The Impact of Medical School on Military Physicians’ Readiness for their First Deployment

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ABSTRACT
Introduction:
Military physicians receive their undergraduate medical training primarily by either attending civilian medical school, through the Armed Forces Health Professions Scholarship Program (HPSP), or by attending the Uniformed Services University (USU), a federal medical school with a military unique curriculum. The purpose of this study was to explore the perceptions of graduates from these two educational pathways regarding the impact of their medical school training on their readiness for their first deployment.

Materials and Methods:
We conducted 18 semi-structured interviews with military physicians who attended civilian medical schools and USU and who had deployed within the past 2 years. The participants also completed emailed follow-up questions. The interviews were recorded and transcribed. The research team coded the interviews, extracted meaning units, and identified themes that emerged from the data.

Results:
The following themes emerged from the data: (1) medical readiness; (2) operational readiness; (3) command interactions; and (4) role as a military physician. All of the participants perceived themselves to be prepared medically. However, the USU graduates were more confident in their ability to navigate the operational aspects of deployment. In addition, they described their ability to naturally build positive working relationships with their commanding officers and navigate their combined roles as both a physician and military officer.

Conclusions:
These perceptions of both the civilian medical graduates and USU graduates provide important insight to the military medical education community regarding the ways in which civilian medical schools and USU prepare students for their first deployment. This insight will help to identify any training gaps that should be filled in order to ensure that military physicians are ready for deployment.

INTRODUCTION
There are more than 10,000 active duty physicians in the US military.1 Military physicians play crucial roles during deployments—providing patient care and leadership at all levels of care.2 In order to prepare for their roles as military medical officers, military physicians receive their undergraduate medical training primarily through two main pathways: the Armed Forces Health Professions Scholarship Program (HPSP) and the Uniformed Services University (USU).3 Each of these pathways plays an important role in ensuring that the US military has a sufficient number of well-equipped physicians to care for its Warfighters.

HPSP, one of the two primary pathways, pays for students to attend medical school at any accredited civilian medical school in the USA. After graduation, students serve for a minimum of 3 or 4 years in the US military.4 While completing medical school, HPSP students are not active duty service members, rather they are Individual Ready Reserve.1 HPSP students participate in a one-month active duty training (ADT) tour each fiscal year throughout the course of the time they spend in medical school.3 The ADTs vary in content, and many are clinical clerkship rotations at military treatment facilities. In general, the ADTs do not contain specific deployment preparation training.

In addition to ADT, HPSP students attend and earn a “commission” from a commissioning source. The commissioning sources available to all military officers include the service academies, reserve officer training corps (ROTC) programs, and Officer Training/Development Schools.4 Military physicians who have not attended a traditional commissioning source may attend abbreviated commissioning programs teaching the basic officership knowledge and skills required...
of medical officers. All HPSP graduates would have attended training and earned a commission prior to deployment. HPSP students may also attend a three-day Combat Casualty Care Course (C4) that focuses on pre-deployment trauma training schools before their first deployment. The services have different requirements for pre-deployment training that change frequently, and can also be waived. There is no uniform pre-deployment training that all HPSP graduates can be assumed to have received.

In addition to the HPSP pathway, USU, the nation’s only federal medical school, is the other primary accession option for military physicians. Support the readiness of America’s Warfighter and the health and well-being of the military community by educating and developing uniformed health professionals, scientists and leaders; by conducting cutting-edge, military-relevant research, and by providing operational support to units around the world. Students at USU are active duty service members. In return for their tuition-free medical school education, USU students serve in the US military for at least 7 years after graduation.

USU offers a military unique curriculum (MUC) during medical school. This curriculum focuses on three primary areas: military field medicine, leadership, and military medical officership. Much of the MUC education is delivered in multi-day Military Field Practicums (MFPs), which students attend once per year throughout medical school. One of the four MFPs is Operation Bushmaster, a five-day high-fidelity military medical practicum that serves as a culminating experiential learning environment for USU’s MUC. During Operation Bushmaster, fourth-year medical students encounter leadership challenges, ethical dilemmas, active security threats, mass casualty scenarios, global health engagements, and provide care to thousands of simulated patients in a resource-limited environment.

USU’s MUC extends to the classroom as well. For example, before attending Operation Bushmaster, USU students complete a ten-day preparation course called Military Contingency Medicine, where they review and practice Tactical Combat Casualty Care, Forward Resuscitative Care, casualty prevention, preventive medicine, health surveillance, risk management, as well as combat and operational stress control. In addition, they discuss the roles of a military medical officer in detail as they prepare to practice serving on an operational commander’s staff at Operation Bushmaster.

While previous studies have assessed various dimensions of USU’s educational program, no prior research, to our knowledge, has specifically compared the self-perceptions of USU and HPSP graduates about their preparation for a first deployment. These perceptions are key to understanding the strengths of each educational pathway and to informing the military medical education community about possible gaps in preparedness amongst military medical officers during their first deployment that should be addressed.

Objectives
This qualitative phenomenological study explored the perceptions of military physicians from diverse medical school backgrounds regarding their readiness for their first deployment.

The objectives of this study were to:
1. Explore the perceptions of active duty military physicians from diverse medical school backgrounds regarding their readiness for their first deployment.
2. Compare perceptions of military physicians who attended a military medical school to the perceptions of military physicians who attended a civilian medical school regarding their readiness for their first deployment.

MATERIALS AND METHODS
Phenomenological qualitative research design aims to explore the essence of the participants’ perceptions of a phenomenon, rather than make definite conclusions. This qualitative research tradition does not focus on outcomes, rather on providing a rich description of the common experiences of the participants. We utilized this phenomenological design to gain an in-depth understanding of the participants’ perceptions and shared experiences of their first deployment, the phenomenon examined in this study.

Data Collection
In qualitative research, no rules exist regarding sample size. Instead, the validity of the results is derived from the “information richness” of the cases and the data analysis abilities of the research team. Therefore, in this study, we utilized purposeful sampling to recruit 18 active duty Navy, Air Force, and Army physicians who completed their first deployment within the past 2 years (2019-2021) to participate in one-hour long interviews. Seven of these participants graduated from USU and 11 of these participants graduated from a civilian medical school (See Supplementary Appendix B). In addition to these interviews, the participants were emailed three follow-up questions after their interview in order to triangulate the data, ultimately strengthening the design of the study. The participants were recruited in collaboration with Army, Navy, and Air Force specialty leaders, as well as through USU faculty members. Snowball sampling was also used in this study, as volunteer participants were asked to forward the study details to other potential participants.

The Primary Investigator (PI) conducted and recorded the interviews via Google Meet and phone, depending on the location connectivity of the participant. The interview and emailed follow-up questions were open-ended. The PI used probing follow-up questions to gather additional information during the interview (See Supplementary Appendix A). The interview recordings were downloaded and transcribed using an automated transcription service. After each interview, the

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PI emailed the participants three follow-up questions. Eight out of the 18 participants (44%) responded to these emailed follow-up questions. The PI also emailed transcripts of the interview to the participant to verify the accuracy of the data, a process known as member checking.10

**Data Analysis**

We analyzed data in this study by means of the six steps of phenomenological qualitative data analysis: (1) bracketing; (2) data review; (3) phenomenological reduction; (4) extraction of meaning units; (5) identification of themes; and (6) data displays.16

**Bracketing**

The researchers in this study explored and discussed their inherent biases as faculty members at a military medical school and the ways in which potential biases needed to be bracketed, or set aside, so they did not interfere with the interpretation of the data.9 The team engaged in reflexive journaling, in which they wrote about how their biases and experiences may be influencing their data analysis, and then discussed these reflections as a group in order to gain a better sense of self-awareness throughout the course of the study.11,12

**Data review**

After conducting and transcribing the interviews, the PI listened to the interviews multiple times in order to review and confirm the automated transcriptions. The research team then reviewed the interviews in-depth to grasp and understand the nature of the participants’ perceptions and experiences.12,14,16

**Phenomenological reduction**

Throughout the coding process, the research team noted terms, phrases, and concepts within the interview transcripts that they found to be salient to answering the research question based on their expertise and training as military physicians and qualitative researchers. In addition, significant quotes from the interviews were identified by the research team that illustrated the essence of the participants’ perceptions and experiences.8,10,15 The research team met to discuss these notes and came to a consensus on their understanding of the phenomenon.

**Extraction of meaning units**

When reviewing and coding the transcripts, the research team noticed repetitive words and phrases made across the participants and made note of these patterns.8 These statements with similar meanings were clustered into meaning units, which represented the essence of the participants’ perceptions and experiences.15

**Identification of themes**

The research team then reviewed the meaning units and organized these units into themes that illustrated the participants’ perceptions and experiences. During this process, the research team engaged in constant reflection about how their biases may have played a role in the identification of themes, especially in regards to the differences between the military medical school and civilian medical school graduates. The research team continued to bracket their biases in this step of the data analysis process.

**Data displays**

A cross-case analysis was conducted to illustrate the similarities and differences among themes across all of the participants. This cross-case analysis was displayed in Tables so that the differences and similarities between the military medical school graduates and the civilian medical school graduates could be more easily understood.16

**Strategies to Increase Trustworthiness**

Because qualitative research is interpretive and subjective, the validity of a qualitative study’s findings must be established.11 Therefore, steps must be taken to establish the accuracy and credibility of the study’s results.11,12 In this study, triangulation, the verification of evidence through the examination of multiple data sources, was achieved by analyzing both the interviews and follow-up questions.12 We also used member checking, an external audit, and a research team to validate the results and to increase the credibility, transferability, dependability, and confirmability of this study.10,12,17

An external auditor, an Associate Professor of Education at the Penn State College of Education with 12 years of experience as a qualitative researcher, reviewed the interview transcripts, the codebook, and the research team’s reflexive journals in order to confirm the study’s themes and findings. In addition, the interview data in this study was triangulated by the participants’ follow-up email question responses. The PI also mailed the transcriptions of the interviews to the participants for their review and edits after the completion of their interviews. Finally, the PI discussed the emerging patterns in the study’s data with the interview participants throughout the interview process so that they could provide feedback on their perception of the validity of the study’s findings.

The research team who completed the data analysis in this study was trained in qualitative research methodology and was composed of distinguished members of the military medical community. The team consisted of three military physicians (a Navy Captain, a Navy Commander, and an Air Force Lieutenant Colonel), a veteran military emergency medicine physician, and two medical students, one of which was a former Army nurse. Each of the military physicians currently serves as faculty at the Uniformed Services University of the Health Sciences (USU), and therefore engaged
in reflexivity to bracket their own biases throughout the data analysis process.\textsuperscript{13}

RESULTS

The following themes emerged from the data: (1) medical readiness; (2) operational readiness; (3) command interactions; and (4) role as a military physician.

Theme 1: Medical Readiness

All of the participants were confident in their medical preparation for deployment (See Table I for illustrating quotes). Participants 5, 11, 14, 16, and 17, who graduated from civilian medical schools, cited the skills they learned in medical school such as quick decision-making, researching best practices, knowing when to ask for help, adjusting to a new environment, and navigating difficult patient interactions, as helping to prepare them for their first deployment. It should be noted that participants 3, 4, 7, 8, 9, 13, 16, and 18 completed a specialty residency before their first deployment, and most who had completed residency cited this additional education and training as being crucial for preparing them for deployment.

Participants 3, 6, 10, 15, and 18, all USU graduates, referenced their time practicing medicine at MFPs during medical school as being key for preparing to practice medicine on deployment. For example, Participant 3 described how they had practiced navigating a suicide during a field practicum, which prepared them for navigating the suicide of one of their soldiers during deployment. “One day when I was the platoon leader at Bushmaster, one of my soldiers killed themselves…and then one of my soldiers down range shot himself right in front of the other soldiers.” Participant 10 echoed the importance of this high-fidelity training. “We got training during Bushmaster in the helicopter simulation, that definitely helped a lot, understanding how difficult it is to put in an IV, how hard it is to listen to heart and lungs in a moving helicopter with the vibration, nighttime, and the smoke.” In addition, all of the USU graduates described the benefits of learning and applying Tactical Combat Casualty Care guidelines\textsuperscript{19} during medical school, which they confidently utilized in the field.

Theme 2: Operational Readiness

In addition to their medical readiness, every participant reflected on their operational readiness for their first deployment (See Table II for illustrating quotes). Participants 1, 2, 4, 13, 14, 16, and 17, civilian medical school graduates, emphasized their lack of operational preparation and described the steep learning curve in adjusting to the operational environment. Their primary challenges stemmed from the lack of resources, the unfamiliar language, and the unfamiliar surroundings in the operational environment. The civilian medical graduates worked hard to overcome these challenges. Participant 4, for example, described how they overexerted themselves to the point of exhaustion. “Mentally and emotionally, it took about a solid nine months of recovery, I would say.”

Participants 3, 6, 9, 10, 15, and 18, USU graduates, provided specific examples of how their medical school education and training prepared them for the operational aspects of their deployment. Because they completed multiple MFPs in medical school, they were confident in their abilities to navigate the deployed environment. The tasks they faced were familiar to them because they had prepared for these tasks both in the classroom and in the field. Participant 9 described how their peers noted their calm demeanor during large mass-casualty exercises, and they explained to them that he felt in his “natural state” due to practicing this type of scenario in medical school. Participant 18, who was recently deployed to Bagram Air Base in Afghanistan during the fall of Kabul, reflected on the realism of Operation Bushmaster. “The mass casualty exercise at the end, looking back on that and how they were able to create that sense of chaos and urgency and just the fog of war, I can now say it was very accurate.”

Theme 3: Command Interactions

All of the participants recognized the importance of communications with superior officers in their role as military physicians and staff officers during their deployments (See Table III for illustrating quotes). Participants 2, 4, and 17, who graduated from civilian medical school, described the frustration they had in communicating with and understanding the decision-making processes of the commanding officers during their deployment, which stemmed from an unfamiliarity with military culture, terminology, and hierarchy. Participant 4 recalled difficulty with “knowing how to communicate with commanders and leadership levels…coming out of a civilian medical school, you don’t talk to really anyone like that, so learning how to communicate was definitely a learning curve.”

Some of the participants struggled to understand the command’s decision-making authority, especially when it did not make sense or seem logical to them. For example, Participant 17 noted that “ask[ing] another adult permission for me to go and do things was more difficult and more frustrating than anticipated.”

All of the USU graduates reported that they were comfortable in developing relationships with commanding officers. All of them described how they developed positive working relationships with their commanding officers, a process they felt comfortable with due to their interactions with high-ranking officers who were their professors throughout medical school. Participant 15 recalled that during medical school “exposure to higher ranking officers and interacting with them on a daily basis was a good experience to not necessarily be intimidated, and allowed me to still do my job and do the things I needed to do without having to second guess.” All of the USU participants described how they learned and practiced military terminology and etiquette throughout medical school, which
TABLE I. Theme 1: Medical Readiness and Illustrating Quotes Comparing Educational Backgrounds

| Civilian medical school graduates | USU graduates |
|----------------------------------|---------------|
| “I’ve made a snap decision with good, obviously medical judgment, but being able to pull the trigger on something that needs to get done at that time is super helpful.” (P5) | “One day when I was the platoon leader at Bushmaster, one of my soldiers killed themselves…and then one of my soldiers down range shot himself right in front of the other soldiers, so it was like, Yeah, this really happened.” (P3) |
| “Knowing how to research and find knowledge is another skill taught that we sometimes don’t realize how much we use.” (P11) | “There’s definitely an explicit difference between hospital-based trauma care and pre-hospital trauma battlefield medicine. So I had the exposure from USUHS and from my classmates who had served prior as corpsmen or deltas or what have you, to understand the needs and necessities of TCCC care.” (P6) |
| “The most important part of my medical school training for deployment was knowing when to ask for outside help from specialists when I reached the end of my medical knowledge.” (P14) | “I think I was pretty prepared, I think military medicine, even though we have different specialties, it’s all kind of a same… It’s all vast majority is musculoskeletal injury, psych, and then dermatology and rashes and stuff like that, and I think they do, I think taught pretty well to use at USUHS in a sense. You understand that.” (P10) |
| “You just got used to checking in in a new place and learning a new role quickly, I think those kind of soft skills, other than that, I don’t know that medical school helped at all… No real supply, leadership, planning, or relevant clinical training.” (P16) | “We got training during Bushmaster also in the helicopter simulator, that definitely helped a lot, understanding how difficult is to put an IV, how hard is it to listen to heart and lungs in a moving helicopter with the vibration, nighttime, and the smoke, all that kind of stuff helps a lot.” |
| “To question of med school training, I would say…not medical skills but more that, life skill, how to de-escalate or just, you know, whenever you don’t have a winning hand in a conversation and bow out and move forward, that probably was, was probably, unfortunately, utilized little too much.” (P17) | “The work up to our first deployment, we actually diagnosed someone with a tapeworm. One of our sailors was having weird symptoms, and went on deployment two years earlier, but had gone to some country where you’re eating some local food, etcetera, etcetera, and we’re like, You know what this starting to sound parasitic, that’s the unique USUHS education that most people aren’t… A normal medical school may not have been exposed as much to preventative medicine, and I think that was one of the things we trained to think about. So tell me more about your past deployments, where did you go? What did you eat? And then sure enough, he had a tape worm, and we ended up publishing a case report about it.” (P10) |
| “I think Bushmaster specifically, and just that experience, being out in the field for a while and the kind of role one care that is provided. That was a great practice for not only the deployment, but my entire tour with the Marine Corps. Bushmaster was definitely valuable, and then the MSK Module because that was primarily the injury that I was seeing was really helpful. Those were the injuries that we saw pretty much the entire deployment, but that kind of foundational knowledge in basic primary care, MSK injuries, was really valuable.” (P15) | “I think Bushmaster specifically, and just that experience, being out in the field for a while and the kind of role one care that is provided. That was a great practice for not only the deployment, but my entire tour with the Marine Corps. Bushmaster was definitely valuable, and then the MSK Module because that was primarily the injury that I was seeing was really helpful. Those were the injuries that we saw pretty much the entire deployment, but that kind of foundational knowledge in basic primary care, MSK injuries, was really valuable.” (P15) |
| “The mentality that USUHS creates in its students that you’re not always going to have everything you want or even everything you need, but you are still expected to adapt and provide excellent medical care. There were a lot of times throughout the entire deployment where we had to make decisions on what equipment and supplies do we need right now to provide this level of medical care. For example, when we shut down Bagram, upper command, General Miller, commander of all forces in Afghanistan said, ‘I want Role 3 capabilities at Bagram until the end.’ But we had to shut the place down get it all cleared out, we were shipping things up to Kabul, and so the mentality of like, Well, alright, so how do I pair this down to what I really need to provide excellent medical care.” (P18) | “The mentality that USUHS creates in its students that you’re not always going to have everything you want or even everything you need, but you are still expected to adapt and provide excellent medical care. There were a lot of times throughout the entire deployment where we had to make decisions on what equipment and supplies do we need right now to provide this level of medical care. For example, when we shut down Bagram, upper command, General Miller, commander of all forces in Afghanistan said, ‘I want Role 3 capabilities at Bagram until the end.’ But we had to shut the place down get it all cleared out, we were shipping things up to Kabul, and so the mentality of like, Well, alright, so how do I pair this down to what I really need to provide excellent medical care.” (P18) |

helped them to easily interface with operational commanders from the outset of their deployments. For example, Participant 6 stated that “I think that having the base of coming from USUHS and knowing how to communicate and ask the right questions got me off on the right foot. I felt like I knew how to brief the commander…a skill I learned from USUHS.”
TABLE II. Theme 2: Operational Readiness and Illustrating Quotes Comparing Educational Backgrounds

| Civilian medical school graduates | USU graduates |
|----------------------------------|---------------|
| “Just how challenging now that I’m talking about it and remembering some of the things that were really hard, just the challenge of actually trying to do medicine on a clinic that’s on board ship, the connectivity is horrible.” | “I think part of it is going to USU and getting that Bushmaster training… We did a lot of that. We did the TCCC early on… I think that was helpful because I already had some of those combat medical skills, so just remembering those. Yeah, being prepared that way, and then I think some of the scenarios, we had at Bushmaster were very realistic.” (P3) |
| “We frequently had repairs going on on the ship, there was a guy needle gunning outside my office, almost all days all the time. In fact I got tinnitus from it. I would leave some days from work and I’d be wearing double ear pro, I try to talk to patients while I’ve got needle gunning going on, it was kind of absurd, and I’m apologizing to my patients and I’m like, “Guys, you can you guys needle gun like not while I’m seeing clinic,” and they’re like, “No, sorry.” | “I think understanding the evacuation chain, the initial triage assessment and then the evacuation chain was really big, because I had to coordinate an evacuation of a handful of my patients out of country, back to the United States, and just understanding all of these stuff that goes into that and basically practicing that to some extent at Bushmaster was really important.” (P6) |
| “I did ODS with my husband right before we went into internship, so we got a little bit of a flavor, granted its still like a fork and spoon school… So a little flavor of military culture before going to internship and then internship, you really don’t do anything… I mean, you do go to C4, which is kind of… I can’t remember if it’s two or three weeks in San Antonio, and it’s all like combat medic kind of boots on the ground response, like in a war, it was mostly just fun and interesting.” | “When we’re out here, it’s like austere conditions. It’s nothing… And I could directly relate it to my USUHS experience, so putting together large mass casualty exercises, which we’ve done a couple of times here, that’s just point, we’re doing it for so long that it’s pretty strange to people…[they say] ‘You’re always so calm and you seem like in your natural state.’ But it’s like, ‘Yes, it’s because we’ve been doing it for so long,’ and I think that’s pretty unique to USUHS as well.” (P9) |
| “The biggest thing that I would lose from being on the civilian side is the administrative stuff for your corpsman and your IDCs, the people who need you… You don’t understand those things as much as maybe somebody from USUHS, and so then they’re inhibited as far as being a naval officer goes, not being as good at understanding their fit reps, understanding how their promotions go, how they advance, and trying to figure out how to be a good naval officer. I think I probably was behind compared to someone from USUHS from that.” | “That was another piece from Bushmaster, you deal with a lot of psych, more in a battlefield context, but I think that was definitely adaptable to the shipboard scenario.” (P10) |
| “But no adaptation, but no preparation going into it, really, so I definitely came out the other end pretty tired and beat down, but there was no other way to go about doing it.” | “I had to get caught up to everything that everybody else had already done throughout their schooling and trying to understand what an instruction was and why we cared, when we were talking about policies and procedures and trying to just wrap my head around a whole lot of stuff that is military and unique to military. I was trying to figure out rank and structure and the policies that people use… I didn’t know that you needed the CAC to get back on the ship, it was so much to learn. And I feel like anybody who would who had been in the military for a while would not have had that type of learning curve necessarily.” (P13) |
| “We had a military medicine interest group type thing, but we didn’t do anything operationally-minded or anything like that, I was just kind of figuring out how to pay your bills through the Navy, so that definitely felt behind the eight ball on that.” | “Some of the academic stuff, not necessarily in the field, in prep for being out in the field, just learning what the facilities were, what kind of roles and capabilities each facility had was definitely big… When we were looking at real world, real life hospitals to potentially take patients to… I definitely say that the prep at USUHS makes things much easier for me.” (P14) |
| | “The basic field experience was the most important and most applicable for me as a Role 1 provider for an infantry unit. That is what we learn how to do during the training at USUHS, and was exactly the role I was in during my deployment. The knowledge from the lectures about MEDEVAC chains, roles of care, etc. were crucial in my ability to understand and perform my job while deployed.” (P15) |
TABLE II. (Continued)

| Civilian medical school graduates | USU graduates |
|-----------------------------------|---------------|
| "The operational world is so completely different from a hospital or a clinic, and I went to a civilian medical school in Appalachia, Mountains down in Tennessee, and so that was about as far from an aircraft carrier as you can get and still be in a professional school." (P16) | "The sleep deprivation at Bushmaster, at least when I went through it… The way my job assignments worked out, I only slept maybe a few hours the entire five days, which was very similar to what we all did after the fall of Kabul. And then the mass casualty exercise at the end, looking back on that and how they were able to create that sense of chaos and urgency and just the fog of war… I can now say it was very accurate to the point where like… So I’ve been looking forward to going back to Bushmaster since I was a medical student, I’m like, I want to go be a faculty at Bushmaster. And this year, even though I’m home in time, I’m like, I’m not ready. It was too realistic for me to go back right now.” (P18) |
| ‘It is just all the acronyms, there’s so much in people speaking in this alphabet soup, and it’s very difficult to, as a lay person coming in, to understand… that additional initial thing that I didn’t get was all of this combat trauma medicine and the lingo that they speak, I’m sure it helps you fit way more seamlessly into a deployment environment.” (P17) | |
### TABLE III. Theme 3: Role as a Military Physician and Illustrating Quotes Comparing Educational Backgrounds

| Civilian medical school graduates | USU graduates |
|----------------------------------|---------------|
| ‘My command was very classic, I feel like military. And what you would imagine so… As being like an outsider, if you were… if you were thinking of the military in the classic sense of, everybody needs to call attention and stand up for the CO… He was very proper, might be the best way to put it… And so, initially there was some… I did get criticized by the XO one time for being too ‘stoche’ I think what his terms were, and not having appropriate military bearing in discussing things with the CO, and that was one time where that happened with me.” | ‘I think because I was flexible, and I basically never said no when he asked me to do something… as long as everyone’s covered, everything was taken care of, he let me kind of do what I needed to do.” (P3) |
| ‘Another thing that we ran into, at least with my wife and I was the fact that we got put on two sister ships and the CO of my boat had an issue with my wife and I being on the two sister ships, and so he would not let either one of us work in the same boat, whereas in the past, the GMOs between those two boats would work together often, like with work on the same medical department when one was deployed, or would come on board and help out if something happened. But that was not authorized by my CO. So that unfortunately created a bit of a bitter taste in my mouth from the beginning. So I didn’t have the best relationship, I think with my command.” (P2) | ‘Having that exposure of a military hierarchy helped me adjust and develop the relationships a lot easier, I knew who the role players were at any given setting.” |
| ‘Just learning the workflow of how lines operate, so medical decision-making processes when talking to commanders, so knowing how to communicate with commanders and leadership levels…coming out of a civilian medical school, you don’t talk to really anyone like that, and so learning how to communicate was definitely a learning curve.” (P4) | ‘I definitely learned how to communicate through the chain command at USUHS, I think that having the base of coming from USUHS and knowing how to communicate and ask the right questions got me off on the right foot. I felt like I knew how to brief the commander… a skill that I learned from USUHS.” |
| ‘What was probably more difficult, I thought, was the lack of freedom that at all times. I have a wife… I just came from civilian residency, and I’m used to if we want to go somewhere that’s four hours away on the weekend and we’ve got five days off in a row, then we go. That we need to take leave and ask another adult permission for me to go and do things that was more difficult and more frustrating than anticipated.” (P17) | ‘Deployed, a Lieutenant Colonel has a lot of requirements on him, so he’s incredibly busy, so I have to basically know what needs to reach his level, and so I had to use some discretion in my role to… know when I needed to speak with him face-to-face, and when I can wait to talk to him, but he… he was always open, we had a great working relationship.” (P6) |
| ‘Each branch has their own command structure and First Sergeant, and you start learning early on the importance of respect and proper little things like proper uniform, proper haircuts, and proper way to report and greet your senior leadership.” (P9) | ‘Each branch has their own command structure and First Sergeant, and you start learning early on the importance of respect and proper little things like proper uniform, proper haircuts, and proper way to report and greet your senior leadership.” (P9) |
| ‘What was probably more difficult, I thought, was the lack of freedom that at all times. I have a wife… I just came from civilian residency, and I’m used to if we want to go somewhere that’s four hours away on the weekend and we’ve got five days off in a row, then we go. That we need to take leave and ask another adult permission for me to go and do things that was more difficult and more frustrating than anticipated.” (P17) | ‘Because we had developed, going back to USUHS education, knowing how to build a good rapport, understanding before this, we had already built a good rapport and a trusting working relationship.” (P10) |
| ‘Realizing that my boss is an O6 and I’m an O3, and maintaining that formality and respect at the same time, kind of an assertiveness on what I required for sailors. But it kind of took a little time to figure out... But we had a very good relationship.” (P12) | ‘Realizing that my boss is an O6 and I’m an O3, and maintaining that formality and respect at the same time, kind of an assertiveness on what I required for sailors. But it kind of took a little time to figure out... But we had a very good relationship.” (P12) |
| ‘A lot of faculty at USUHS have had a lot of distinguished careers and are usually pretty high ranking, and so exposure to higher ranking officers and interacting with them on a daily basis was a good experience to not necessarily be intimidated, and allowed me to still do my job and do the things that I needed to do without having to second guess.” (P15) | ‘A lot of faculty at USUHS have had a lot of distinguished careers and are usually pretty high ranking, and so exposure to higher ranking officers and interacting with them on a daily basis was a good experience to not necessarily be intimidated, and allowed me to still do my job and do the things that I needed to do without having to second guess.” (P15) |
| ‘Having the background knowledge of how the deployed military medical system works, and what is a Role 3? What is a Role 2? What are the capabilities involved with that and what is needed to maintain them? I think made me much more effective at interfacing with our leadership and meetings, being able to speak to... ‘Sir, you’re telling us to keep Role 3 capabilities, this is what that entails, and this is why we’re no longer able to meet it, and so why we need to accept fewer patients at this point in time.’ So I think that background knowledge helped me be more effective and helped me advocate for the people I was with as well.” | ‘Having the background knowledge of how the deployed military medical system works, and what is a Role 3? What is a Role 2? What are the capabilities involved with that and what is needed to maintain them? I think made me much more effective at interfacing with our leadership and meetings, being able to speak to... ‘Sir, you’re telling us to keep Role 3 capabilities, this is what that entails, and this is why we’re no longer able to meet it, and so why we need to accept fewer patients at this point in time.’ So I think that background knowledge helped me be more effective and helped me advocate for the people I was with as well.” |
| ‘Colonels are a dime a dozen at USUHSSH. So I don’t want to minimize the significance of that rank, but you’re just more used to interacting with folks who are higher ranking than you and in leadership positions.” (P18) | ‘Colonels are a dime a dozen at USUHSSH. So I don’t want to minimize the significance of that rank, but you’re just more used to interacting with folks who are higher ranking than you and in leadership positions.” (P18) |
Theme 4: Role as a Military Physician

The participants noted that a key aspect of their readiness for first deployment was impacted by the navigation of their combined roles as a physician and a military officer. Participants described how the medical school did not prepare them for the operational aspects of deployment. They faced a steep learning curve once in the deployed environment, and navigating deployment, such as a soldier suicide, treating a patient at the onset and height of the COVID-19 pandemic. In this study, all of the participants believed that they possessed the medical skills they needed for deployment. In a practical way at Bushmaster, "just the complete disregard for someone who is your senior medical officer giving you their expertise, it's just jarring."

Participants 6, 9, 10, and 12, USU graduates, articulated their role as an advisor to the commanding officer and described how they had learned about and practiced this role as a part of their USU curriculum. The participants discussed their strategies for framing medical advice in a way that aligned with the commander's mission so that it would be more readily received. Participant 10 related this skill directly to a military field practicum they participated in medical school, where they role-played interactions with a commanding officer and practiced framing their medical advice according to the mission, the same approach they utilized with the commanding officers of a Carrier Strike Group at the outbreak of the COVID-19 pandemic. "Early on, if you establish that you understand your role, you understand your role is to support the mission, you will get taken a lot more seriously. And I think all of these little pieces together were taught to us in a practical way at Bushmaster."

DISCUSSION

This study employed a qualitative phenomenological research design to explore the perceptions of military physicians with diverse educational backgrounds regarding their first deployment. In this study, all of the participants believed that they possessed the medical skills they needed for deployment. The civilian medical school graduates focused on the medical skills they learned in medical school that prepared them for their deployment. The USU graduates linked their medical school experiences directly to the cases they encountered during deployment, such as a soldier suicide, treating a patient in a helicopter during a medevac from an aircraft carrier, or treating patients after the Abbey Gate bombing at the Kabul Airport.

While all the participants felt they received the necessary medical education and training they needed for deployment during medical school, many of the civilian medical school graduates described how the medical school did not prepare them for the operational aspects of deployment. They faced a steep learning curve once in the deployed environment, describing the time and energy they invested in overcoming those challenges. The USU graduates, in contrast, cited their medical school operational education as the most helpful preparation for their first deployment, as they felt comfortable with navigating the operational settings they experienced during medical school at the very outset of their deployment. For example, all of the USU graduates discussed how Operation Bushmaster taught them to handle the complex conditions and scenarios they encountered while on deployment, especially at the onset and height of the COVID-19 pandemic.

Another important theme in this study was the participants' interactions with their commanding officers. The civilian medical school graduates described their struggle to understand military terminology and to make sense of their position within the command hierarchy. The USU graduates appeared to be more comfortable in their interactions with commanders, as their professors at USU with prior operational experiences provided them the opportunity to become familiar with military culture and rank structure.

Finally, the participants described their role as both a physician and a military officer and how they had to navigate this combined role during their deployments. The civilian medical school graduates were often surprised or frustrated with the lack of deference by their commanding officers to their medical expertise, especially during the COVID-19 pandemic. In contrast, the USU graduates used a mission-focused mindset, rather than solely a medical mindset, to advise their command and navigate these role challenges more easily. The USU graduates provided specific examples during medical school when they had learned and practiced their combined role as military officers and physicians, both in the classroom and in the field at Operation Bushmaster.

Overall, when asked directly at the end of each interview, six out of the seven USU graduates rated themselves as more prepared for their first deployment compared to their peers, while seven out of the 11 civilian medical school graduates rated themselves as the same level of preparation for their first deployment compared to peers. The three that rated themselves as more prepared than their peers had either attended a military residency that prepared them specifically for the operational environment, had attended a service academy, or had been prior enlisted.

Limitations

Many confounding variables existed in this study, including the influence of residency or military training after medical school, such as attendance at C4, on civilian medical school graduates’ perception of their readiness for deployment. The civilian medical school graduates who had attended residency emphasized the value of the education and training they received there in preparing them for their first deployment. In general, it appeared that attending a military residency was an “equalizer” in helping the participants feel prepared medically and operationally for deployment. Completing an

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### TABLE IV. Theme 4: Role as a Military Physician and Illustrating Quotes Comparing Educational Backgrounds

| Civilian medical school graduates | USU graduates |
|----------------------------------|---------------|
| "I think from a medical provider standpoint, sitting down with the patient who, 'Are they actually suicidal?' Because that's always the question. It's like, 'Oh my gosh, this guy, we think this guy is suicidal,' and then you sit down with them and it becomes very clear whether or not they have serious intent or they don't, but translating that into a reasonable conversation with your command can be challenging. And I don't know if there's a way to recreate that stress, and it is anxiety provoking, because the command has guarantees that just don't exist in terms of protecting their sailors, so there's some aspects of navigating. I think that aspect that's probably even more stressful than just the patient care component." (P1) | "As with anything in the military, the commanding officer is the ultimate arbiter of basically any decision out there." (P6) |

| "Coming from the civilian world, and my first ever operational time, balancing learning how to balance what your line officers, who has no medical experience wants, and how to deliver that in a safe and ethical manner was sometimes tricky." (P5) | "A person with a bachelor's degree, who knows nothing about medicine is telling me how to do my job! Or, is it really how you're supposed to look at it? Or think about what is their job with the mission? And then how can you actually accomplish the mission and the tasks that your command has been given?" (P9) |

| "The ones that were making some decisions were not medical, they were medical logistics, so it was a little frustrating because some of the things that they would...or expectations they would have, would not have any scientific basis. So it was a lot of trying to communicate what science says versus what they want to be true, but overall it was fine. It's a matter of education and collaboration." (P7) | "Bushmaster is probably the most because it took all of many of the things that we already touched on, leadership is communicating with or with non-medical folks, how to integrate ourselves as advisors, but still an internal part of the mission. Because I think it's very easy for people a medical advisor shows up, and doesn't know their place as an advisor and just trying to push them around, will quickly get discounted. You will kind of get pushed to the side and everything you get to say starts getting taken with a grain of salt. Verses early on, if you establish that you understand your role, you understand your role is to support the mission, you will get taken a lot more seriously. And I think all of these little pieces together were taught to us in a practical way at Bushmaster. Because you do three weeks or whatever prep before, but then our instructors did a very good job of when you're... At least for my group, when you were the platoon leader, they would pretend to be the line leader, and then when we'd say, 'Okay, now we need to move our people here because there's this biologic contamination here.' They'd be like, 'Well, why should we do that?' This kind of forced us not to make just a medical argument, but to have a mission relevant medical argument, which is honestly very similar to what we ended up having to do." (P10) |

| "The one thing that did kind of surprise me a little bit was how if anything happened, my XO wanted to know about it regardless of HIPAA or whether or not I thought. I'm supposed to let him know if anything will affect the mission, but he wanted to know about anything regardless of whether or not I thought it would affect the mission, and so I got in trouble a few times not telling him about things that I didn't think were pertinent, but not a whole lot. Really surprised me." (P11) | "I think learning how to frame our advice and what are the impacts on the mission and what we're trying to accomplish, I think that is a big unique thing that USUHS has taught me." (P10) |

| "Just the complete disregard for someone who is your senior medical officer giving you their expertise, it's just jarring. And someone in the civilian side, you're so valued as a unit, as a physician to fill a spot in the hospital...but I know that the commander's goal is something different, and I'm just not used to that." | "I think one of the advantages that I have got out of USUHS was there wasn't as much of a culture shock, and as far as entering into the operational military, because it's definitely not what most physicians going into medicine, even in the military, I think really realize what they're getting themselves into. That you're not kind of from the front and center as the doctor, as an operational physician, you're an advisor and a helper, and your role is kind of making recommendations for, as far as healthcare goes. So I think I had a pretty solid understanding of that." |

| "We fell into this cycle of us providing our best medical opinions and then being completely ignored by the CO because it's not what the CO wanted to do, and it wasn't based on medicine or science." (P17) | "If there were things that we needed, concerns that we had, in terms of when to bring them up and when to push that medical needed priority on that and when to understand that their mission, ultimately decisions were theirs and our mission or our role was to support the mission. So I think USUHS did a pretty good job of instilling that ideology of our role as medical advisors and consultants to our commander." (P12) |
CONCLUSIONS

This study explored the perceptions of military physicians who attended civilian medical school or USU regarding their preparation for their first deployment. While all of the participants perceived themselves to be prepared medically, the participants who attended USU were overall more confident in their ability to navigate the non-medical operational aspects of deployment. In addition, they grasped their blended role as a physician and a military officer and approached their relationships with their commanding officers with a mission-focused mindset. This mindset was developed in medical school through consistent interactions with high-ranking officers as well as through practicing realistic scenarios in MFPs, resulting in their self-confidence when faced with similar scenarios during their first deployment.

These perceptions of both the civilian medical graduates and USU graduates provide important insight to the military medical education community regarding the ways in which civilian medical schools and USU prepare students for their first deployment. Civilian medical graduates, especially those who did not attend a military residency, may need additional education prior to their first deployment in regards to the operational aspects of the deployed environment. In addition, these physicians may need supplementary training regarding their combined role as physicians and military officers as well as intentional ways to interact with their superior officers. Overall, continued support for both educational pathways is key in ensuring that military medical officers are prepared and ready to accomplish their mission of keeping America’s Warfighter healthy and well.

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CONFLICT OF INTEREST STATEMENT

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