

The Impact of Special Operations Medics and Corpsmen on Military Medical Student Training

A Qualitative Study

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ABSTRACT

Operation Gunpowder is a high-fidelity military medical field practicum conducted by the Uniformed Services University of Health Sciences, Bethesda, MD. During this multi-day combat simulation, Special Operations Medics and Corpsmen teach military medical students how to treat patients in an austere, resource-limited environment. To investigate the effectiveness of this teaching model, our research team used a qualitative phenomenological design to explore medical students' experiences being taught by Special Operations Medics and Corpsmen during Operation Gunpowder. We found two themes regarding the medical students' personal and professional development: an increased understanding of medics' skills and capabilities and the realization of their future roles as educators and leaders. Our study suggests that the use of Special Operations Corpsmen and Medics in medical student training is a valuable model for both military and civilian medical education and training.

KEYWORDS: *medical student; educators; professional development; training; simulation; qualitative study; military medical officer; teaching model; medical student experiences; medic capabilities; corpsman capabilities*

Introduction

Medicine is an interdisciplinary field relying on the expertise of a plethora of medical professionals.¹ Thus, medical students should be prepared to work as part of a diverse healthcare team in their future work as physicians. The potential benefits of interdisciplinary team training include an understanding of the roles, capabilities, and utilization of personnel, and enhanced communication and teamwork leading to better patient care.² Despite these advantages, only five out of 35 civilian academic healthcare centers offered interdisciplinary courses, and no research to date has focused specifically on how paramedic involvement in medical student curriculum can benefit learning, communication, and understanding of emergency medical responder roles outside of the healthcare setting.³

In contrast, because of military medicine's emphasis on pre-hospital care, the Uniformed Services University (USU) experientially teaches military medical students about the role and skills of Special Operations Medics and Corpsmen through a

medical field practicum "Operation Gunpowder." The two-day high-fidelity simulation is held at the National Guard Training Center at Fort Indiantown Gap, PA. During Operation Gunpowder, the students practice Tactical Casualty Combat Care (TCCC), Prolonged Casualty Care (PCC), and en route care in support of a mission located in a simulated resource-limited operational environment. Following the field practicum's unique and innovative teaching model, enlisted medical personnel collaborate with military physicians, physician assistants, and certified nurse anesthetists to train third-year medical students throughout the simulation.⁴

At Operation Gunpowder, Special Operations Medics and Corpsmen take on the role of educators, teaching students how to overcome the many obstacles they will encounter in an austere tactical environment. Instructors included Special Amphibious Reconnaissance Corpsmen from Marine Special Operations Command, members of the Joint Medical Unit, 3rd and 5th Special Forces Groups, Naval Special Warfare, Ranger Regiment, Air Force, and Army Special Operation Commands, instructors from the Special Operations Combat Medic course, and command surgeons from 1st Special Forces and US Army Special Operations Commands.

These medical professionals exhibit a mastery of unique skills including tactical triage and evacuation, invasive and non-invasive lifesaving procedures such as advanced airway placement and trauma resuscitation, tactical casualty management, and tropical and preventive medicine. They demonstrate how to treat patients with limited supplies, maintain security, communicate using proper radio etiquette, transport patients safely using litters, and a host of other field specific skills. The medics' direct teaching styles differ extensively from the Socratic method used by physicians in teaching hospitals.⁵ Specifically, they provide students with a window into enlisted life and the autocratic leadership style they adopt for combat settings.

To date, there is no research regarding the role of medics and corpsmen as teachers of future Military Medical Officers (MMO). The purpose of this qualitative study was therefore to explore the experiences of 35 third-year military medical students during Operation Gunpowder to understand how being taught by enlisted medical personnel in an operational environment impacted their learning.

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Methods

Design

Our research team used a qualitative phenomenological design to explore medical students' experiences being taught by medics at Operation Gunpowder. Qualitative phenomenological design aims to explore the participants' lived experiences and perceptions.⁶ In this study, we sought to better understand the lived experiences and perceptions of third-year medical students attending Operation Gunpowder; therefore, phenomenology was an appropriate fit for our study.

Unlike quantitative research, qualitative research does not determine definite conclusions. Rather, it reveals new understanding and insight into participants' lived experiences during a certain phenomenon.^{6,7} In our study, the phenomenon we studied was the medical students' learning experiences while being taught by the medics and corpsmen during the field exercise. This study was determined to be exempt by the Institutional Review Board at USU RB #21-14158.

Data Collection

The participants in our study were 35 third-year medical students who completed Operation Gunpowder during spring 2022. Each participant was interviewed during the week prior and immediately following the completion of the practicum in order to gain an in-depth understanding of their experiences and perceptions. We transcribed each interview and emailed the transcriptions to participants so that they could check them for accuracy and add any additional information, a process known as member checking.⁸

Data Analysis

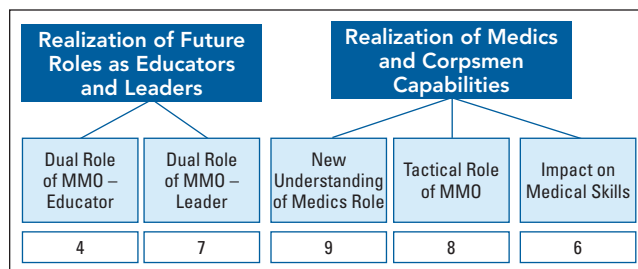
Following the rigorous steps of qualitative phenomenological data analysis, our research team read, re-read, and individually coded each participant's transcript, noting the most salient words and phrases that represented the participants' experiences being taught by the medics at Operation Gunpowder.⁷ We then met as a team to discuss the codes, define them, and determine the best way to categorize the codes. Next, we organized these categories into themes, which we described in-depth using the participants' own words in the Results section of our manuscript.⁹ This team consisted of a board-certified emergency medicine physician, who is a Lieutenant Colonel in the United States Army, a PhD researcher with expertise in qualitative research design, and three senior medical students. The categories we identified from the interviews resulted in two overarching themes in the Results section (Figure 1). Quotations were categorized from interviews based on recurring themes, and all selected quotations were weighted equally.

As qualitative researchers, we recognized that our own inherent biases threaten our ability to objectively interpret the data. To increase the validity of our study's results, we used a research team to analyze the data. Our team met regularly throughout the research process and discussed ways in which we were "bracketing" our biases so they did not interfere with the data analysis process.⁶

Results

Two themes emerged from the data regarding the medical students' experiences being taught by medics at Operation

FIGURE 1 The two main themes identified were realization of future roles as educators and leaders and realization of medics and corpsmen capabilities. Each of these themes were based on quotes (white) coded into five separate categories (light blue) based on content and keywords.



MMO = Military Medical Officers

Gunpowder: 1) Realization of medics' and corpsmen capabilities and 2) Realization of their future roles as educators and leaders.

Realization of Medics' and Corpsmen's Capabilities

The participants foremost described how being taught by the enlisted medical personnel impacted their view of medic and corpsman capabilities, which ultimately influenced their view of military medicine as a whole. One student stated, "I had an idea of what medics do, but being there and seeing their thought process . . . it gives me a different, whole new perspective as to what military medicine is all about" (P27). Since it was the first time that many of the medical students had worked closely with enlisted medical personnel, they were surprised at the wide breadth of skills that the medics possessed. One participant, for example, expressed that she "definitely learned a lot about capabilities that we have, and that we have medics and what they're able to do. I didn't know they could do so much!" (P35).

The students also commented on how well Special Operations Medics were able to innovatively adapt to the resource-limited setting, inspiring their future work in austere operational environments. One participant reflected, "I think it was really good to see and appreciate how creative they are with their environments, and how they can kind of just make things work with the limited resources that they have" (P5). When resources were scarce, students learned that creativity and experience are invaluable to succeed in the tactical setting. This same student added, "I learned in those environments, you have got to get creative, so using whatever resources you have, trying to make it work, that was really coming from the corpsmen and the medics, their experiences and their guidance" (P5).

Realization of Future Roles as an Educator and Leader

In the midst of the high-fidelity operational environment, the students described how Operation Gunpowder influenced their roles as educators of enlisted personnel in the future. One student, for example, discussed the advantage of having learned how to teach from the very people she may someday be teaching. She stated, "I think it was a really good experience for the medics to teach us and kind of give us pointers on how to be better teachers to them as well, and better leaders for them, so I thought that was probably the coolest part for me" (P23). Another medical student commented on the unexpected realization that she would be in an educator role in the future as a Military Medical Officer. She stated that part "of what they taught us is that you'll be expected to train your medics,

so you want to know and be able to understand what they do to teach them” (P32).

Learning from medics also inspired students to raise their training standards for the future. For example, the students described how preparing unit medical personnel for deployment is an important collateral role.

“A Military Medical Officer is someone that makes sure that their corpsmen and medics are very well-trained because they are most likely going to be the people doing what we did [at Operation Gunpowder] on a much grander scale and a much more frequent basis. So if you aren’t training your people like this, then they’re not going to do a very good job” (P34).

The medical students likewise developed an understanding of the role that Military Physicians must play in the education of their enlisted counterparts. “Gunpowder showed me how important medics are. I think that there’s a huge job of helping train them as a medical officer. I had never really thought about that, so that is now a huge factor for me,” one student noted (P4).

Learning from the medics also impacted the students’ leadership perspective, as they were taught how to utilize enlisted personnel in a military operation in order to maximize the effectiveness of the healthcare team.

“Part of being a Military Officer is understanding the people who are under you, and what they expect of you, and how you can utilize that team, and so having the resource of having these. . . . All these medics who’ve had years and years of experience, being able to talk to them and give us pointers on things to do, and understanding your team, that’s going to be worthwhile for the Navy in the long run as far as making an efficient medical team,” another student noted (P5).

Another student commented on her newfound understanding of her leadership role as a Military Medical Officer and the high expectations she set for herself in this role after being taught by the medics at Operation Gunpowder.

“One of the things that I’ll take home with me is what one of the medics told us. . . . ‘In these situations we have to be officers first, and we have to remember that we’re officers that know things about medicine, because we’re going to be around people like our medics and all these other people that are going to know what to do, and they just need a leader.’ And you can use your medical expertise to maybe polish some things off in the end, but you have to be a leader and take charge and make sure that things are being done in the right order and in the right way, just because there’s a lot of moving parts and a lot of things that you need to set up beforehand” (P23).

Discussion

The students in our study described the impact of being taught by Special Operations Medics on their personal and professional development. The students learned not only about the capabilities of their enlisted counterparts, but also about their own roles as educators and leaders of healthcare teams in their future work as military medical officers.

While physicians are rarely required to go to the point of injury, medics and corpsmen are often assigned to operational

units and provide medicine at the tactical and operational level. Incorporating them into a training environment meant to mimic an active combat operation is necessary to add authenticity to an atmosphere that few physicians have seen. While quantitative research on medic involvement in learning has been lacking, the results of our study suggest that incorporating enlisted medical personnel into the simulation is an effective method for teaching tactical field care, as our participants thrived under their direction. By integrating their specific brand of leadership, spot corrections, and field expedient knowledge, they were able to impart information unique to their skill set.

Operation Gunpowder served as some of the medical students’ first extended exposure to enlisted medical professionals. In contrast to the controlled atmosphere of most hospital settings, medics are often thrust into chaotic environments in which they may be the only person with the knowledge to make critical decisions. In this setting, the autocratic leadership style is beneficial, in that it is expedient, direct, and absolute.¹⁰ This directive type of leadership leads to higher performance in stressful, fluctuating, and complex conditions and contrasts sharply with the collaborative methods of teaching often found on the wards.¹¹ Introducing students to alternative leadership styles will provide them with an additional tool should they find themselves in this environment.

Tactical non-commissioned officers at West Point, recruit division commanders and Marine drill instructors at Officer Training Command, and non-commissioned officers in schools such as Army Airborne and Air Assault all counsel, train, and develop ethics and discipline in officers. What makes training unique during Operation Gunpowder is the shared understanding that the same physicians learning from Special Operations Medics and Corpsmen will eventually be preparing them in pre-deployment training. They will also be receiving patients from them at a Role 1 facility or working alongside them in an operational environment.

The results of our study suggest that the use of medics in a training setting is a valuable model for both military and civilian education and training. We believe that reciprocal and collaborative learning in an interprofessional environment such as Operation Gunpowder can increase the effective utilization of medics, aid in understanding of unique skill sets, and ultimately result in a Medical Officer more equipped to teach and empower enlisted medical personnel in the future. The third-year medical students’ perception of the value of being trained by medics at Operation Gunpowder will drive our future research. Specifically, the research will be regarding the impact of this innovative training approach and the ways in which the pedagogy used throughout this field practicum impacts student learning and professional development. Past research has focused on the value of simulation-focused pedagogy, but none has yet explored the integration of medics into a simulation focused on training military medical students.^{12,13}

In the civilian realm, experiences of paramedics outside the hospital provide insight to the community. Aside from a unique skill set, civilian paramedics have knowledge of a host of healthcare disparities that may never arrive at a clinic or hospital. For example, a large number of opiate overdoses were never transferred to the hospital and never seen by a physician.¹⁴ With most physicians staying in the state in which

they learn medicine, this provides budding civilian doctors with a tap on the community they will be working with and builds relationships that may last well beyond training.

This model likewise plays a particularly significant role in the military, in which new officers will be required to train medical units and advise commanders on decisions surrounding medical asset utilization and logistical considerations. Basic officer training in all branches of service is led by senior enlisted leaders. These enlisted personnel set high standards for officers in training to emulate and play a crucial role in the medical education of medics and corpsmen. As one corpsman on our research team concluded, “Building that relationship between the medical officer and the enlisted servicemember, that corpsman or medic that they’re going to be supervising and working with later on in their career once they graduate from here and move on, is invaluable.”

Limitations

While a sample size of 35 participants is acceptable for qualitative research, we plan to gather additional quantitative data from future larger scale military medical field exercises on medic and corpsman roles and interactions. Our future research will also focus on collecting quantitative data regarding the impact of the pedagogy and curriculum at Operation Gunpowder on student learning.

Conclusion

Based on our results regarding the students’ learning experiences at Operation Gunpowder, the integration of Special Operations Medics and Corpsmen into the teaching faculty appears to be an effective tool for teaching medical students about the role medics fill, and about their own roles as medical professionals.

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