic area, but this may be difficult with respect to public health because opportunities for application may be limited. Pharmacy educators recognize the need to enhance opportunities surrounding public health.³ Many initiatives focus on health prevention programs, such as tobacco cessation.³ However, the landscape of public health is vast and pharmacy presence in other areas, such as emergency preparedness efforts, are necessary.³ A key component in the success and execution of public health initiatives is collaboration between multiple disciplines. As interprofessional education continues to develop as a foundation in curriculum for healthcare students, opportunities within public health provide an ideal environment to develop skills in this area.^{2,4}

Situated learning theory focuses on the relationship between an individual's learning and the social environment it takes place in.⁵ The theory emphasizes the importance of the relationship between the individual and their role in the big picture.⁵ Expansion of co-curricular opportunities may serve as a solution to fill gaps in the curriculum and strengthen application-based learning experiences. An environment positioned within the public health landscape with a diverse team of healthcare and non-healthcare disciplines is the Medical Reserve Corps (MRC).

The Medical Reserve Corps is a national network of volunteers that organize locally to improve the health and safety of their communities.⁶ Operations of MRC units are categorized as emergency or non-emergency, with funding provided through multiple sources.⁷ Examples of emergency operations include mass-dispensing or mass-vaccinating, and facilitating medical surge capacity planning and execution.⁶ Non-emergency events include vaccination clinics, health fairs, and outreach to underserved communities.⁶ MRC units are almost always recruiting new volunteers. To meet this need, MRC units can recruit from schools of health professions to develop a diverse volunteer source. In return, students can gain valuable real-world experience in applying public health concepts in interprofessional environments.

Partnerships between the MRC and schools of nursing are found in the literature. Within these partnerships, nursing students are taught a wide variety of public health concepts, in addition to leadership and communication skills.^{8,9} Although pharmacists and pharmacy technicians volunteer in the MRC,

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there is a lack of research focusing on partnerships between schools of pharmacy and Medical Reserve Corps.

Statement of Innovation

Seeing the opportunity for pharmacy students to obtain valuable public health and interprofessional experience, a partnership was formed between the local Sedgwick County MRC unit and the University of Kansas School of Pharmacy regional campus in Wichita. *Situated learning theory* aligns with the purpose of the partnership and guided this study.⁵ Viewing learning as a social phenomenon, authentic tasks are essential to this application-based learning style.⁵ In this innovation, pharmacy students encounter real world problems in their communities that not only require knowledge of public health and interprofessional collaboration, but also problem-solving skills. When students are in these real-life situations, they are compelled to learn and apply their knowledge. The basis of this study is that participation in the Medical Reserve Corps provides the social and learning environment to develop skills relating to public health, interprofessional cooperation, communication, and leadership.

Description of the Innovation

Administration at the school of pharmacy agreed that allowing pharmacy students to join the MRC was an untapped resource for co-curricular learning and an opportunity for students to serve their community. There were no financial barriers to breaking ground on this innovation. It is free to the students to apply, receive equipment, and participate in MRC-related functions. The pursuit of this partnership met multiple needs of the community, profession, and students enrolled in the school of pharmacy. For the community, it strengthened the effectiveness of an interdisciplinary volunteer force that prioritizes public health activities. For pharmacy students and the profession, it filled a gap in students' education and provided an environment to apply classroom topics relating to public health and interdisciplinary teamwork, highlighting the role of pharmacy in their community.

The MRC started targeting recruitment of pharmacy students in Fall 2018. Pharmacy students in all stages of the professional degree program were recruited and trained. One-hour recruitment sessions took place each semester. Training involved four-to-six hours of computer-based learning modules on core competencies in emergency preparedness, volunteer response, and leadership.⁷ Following their training, students signed up to be included in the statewide emergency alert system. Additionally, trained students received emergency-response gear, a MRC uniform, and lapel pin that most adorn on their white coat. Besides the online training, all activities were in-person and in real-time.

It was expected that pharmacy students would have opportunities to gain valuable experience in both non-emergency functions, such as organizing health fairs, and emergency functions, such as points-of-dispensing. Events

occurred at least once each semester, with additional opportunities in the summer. An event typically lasted half the day. Participation was entirely voluntary, but participation in one event annually was the minimum needed to maintain active status in the MRC. Some events hosted by the MRC were utilized in fulfilling co-curricular and professional development requirements determined by the school of pharmacy. If clinical judgement was necessary a pharmacy preceptor was present, otherwise the role of the student was as a community volunteer and not pharmacy intern. One of the most noteworthy events, volunteering at a community outreach health fair, provided opportunities for pharmacy students to meet numerous Center for the Advancement of Pharmacy Education (CAPE) Educational Outcomes.¹ Students were actively involved with providing patient-centered care through promoting health and wellness, educating patients about chronic diseases, such as diabetes, and developing professional skills through interactions with community members.

A survey was created to examine the effect volunteering in the MRC had on pharmacy students. The target population for the survey included any student who had either received an application from a MRC recruiter or attended a MRC seminar. Students eligible for the survey were enrolled in any year of the professional pharmacy curriculum at the University of Kansas School of Pharmacy's regional campus in Wichita, Kansas. A total of 23 survey items were measured using a Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. Survey items were developed based on the 2013 CAPE Educational Outcomes as well as the Centers for Disease Control (CDC) and Prevention's Ten Essential Public Health Services.^{1,10} The survey items aligned with components of the situated learning theory by focusing on application-based skills and engagement in the community. Additional items were included on event participation, MRC status (i.e. training, pending acceptance, not planning to apply), and roles in public health and emergency response. A free response item was asked about the MRC's influence on students' understanding of public health.

Administration of the survey was deemed exempt by the University of Kansas Institutional Review Board and was distributed from February to March 2020. The survey was distributed through Qualtrics online software (Qualtrics Lab, Provo, UT). Descriptive statistics were performed for all items.

Critical Analysis

Twenty-nine pharmacy students were included in the target population and invited to participate in the study. Twenty-one pharmacy students completed the survey, equating to a response rate of 72%. Only one respondent indicated they were not planning to join the MRC. The remaining twenty had submitted applications to join, with 33% already fully trained and accepted, 24% fully trained and pending acceptance, and 38% currently undergoing training. Seven students indicated they had already volunteered in one or more events.

Students strongly agreed (4.48 ± 0.53) that participation in upcoming MRC-related functions would help them better understand their role in public health. Additionally, they agreed (4.24 ± 0.63) they would likely respond to a call for help in the event of a public health emergency. Learning is a social phenomenon and allowing learners to actively participate in live, dynamic public health events demonstrated their commitment to expanding their understanding of the role pharmacists have in public health.

Of the survey items related to the CAPE Educational Outcomes (Table 1) the two items about collaboration had the highest level of agreement. The non-healthcare professional collaboration item response was not surprising, as the MRC unit

the school partnered with had multiple volunteers without a healthcare license, but educated with an emergency management background. One event where MRC volunteers with a pharmacy background collaborated with non-healthcare professionals centered on developing a point-of-dispensing site for medical countermeasures, such as antibiotics or vaccinations in public health emergencies. Anecdotally from other volunteers, there was positive feedback on the knowledge the pharmacy volunteers provided about pharmaceutical logistics and the dispensing process. The results of the survey suggest pharmacy volunteers benefited from this experience and likely have a better understanding of their role with a larger public health team and initiative.

Table 1. Survey Responses to Selected Educational Outcomes^a (N=21)

Survey Item	M (SD) ^b
Pharmacy students who volunteer for the MRC promote health and wellness.	4.57 (0.60)
Pharmacy students who volunteer for the MRC advocate for patients.	4.62 (0.59)
Pharmacy students who volunteer for the MRC educate patients.	4.62 (0.50)
Pharmacy students who volunteer for the MRC provide patient-centered care.	4.48 (0.68)
Pharmacy students who volunteer for the MRC provide population-based care.	4.43 (0.60)
Pharmacy students who volunteer for the MRC collaborate with other healthcare professionals.	4.71 (0.46)
Pharmacy students who volunteer for the MRC collaborate with non-healthcare professionals.	4.71 (0.46)
Pharmacy students who volunteer for the MRC develop professional skills.	4.52 (0.60)

^aCenter for the Advancement of Pharmacy Education 2013 Educational Outcomes²

^bScale: 1=Strongly Disagree; 2=Disagree; 3=Neither Agree Nor Disagree; 4=Agree; 5=Strongly Agree
MRC=Medical Reserve Corps

Survey items related to the CDC’s Ten Essential Public Health Services (Table 2) had two notable findings with the highest level of agreement. The first, pharmacy students agreed (4.62 ± 0.50) that pharmacists should inform, educate, and empower people about health issues. This finding is not unexpected due to the holistic approach pharmacy schools often have about providing patient-centered care within the didactic coursework.² Skills such as patient counseling and motivational

interviewing are key in preparing pharmacy students to be able to educate and empower their patients. Pharmacy students also agreed (4.52 ± 0.60) that pharmacists should link people to needed personal health services and assure the provision of health care when otherwise unavailable. This is demonstrated through the growing role of pharmacists with transitions of care and providing access to services and medications for underserved populations helping to bridge healthcare gaps for patients.

Table 2. Survey Responses to Public Health Items^a (N=21)

Survey Item	M (SD) ^b
Pharmacists should monitor community health status to identify and solve community health problems.	4.48 (0.60)
Pharmacists should diagnose and investigate health problems and health hazards in the community.	4.29 (0.78)
Pharmacists should inform, educate, and empower people about health issues.	4.62 (0.50)
Pharmacists should mobilize community partnerships and actions to identify and solve health problems.	4.48 (0.60)
Pharmacists should develop policies and plans that support individual and community health efforts.	4.48 (0.51)
Pharmacists should enforce laws and regulations that protect health and ensure safety.	4.48 (0.51)
Pharmacists should link people to needed personal health services and assure the provision of healthcare when otherwise unavailable.	4.52 (0.60)
Pharmacists should engage in assuring a competent public and personal health care workforce.	4.38 (0.67)
Pharmacists should evaluate effectiveness, accessibility, and quality of personal and population-based health services.	4.48 (0.60)
Pharmacists should research new insights and innovative solutions to health problems.	4.48 (0.68)

^aEssential Public Health Services Framework from the Centers for Disease Control¹⁰

^bScale: 1=Strongly Disagree; 2=Disagree; 3=Neither Agree Nor Disagree; 4=Agree; 5=Strongly Agree

Of the many responses to the open-ended question about the influence on understanding of public health, one particularly aligned with the goal of the partnership: “[It] helped me realize the potential of actualizing my skills as a pharmacist in a tangible medium outside of the workplace to better serve the community in a time of need.” Other responses centered on the themes of public health and interprofessional collaboration. These comments suggest the MRC is a potential solution for providing practical cases to apply knowledge within pharmacy education co-curriculum.

Key Issues

While out-of-the-classroom opportunities for interprofessional education continue to become more common in pharmacy curriculum, the same cannot be said for public health concepts. Through the MRC, pharmacy students have had the opportunity to develop and apply public health concepts and interprofessional collaboration. Aruru et al. proposed a framework for Pharmacy Emergency Preparedness and Response.¹¹ This model could be used for MRC units to integrate pharmacy-background volunteers and form partnerships between schools of pharmacy.

A month after the conclusion of the survey timeframe, the referenced MRC unit was called upon to assist their county with

COVID-19 testing. Pharmacy students in the MRC were trained and allowed to perform COVID-19 testing and demonstrated a favorable volunteer response. This affirmed the survey item exploring the likelihood volunteers would respond in the event of a public health emergency. The unique necessity of a public health crisis likely drove student volunteer turnout. Typically, public health concepts are taught in the classroom through case studies, but the opportunity to apply learning outside the classroom during a real-life pandemic cannot be understated. A real-world experience of swabbing a symptomatic person-of-interest in full personal protective gear was anecdotally impactful for many students. As stated in *Situated Learning*, “... learning involves the whole person; it implies not only a relation to specific activities, but a relation to social communities - it implies becoming a full participant, a member, a kind of person.”⁵

Being a new area of research, the study was largely descriptive in nature with no control group or pre and post comparison. The study also had a small sample size including only one healthcare profession at a single institution. The results are from pharmacy students, therefore additional research needs to be conducted to compare findings with practicing pharmacists, as well as other healthcare professions. Given the study was completed prior to the pandemic, a follow up study may be helpful to see if additional personal and professional

experiences would impact responses to survey items and viewpoints on public health.

Next Steps

While incorporating pharmacy students into the Medical Reserve Corps appears promising in meeting educational outcomes, providing interprofessional opportunities, and expanding public health learning opportunities, this innovation needs to be trialed with a larger pharmacy student body and with students of various other healthcare professions. The feasibility of expansion to other disciplines is incredibly favorable. Primary reasons for the success of the partnership included support from administration as well as lack of any needed financial contribution or commitment. Future plans for the regional campus partnership focus on incorporating additional pharmacy students, as well as other healthcare disciplines, including but not limited to medical, nursing, and physician assistant students.

Conflicts of Interest: None

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