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About IDA

IDA is a private, nonprofit corporation that manages three federally funded research and development centers. Our mission is to answer the most challenging U.S. security and science policy questions with objective analysis leveraging extraordinary scientific, technical and analytic expertise.

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MAJ. GEN. PAUL FRIEDRICHS, JOINT STAFF SURGEON

Air Force Maj. Gen. Friedrichs provides medical advice to, and coordinates health-service issues for, the highest ranks of [the Pentagon](#), including the Joint Chiefs of Staff, the Combatant Commanders, and the Office of the Secretary of Defense. Having earned his M.D. from the Uniformed Services University in 1990, Dr. Friedrichs has served as commander at the squadron and group level and led award-winning teams throughout his career. In his roles as Command Surgeon for Pacific Air Forces, U.S. Transportation Command and Air Combat Command, he helped identify gaps, develop mitigation plans, and enhance readiness.



He also currently serves as medical advisor to the Department of Defense (DOD) COVID Task Force.

The Joint Staff surgeon's office has been heavily involved in coordinating and supporting the COVID-19 response. From your perspective, what should DOD and the Military Health System (MHS) take away as lessons learned?

This has been a tremendous wake-up call I think for many of us. I'm a surgeon by training, and over the course of my career we have seen all sorts of advances in robotic surgery, advances in genomics, and yet this virus reminded us that public health still matters, that at the end of the day the problems that our predecessors 2000 years ago in the Roman army dealt with are still problems that we can't forget and must prepare for, in a 21st-century military. So, as much as we want to focus on high-tech, cool stuff, we are going to have to continue to think about public health threats and prepare for them.

Someone made a comment to me — well, the good news is that this happens only once every 100 years. Unfortunately, as we look at the pace of pandemic events, they appear to be occurring more frequently over the last 50 years. So, while it's true that a pandemic of this severity has not occurred for 100 years, I don't know that we can take that as a *[given for the future]*. The biggest lesson learned is, as we prepare for the future, that preparation must include preparing for future biological threats, be they manmade or naturally occurring. And in order to do that, one of the things that we are really stressing is the need to continue to enhance our bio-surveillance across the force. We know that we have surveillance programs for the flu and for a variety of other illnesses. But what we really need both within the U.S. military, and with our allies and partners, is that strong sharing relationship that allows us to identify a new biological threat as it begins to surface, regardless of where it occurs. DOD is very fortunate that we've got a number of close partners that host overseas labs, or that host DOD bases. And we need to leverage those relationships so that we get a better understanding of biological threats if they're occurring in that environment.

And if we're able to detect it early, then we need to build on the real successes of this pandemic. One of them was our ability to rapidly develop high-quality, safe, and effective vaccines. I think one of the untold success stories that many folks don't understand is how important the work *[was]* that DARPA *[Defense Advanced Research Projects Agency]* did, now more than ten years ago, that laid some of the foundational science for mRNA vaccines. *[That work]* allowed us to be ready when the pandemic was identified, or when the cause of the pandemic was identified, and quickly move from sequencing to developing vaccine candidates. But the second amazing story that many people don't completely understand is the role that DOD and the Department of Health and Human Services *[HHS]* played throughout Operation Warp Speed, in partnering with American pharmaceutical companies to rapidly test and produce vaccines. Our partnership spanned

multiple agencies, with FDA [Food and Drug Administration] ensuring we were meeting safety requirements, HHS ensuring that we were complying with all of their requirements and helping with the clinical trials, DOD helping with logistics and on a number of other fronts so that we were able to field safe and effective vaccines in less than ten months. That's extraordinary. It's unprecedented in the history of medicine. And the potential for these mRNA vaccines to be used to mitigate risk from future infectious or biological threats, or for other medical applications, is a tremendous story that I hope more Americans will learn over time.

In addition to those protections, something that DOD took away was the importance of putting out clear guidance and the importance of strategic communications. As we look back, in my office I actually keep a binder, and it's about a six-inch binder now, of all the force health protection guidance that we put out. This guidance complements the protection from vaccines and testing protocols.

Vaccines have done a tremendous job of decreasing serious illness and death. Equally important are the things that many of us learned from our moms when we were about three or four years old, and codifying that, and reminding people of the importance of staying home when you're sick, maintaining some degree of social distancing, wearing a mask, handwashing, [which] prove to be just as important as any of the pharmaceutical interventions. That was, I think, a best practice within DOD to help to contribute to our relatively lower disease severity burden compared to other populations.



Then another big thing that we learned from this is the importance of understanding supply chains. For years, we have rushed towards the goal of efficiency, just-in-time supply, as inexpensively as possible. We were actually quite successful at that. We were successful because we were able to find overseas suppliers who were less expensive and, as it turned out, less reliable when the environment changed, when things became more challenging. I won't ascribe reasons to why some suppliers in particular countries were much less reliable than others, but this was a tremendous learning experience to discover which countries and which industries remain committed to the global supply chain. We've done a lot of work deconstructing our supply chain now, not only to understand where the vendors are located, but also where the ingredients for pharmaceuticals, or the components of equipment, are sourced, so that we better understand our vulnerabilities.

Another great-news story of this pandemic is the work to on-shore production of some key capabilities back in the United States again. We're fortunate that close allies and partners like the United Kingdom, Germany, and France remained trusted supply partners — trade partners — throughout the pandemic, but we've learned that we really do need to have more of our supply chain here in the United States. We're going to have to sustain that if we want to avoid some of the challenges that we faced throughout this pandemic, when we were not able to access manufacturing capacity, even if those companies were headquartered here in the United States. So, it's a good-news story in that we have begun the onshore process, but that is something that we will have to continue for years to come.

Another big take-away from this is the importance of international standards and transparency. Again, at a personal level, I was more grateful than I can express, for the partnership with my counterparts among many of our close allies; [I've] had weekly calls now for over two years with a number of the military surgeons general around the world. We shared information about what was happening within our military and within their militaries, best practices, and lessons learned. We also learned that there are some countries that are much less willing to be transparent or to abide by international standards. It's unfortunate that those countries would prioritize their individual benefit over the risk to the rest of the globe, and we need to accept that that is where some countries are in this discussion right now.

An opportunity for the United States is to continue to highlight the value of the commitments that we've made to international organizations like the World Health Organization, and to Gavi, the Vaccine Alliance. A part of that international commitment has been our donation now of over 400 million doses of vaccines, no strings attached, no quid pro quos. We

haven't demanded anything in return. Through that we've been able to strengthen some of these international partnerships that are really critical to maintaining the health and security of people around the world.

I'll come back finally to strategic communication. Our Canadian partners, for the first year and a half or so, had very consistent messaging across the medical community, the religious community, the business community, government and academia. Clear, consistent messages shared by trusted voices proved to be very powerful in informing decisions by the Canadian public. Unfortunately, we've certainly seen that when there's an effort to present misinformation, it can lead to a great deal of confusion, and make it harder for people to make informed choices. At the end of the day, basic public health is not that new. The Romans figured out that clean water was better than dirty water. For the last two thousand years, we've known that spreading illness is easy to do. George Washington required inoculations to protect the Continental Army against smallpox. Preventing the spread of illness requires some shared commitment to basic steps, basic public health measures to limit the spread. We're going to have to get back to rebuilding trust and identifying those trusted voices that can effectively communicate that message for us to be better prepared for future pandemics.



The good-news story is that there was good teamwork within DOD, great teamwork within the U.S. government on many fronts (some of which I have touched on already) and great teamwork with a number of our closest allies and partners. That's the good-news story. We all live on the same globe. We've got to figure out how to work together with all of the countries who, hopefully, will embrace our commitment to transparency and to improving global health.

As we transition from response to resiliency, where do you think the MHS should be focusing its attention?

The good news within the MHS is we can and did work well together. We began the synchronization calls, I believe, in March 2020. At one point we were meeting daily with all of the stakeholders across the MHS. We're now meeting twice weekly. Those have been invaluable forums to get everyone on the line, at times with over 300 people dialed in from across the MHS, all sharing and hearing the same messages about: where are we today, where are we going, what are the problems that we're working on, and when do we think we'll have a solution for them? That sort of collaboration is crucial with an organization as large as the U.S. military health system that literally spans the globe, with operating locations on every continent; you've got to have those sorts of forums where you can collaborate along the way.

The second part of the collaboration is trusting each other. It's no secret that the transition that Congress directed, through Military Health System reform efforts, has caused fundamental change. And, part of what has occurred through the pandemic has been, I hope, a growing trust that ultimately, we are still all on the same team, regardless of who has authority, direction and control. We're all medics. We're all concerned with protecting and sustaining the health of people who rely on us for their medical care. As much as we may have agreed to disagree on some of the questions about bureaucracy, and roles and responsibility, there was real unanimity and constancy of purpose when it came to how we mitigate risk to those who rely on us to take care of them.

I think another key part of this for the MHS was that we validated that there is very limited surge capacity in the U.S. health-care system. For years, some have asserted that we did not need the DOD medical infrastructure that we maintain for operational requirements, because in future conflicts there would be ample capacity in the civilian health-care system. This national public health emergency clearly relied on DOD repeatedly to support the whole of government response operations.

The National Academy of Science published a report just before the pandemic was identified, that expressed concern about the lack of resilience and a lack of surge capacity in the U.S. health-care system. And, boy have we ever seen that as this pandemic has been unfolding! Multiple times, the nation has turned to the DOD to provide staff, at times thousands

of military medics, that have gone out to augment civilian hospitals or to staff alternative care facilities, because of a lack of surge capacity when the health-care system was stressed.

I hope that one of the big lessons learned for everyone is the need to relook at our health-care system, and understand its strengths and its constraints. And if the expectation is that DOD needs to be available to provide this kind of support in the future, then we must maintain something similar to the capability and capacity to do so. There's no way that we can provide personnel, if those personnel are no longer part of the Military Health System.



If the decision is made to decrease the scope or the size of it, then we need to be very candid that that translates into a decrease in our ability to provide the type of support that our nation relied on repeatedly over the last two years.

Agility can be challenging to both health-care organizations and the government, but it is a cornerstone of the Joint Concept for Health Services (JCHS). How can we be more agile and responsive to emerging or unknown health threats?

So, it starts with planning. As with everything, planning is crucial. Using the plan is the next step. The good news is, when we rolled into this pandemic, NORTHCOM [U.S. Northern Command] had put together a global campaign plan for pandemic and infectious diseases. That was a good starting point, but we learned a lot over the last two years. They've updated that guidance, which they and the other geographic Combatant Commands have available and exercised. Beyond just the DOD planning, there was, I hope, a shared recognition of the value of the National Response Framework, or NRF, for the whole-of-government response. That has been developed over many years as a result of various disasters, natural or otherwise, here in the United States. Using the NRF tremendously improved our ability to quickly pivot to whatever the threat or the challenge was in the moment.

Having that framework in place and exercising it before the pandemic, was very helpful, so when we needed to leverage those relationships and those different capabilities across the whole-of-government, we knew who to call. And so, at least in my personal playbook, a commitment, a continued commitment to leveraging the National Response Framework is an important part of how we prepare for future threats.

I mentioned a few moments ago the importance of bio-surveillance. I don't think we can overstate that. With the change in environment around us, rising sea levels, and the frequency of storms, we can talk about all the weather-related changes that are happening, but we can also clearly see what's happening with new biological threats as we identify the new avian flu, new influenza strains, or the next naturally occurring biological threats. Having a robust surveillance network that we maintain so that it's ready to detect emerging outbreaks quickly is crucial to reducing the impact of future biological events. It's easy to say, "well why would I spend money on that? This doesn't happen all that often." We've seen with this pandemic, after over two years, in the United States alone, hundreds of thousands who have died. Literally, trillions of dollars of global economic impacts. It certainly seems penny-wise and pound-foolish to say that we're not going to invest in a good surveillance system because this only happens every so often. This impact has been astonishing. The best way to prevent a similar event in the future will be to have that robust surveillance network, and then the ability to quickly respond once a new biological threat is identified.

That's a good transition to recent National Defense Authorization Act (NDAA) language. Section 724 looks at integrated medical operations domestically, global patient movement, and bio-surveillance. Do you have any thoughts on that legislation or what folks should be thinking?

I think our congressional leadership has spent a lot of time thinking about how the military health system needs to evolve, and so there's been language now going back to 2013, driving change across the system. A lot of that has been beneficial. I'm incredibly proud of the fact that I'm an Air Force surgeon. I'm also very clear that when I open someone's abdomen, I can't tell if they're Army, Navy, Air Force, or Marines. We're people, and the military health system takes care of a joint patient population. I think what Congress has been driving us toward is the recognition of the value of working together. It's no different than what happens in a good operating room. If the surgeon operates by himself, doesn't listen to the nurse who's in the room, doesn't listen to the assistant surgeon, doesn't talk to the other members of the team, the case doesn't go as well as when we work together as a team, jointly, and share information, and have a shared understanding of what we're trying to do. We often "train like we fight"; every fight for the past century has been a joint fight and that will continue in the future.

Ultimately, that's what we're moving towards in the MHS: a shared commitment regardless of what [branch of] service the patient comes from, to provide the highest quality care for them, as effectively as possible. That's really important. I didn't say as efficiently as possible, because I think, the military health system is inherently inefficient, because we have to be prepared for all of the things that the military does, while also delivering health care to, literally, millions of people who rely on us. I have no illusions that we are going to be as efficient as a civilian health-care maintenance organization. That doesn't mean we shouldn't try to be as efficient as we can be, but what we must do, and I think what Congress is driving us toward, with language you just mentioned, is working together as jointly as possible, to be as effective as possible, in how we deliver care to those who rely on us.

“Ultimately, that's what we're moving towards in the MHS: a shared commitment regardless of what [branch of] service the patient comes from, to provide the highest quality care for them, as effectively as possible.”

The patient movement system is a great example. I was the TRANSCOM [*U.S. Transportation Command*] surgeon for a number of years. That's an inherently joint capability. We moved you regardless of what the patch on your uniform said, even though the majority of the crews were Air Force. The patients came from every part of the military, including family members, retirees, and others. I think that's a great approach. That's part of our shared commitment as military medics to take care of whoever walks through the door and needs our services. We've got to figure out how to do that as effectively as we can, because as we look at future conflicts, the environment will be just as challenging, if not more challenging, than what we've endured for the past two years.

In Iraq and Afghanistan, we had the luxury of air superiority. We were able to do Air-Evac [*evacuation by air*] on-demand and supply on demand. We perfected a system of stabilization and evacuation, which was world class, and I'm incredibly proud of what my colleagues and I accomplished. That's not the environment that we think is likely to occur in any future conflict. In future conflicts where we've got contested logistics, degraded communications, and intermittent air superiority, we're going to have to deliver a different type of health care, because the environment will be different. The only way we can effectively do that is if we approach it as a joint problem set. It may mean a Navy team, partnering with an Air Force team, receiving logistics from an Army unit at a particular location. At a different location, it's a ship that's accepting Air Force casualties before putting them on an Army helicopter. That is going to be the secret sauce that helps us to be successful in future conflicts, and I believe that's where congressional language is trying to drive us.

The size and composition of the medical force has been a point of emphasis for recent reforms. Where do you see the medical force evolving to meet new requirements? Do force management processes need to evolve as well?

I'll start with the easy part of your question. I don't think that the Global Force Management process needs to change. I'm obviously biased, because I'm on the Joint Staff. We run the Global Force Management process on behalf of the secretary, but I think we in the medical community need to be very careful about asserting that for some reason the Military Health System should not function like any other part of the military, especially when it comes to operational requirements.

I think many of us have said for years, the MHS is a part of the military and, as such, needs to function within the same structure and processes that the rest of the military uses. When it comes to tasking for operational requirements, and command and control, the military actually has done this pretty well, for a long, long time. We should not assert that we are different.

We should inform senior leaders with the same sort of compelling and conclusive data that the rest of the military provides. I'm choosing those words carefully, because for years the Military Health System has not provided the same visibility as other parts of the military when it comes to the readiness of medical force elements. We've not always done the same rigorous analysis about operational requirements, as has occurred in the rest of the military. That's not intended to be criticism of my predecessors, or really of myself. It's because of appropriations and the way that we were focused on health-care delivery within the in-garrison environment; we did not do some of the same analysis that other parts of the military have done.

“What we really need to do is have the same level of fidelity for the operational requirements as we do for the health-care-benefit delivery requirements in order to inform senior-leader decisions about both areas.”

I'm very grateful to my colleagues across the Joint Force — Army, Air Force, Navy, Marines, Space Force, even the Coast Guard — who have partnered with us, and with the COCOMs [*Combatant Commands*], to begin to do that rigorous analysis that starts with defining the operational demand signal and the existing operational medical requirements. We've at times sized our medical force to the health-care-benefit delivery, and then backed into our operational requirements. We've been able to defend what we're doing, because it's clear that this is a congressional entitlement, and we must be able to deliver that benefit. What we really need to do is have the same level of fidelity for the operational requirements as we do for the health-care-benefit delivery requirements in order to inform senior-leader decisions about both areas.

If we understand that demand signal — and we've made a great deal of progress over the last few years on that — then we can look at the supply. What do we have in the inventory, and does it actually need to be there? Again, this is not rocket science, this is what the rest of the military has done for years. If you need 100,000 widgets, and you've only got 90,000, you've got a gap, and that creates risk. We need to be able to articulate the military health system in the same way. If you go down the list, do we have enough? Yes or no? And if we don't have enough, how much risk does that create to the force? And, by extension, to the mission, if we can't provide the care that they need?

But that's only part of the discussion. The other part of that, that we have got to continue to improve upon, is our ability to assess the readiness of our military medical force. If you know how much you need, and you know how much you have, the next question is, how ready is what you have? Are they ready enough when they need to be ready? If it's a Guard unit that doesn't have to deploy for six months into a conflict, it's probably OK if they're short on people or short on equipment; not ideal, but not the end of the world. If it's a unit that's supposed to be able to deploy in 30 days, and they have none of the surgeons that they're supposed to have, that's pretty challenging. It's hard to get surgeons to spring from the earth, throw on a uniform, and deploy.

We are working very hard, collaboratively, across the MHS, to characterize the operational medical requirements in the same way the rest of the military does, and then characterizing the supply — what we have in the inventory today, and, equally importantly, what we will need in 2030 and beyond — as we look at joint warfighting concepts and other constructs that the secretary and chairman have endorsed. This analysis is revealing all sorts of opportunities for improvement. That's the kind of work that we must do to understand what size military health system we need. And we have to understand all of the operational medical requirements, for both trauma and non-trauma care, since about 85% of the medical work we do in combat involves treating non-traumatic conditions like ankle sprains and acute stress reactions.

At the end of the day, the department leadership and the elected leadership will make a decision about what size the military health system needs to be. Our commitment is to make sure that decision is as well informed as possible. And the only way to do that is to present the military health system the same way that the rest of the military looks at any of their capability.

Going along with the readiness framework that you have put forward; a big concern is maintaining clinical currency and a ready medical force. How should the branches of military service be thinking about this, about maintaining training, clinical skills? Military-civilian partnerships have been one avenue for that. Are there ways to further leverage those partnerships beyond just providing our doctors, medics and nurses with training opportunities?

First, because I'm sitting in a Joint [Staff] seat, I'm going to quickly acknowledge that the services have the responsibility to organize, train, and equip, and the Joint Staff is not going to tell the services how to do that. Having said that, I think it's a partnership. I've used that word several times already in this discussion, and I think it's particularly relevant here. The services do have the responsibility for organizing, training, and equipping military medics. The DHA [Department of Homeland Security] has the responsibility for providing the training range, if you will, the locations where those service members can maintain their skills, whether it's in our military treatment facilities or it's in partnerships with academic or civilian trauma centers.

The Joint Staff's role in all of that is what we call balls and strikes. We look at readiness data in the Defense Readiness Reporting System. We look at how easily we're able to fill validated requirements from the COCOMs. We help to identify where there are opportunities for improvement through the various assessments that we do with the COCOMs, looking at the forces that are provided to them by the services.

It's got to be a collaboration. We've made the mistake in the past of saying that this didn't work because one part of the system failed. I think that's an unhelpful approach. If we're not ready, it's a shared responsibility. If we're going to be ready, we've all got to work towards the same goal. It's easy to say we want a medically ready force and a ready medical force. The hard part is ensuring we recruit, train and retain the medics we need — especially challenging when there are national shortages in many specialties. And, we need to ensure those medics are getting the "sets and reps" that they need. How do we make sure the medical logistics staff are getting the experience of opening up assemblages that have been packed away for years and making sure that they're ready to go, and then actually setting them up and using them? How do we make sure that our patient movement teams, that are accustomed to moving the ill and injured in peacetime, are ready to take care of combat casualties the next time we have large numbers coming back?

I believe that [ensuring those things] is going to require greater collaboration with civilian partners. We're very fortunate in that the University of Nebraska has been a wonderful partner of ours. We've got partnerships down by Camp Lejeune that look like they're going to be very valuable partnerships around the country where health-care organizations stepped up and said that they are willing to work with us — Saint Louis University in Missouri, Cleveland Clinic, multiple locations where we've really built the beginnings of the partnerships that we need.

I believe that there are also opportunities to expand our partnerships with the VA [Department of Veterans Affairs]. As you look at what's the most valuable source of clinical experience, it's taking care of sick people. You just can't get around that.

As much as simulations can help, taking care of sick people is how you stay really good at taking care of sick people. The VA has a diverse population with complex medical requirements — lots of people who need medical care. We're fortunate that we have young, healthy people in our system. There is great potential to continue to expand partnerships with the VA so that we can leverage the tremendous clinical acumen of our clinicians, and the administrative expertise of our nonclinical staff, as they continue to look for staff to take care of their patient population and ours. It should not be an either-or [*decision*]. It's [*a question of*] how we work more closely with them, and with other civilian partners, so that our staff have the opportunity to maintain and to improve their skills.

Leveraging your links to the COCOMs and the combatant commanders, where would you like to see the research and development (R&D) community focus their efforts to best support those in-theater operations and the COCOMs' needs?

I made the comment earlier that the Military Health System, to be relevant, and, frankly, to continue to seek resources from the rest of the military, has got to behave like the rest of the military. I'm not advocating to change the authorities for the Defense Health Program. But, when we need to defend how we are spending the money that's entrusted to us, we should be able to point back to clear requirements. Those requirements start with the National Security Strategy, the National Defense Strategy, and the National Military Strategy, which, as you know, are all in the process of being updated. As soon as those are out, part of what our office will be working on with the services, DHA, and COCOMs is what does that mean for military medicine? Those are the guiding documents that should start us down the path of prioritizing where we need to focus next. We're pretty confident that they're going to talk about things like hypersonic weapons and directed energy weapons, biotechnology, evolving capabilities that other nations are using to enhance their military instruments of power. And we need to be able to show how the military health system priorities align with the priorities in these strategic documents.

Our R&D must be aligned against those threats. We should be doing research when there's a compelling, unanswered question that no one else can answer that's relevant to the military. We must continue to focus research on mitigating risk from evolving military capabilities that others are developing. How do we ensure that the human weapon system, which is by far the most expensive weapon system in our inventory, can function in space? Can function in fifth- and sixth-generation aircraft? Can function in some of the operating environments of the future? Our R&D portfolio must evolve because the practice of medicine is evolving, but, more importantly, the practice of war is evolving. That's got to drive that portfolio and that prioritization.

Any concluding comments for our readers?

I think the concluding comment would be that as I approach the end of my career as a military medic, it's a lot like the beginning of my career. We're in a world in which Russia has revealed exactly what it believes in, and it does not believe in a world order that the United States has supported since the end of World War II, in which freedom is a benchmark for every nation, a goal for every nation, and free trade is a benchmark for improving the lives of everyone around the world. That means that we're moving back into an environment in which we have to be prepared for the sort of conflict that most of us who have been in combat hoped to never see again. They are forcing us to move in that direction, so we've got to be prepared. That means we have to move on from discussions about roles and responsibilities, as important as those are, to the even more important discussions about future weapon systems and future evolving threats to the military service members who are going to be involved in those conflicts. It means we've got to double down on partnerships, and on trusting one another, and trusting our allies and partners, because there is no conflict in the future that we will fight alone.

I think it ultimately boils right back down to what most of us in medicine thought was important when we started on this journey, and that's our commitment to the patient, not to a patch on a uniform, not to a building or a location, but to whoever walks through the door. It's been an incredible privilege to wear this uniform, and to take care of folks, literally at the South Pole, above the Arctic Circle, and on every continent where we have bases. I hope that 30 or 40

years from now, people will still talk about how successful we were at deterring conflict, and, more importantly, how successful we were at preserving the fighting force. That's the secret sauce that military medicine brings. We ensure that the warfighter is medically ready. And if we keep our focus on that, we're going to have an incredible military, which will be able to deter those future threats.

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INTEGRATING TRAUMA AND NATIONAL DISASTER MANAGEMENT SYSTEMS: BACKGROUND ON MILITARY AND CIVILIAN TRAUMA CHALLENGES

Sarah K. John

Military health care has long experienced a “peacetime effect,” whereby medical forces make dramatic gains in the quality of lifesaving care during wars, but then see these gains erode after the war’s end. This readiness loss may have contributed to over [100,000 combat fatalities](#) (almost 40 percent of all combat deaths) from World War II to present.

Deaths from survivable injuries also plague the U.S. civilian population. Death from trauma is actually the leading cause of death for Americans under 46. Many of these deaths result from potentially survivable injuries. There is wide variation across the country in trauma system quality which affects outcomes. It has been [estimated](#) that if all civilian trauma systems attained the survival rates of the highest performing systems, then 100,000 lives would be saved over 5 years.

Solution Within Reach

In 2016, the National Academies of Sciences, Engineering, and Medicine (NASEM) released a [report](#) detailing how a more integrated military and civilian trauma system, built around the goal of zero preventable deaths, could address both challenges — benefiting both military and civilian populations. Progress has been made despite the White House having yet to act on the NASEM recommendations of: (1) setting a national goal of zero preventable deaths after injury and (2) leading the integration of military and civilian trauma care to establish a national trauma system.



Spurred in part by congressional direction in the fiscal year 2017 National Defense Authorization Act (NDAA) and operational realities, the Department of Defense (DOD) has made significant strides in building military-civilian partnerships (MCPs) with trauma centers across the country. While today’s MCPs are primarily designed to address the military readiness challenge, they also benefit local civilian populations. More importantly, these MCPs are now positioned to serve as the cornerstone upon which we build a more integrated national trauma system. Finally, there are clear opportunities for using MCPs to augment future federal, state and local disaster response efforts, including to pandemics.

How To Leverage MCPs

MCPs were formed because the DOD recognized that: (1) military trauma teams required trauma workload to sustain their clinical skills (or “medical readiness”), and (2) DOD’s military hospitals lack the appropriate case mix and volume to sustain trauma expertise. Large civilian trauma centers offered a robust clinical case mix and were happy to host military teams for many reasons, including: access to high-skilled labor at little cost, opportunities to learn from wartime experiences, access to DOD research networks, and support for the military mission. IDA conducted an in-depth evaluation of the use of MCPs as a DOD training model and found that they were highly effective for this purpose. A forthcoming report on that work concludes with a discussion of how MCPs could be further leveraged towards the goal of building a more integrated trauma and national disaster management system. We summarize some key opportunities identified from that work below.

Addressing Civilian Trauma System Gaps

The NASEM report identified three areas of variability in civilian trauma care and outcomes: variability in access to trauma systems, variability in adoption of best practices by trauma systems, and variability in emergency medical service (EMS) systems.

Access: As DOD moves to expand MCPs, it can work with civilian systems to identify underserved markets. Sending underutilized military trauma teams to underserved civilian facilities (or opening certain military hospitals to civilian trauma patients) can offer a win-win solution. While this may occur naturally in some cases, a systematic approach for matching DOD's trauma volume requirements to the greatest civilian needs could help optimally distribute resources.

To date, DOD has largely focused on MCPs where manpower is provided to civilian trauma centers rather than capital investments. This makes sense as it achieves DOD's strategic training goals while benefiting the civilian partner. As DOD moves to realign its medical force and infrastructure to the readiness mission, it may also consider making capital investments in MCPs — either in military hospitals that are open to civilian trauma patients or in dedicated clinical space in civilian trauma centers. These agreements can reduce the overhead costs of maintaining surge capacity by sharing those costs between the DOD and civilian partners. At the same time, they can also maintain readiness and augment disaster preparedness.

Best Practices: MCPs play a role in sharing military battlefield innovations, best practices, and lessons learned with the civilian partner and their trauma system, including smaller hospitals and EMS partners. Many of the educational trauma and battlefield courses developed by the military have applications in state and local response systems. The military can use MCPs as platforms for pushing out this curriculum to local organizations, like EMS systems and police departments, and federal partners like the FBI, the Department of Homeland Security and the Department of Health and Human Services (HHS). Some MCP sites are already training other federal personnel.

An even greater opportunity exists for MCPs to play a strategic role in fostering trauma research that advance our understanding of trauma and systems of care. Despite its prevalence, trauma does not receive the same level of research support in the civilian sector as other major causes of death. DOD could become a focal point for funding trauma research and execute much of this research at MCP locations. Experts we interviewed believed that there is a large unmet demand for trauma research, and that DOD taking a leadership role to generate momentum could lead to significant increases from other funders as well. Most MCPs are partnered with leading academic institutions that already have extensive research infrastructure. This allows the civilian academic research enterprise to connect to the operational testbed of battlefield medicine, resulting in accelerated innovation and improved care.

EMS: Many MCPs are already working to integrate enlisted military personnel into EMS organizations. This is an area where the military can gain significant training opportunities for enlisted providers while also addressing civilian needs. For many years, a growing shortage in EMS works has been noted across the nation — especially in rural communities. Pandemic-related burnout has aggravated the situation by increasing shortages and raising turnover rates to 20% to 30% annually, according to the [American Ambulance Association](#). That organization and others, such as the National Association of Emergency Medical Technicians, are now calling on Congress to ask for more funding to increase wages and cover training costs. While MCPs cannot address a nationwide shortage, they could certainly affect certain local markets by providing manpower and sharing training resources.

Improving Domestic Disaster Response

The National Disaster Medical System (NDMS) supports state and local authorities responding to disasters with patient care, transportation, mortuary affairs, and other response capabilities. As part of the response mission, the NDMS sends out disaster medical assistant teams and trauma and critical care teams. HHS officials have noted that response teams have limited forward surgical capability and that access to military teams stationed at MCPs could be valuable in certain disaster response situations, such as large earthquakes.

The NDMS is also organized to provide surge support to the DOD and the Department of Veterans Affairs (VA) in caring for combat casualties. The Definitive Care Program coordinates the movement of patients through 65 DOD and VA federal coordinating centers to over 1,900 partner civilian hospitals. MCP sites could become focal points within NDMS hospitals. These leading civilian medical facilities already have a concentration of military personnel and a civilian work force accustomed to the military that can act as a critical conduit between the military during times of emergency. The MCP sites also have the requisite patient movement capabilities to facilitate patient flow through the NDMS. Section 740 of the fiscal year 2020 NDAA directed a pilot program on civilian and military partnerships to enhance interoperability and medical surge capability and capacity of the NDMS. In addition, the fiscal year 2020 NDAA has called for NDMS pilot sites to better integrate capabilities for all hazard responses across the federal government. MCP sites are good candidates for inclusion as many of the challenging aspects of standing up a partnership have already been solved. Furthermore, these sites offer geographic diversity; general proximity to military, transportation, and medical infrastructure; and critical capabilities through reach back to both the DOD and the civilian institution.

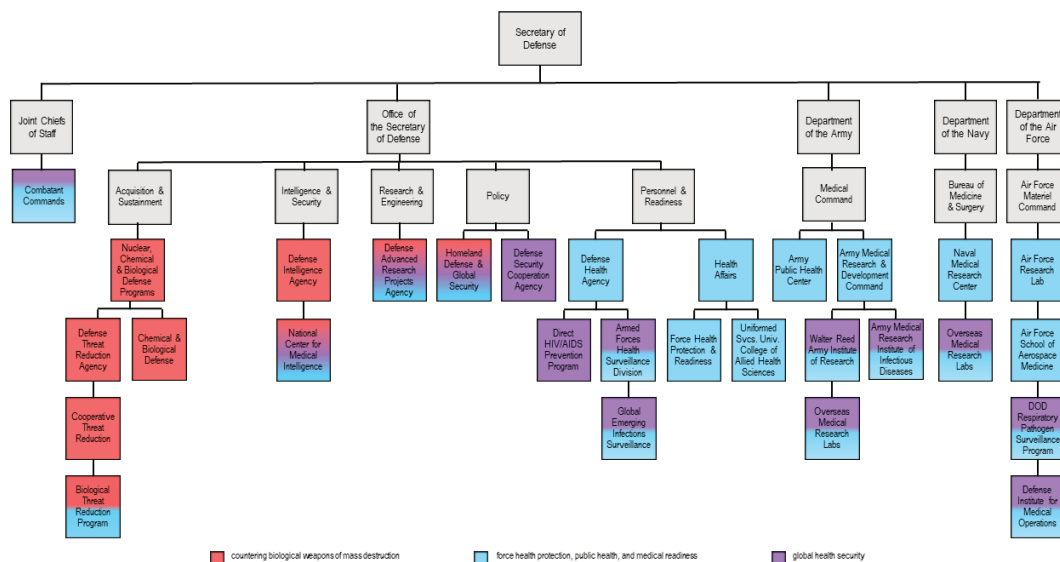
Window of Opportunity

As pointed out in a recent War on the Rocks [commentary](#), U.S. military doctors are performing at their best, having benefited from experience in the war in Afghanistan, the longest war in U.S. history. At the same time, MCPs are emerging as a successful model for sustaining trauma skills and as the keystone for a more integrated national trauma and disaster management system. The White House should capitalize on momentum from the DOD, civilian partners, and bi-partisan congressional efforts to form a coalition to finally execute the National Trauma Care System as envisioned by the [NASEM](#).

COMMENTARY: INTEGRATION OF THE DEPARTMENT OF DEFENSE'S BIOSECURITY ENTERPRISE

Sophie P. Bass

The Department of Defense (DOD) has long stood at the nexus of public health and national security. Yet rather than evolving to reflect the changing character of biothreats, the military's **biosecurity** architecture remains shaped by historical distinctions between force health protection and biodefense requirements. The origin of this approach predates globalization and the Joint Force concept of globally integrated operations. In a modern security environment, the strategic divisions between these functions undermine the coordination and adaptability required to prevent, detect, and respond to biosecurity threats.

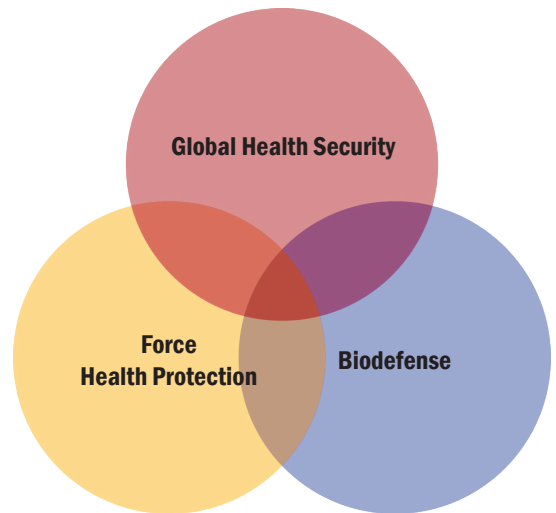


Health-related missions within the Department of Defense

DOD Biosecurity Architecture

The COVID-19 pandemic offers a pivot point to modernize and integrate the biosecurity enterprise within the broader operational community. Globally integrated biosecurity is not merely an extension of DOD's missions to counter biological weapons and to ensure force health protection, but a mission in its own right. However, despite the need, neither statutory language nor defense doctrine clearly designates global health security as a DOD mission. Also lacking is a U.S. policy framework for integrating DOD into the national global health agenda. Instead, DOD's global health security efforts are combined with other defense priorities such as building partner capacity, military medical interoperability, disaster preparedness, and security cooperation.

The military's involvement in vaccine research, disease control, and medical development dates back to the early 20th century. The spread of deadly infectious disease among American troops before and after the Spanish-American War engendered the resolve to proactively engage global health threats. The logic was clear: naturally occurring diseases and hazardous pathogens were a threat to our military forces, and, by extension, our forces' ability to protect the security of the United States. Throughout World War II and the wars in Korea and Vietnam, DOD's biosecurity capabilities expanded, but they continued to operate within the framework of force health protection. The emergence of offensive biological weapons programs during the Cold War instigated a paradigm shift in DOD's health security priorities. U.S. military biosecurity activities bifurcated into two distinct lines of effort: countering weapons of mass destruction (WMD) and military force health protection, according to a 2019 Center for Strategic and International Studies [report](#). At the time, the distinction was clear, but these responsibilities have blurred in the last few decades. Today, DOD's global health security activities take on many forms, the most predominant of which are:



- **Surveillance:** DOD Directives [6490.02E](#) and [6420.02](#) concern health surveillance and biosurveillance, respectively. Health surveillance activities are carried out by the military departments, the Armed Forces Health Surveillance Branch (AFHSB), domestic DOD laboratories, and overseas DOD laboratories. Most [biosurveillance](#) efforts in foreign populations are pulled together under AFHSB's Global Emerging Infectious Surveillance (GEIS). Through nearly 40 partners, GEIS funding supports a global network that reaches 70 countries and centers around four disease areas: antimicrobial resistant infections, including sexually transmitted infections, enteric infections, febrile and vector-borne infections, and respiratory infections.
- **Capacity Building:** Building physical biosurveillance capabilities in partner countries is a strategic function of GEIS as well as a core operation of the Defense Threat Reduction Agency's Cooperative Threat Reduction (CTR) program. CTR's Biological Threat Reduction Program assists partners in the former Soviet Union, the Middle East, Africa, and Eurasia with building laboratories, training epidemiologists, and enhancing surveillance tools.
- **International Partnerships:** DOD's international partnerships are executed by multiple entities. Positioned within the Defense Health Agency, the Department of Defense HIV/AIDS Prevention Program has helped more than 55 foreign military partners develop military-specific HIV/AIDS prevention, care, and treatment programs. The Air Force's Defense Institute for Medical Operations supports train-the-trainer programs for international military and civilian medical personnel on topics such as disaster planning, public health, and medical skills training. Geographic Combatant Commands lead a variety of global health initiatives in their area of responsibility. For example, U.S. Southern Command engages medical exercises and subject matter expert exchanges with military and civilian health systems. Through the Pandemic Response Program, U.S. Africa Command assists African militaries in responding to pandemic emergencies via training exercises and technical assistance.
- **Humanitarian Assistance and Disaster Response:** Health-related activities make up a substantial portion of the humanitarian assistance projects funded by Overseas Humanitarian, Disaster, and Civic Aid. These activities range from supplying essential materials to health-care institutions to short-term medical services carried out by U.S. military personnel. The military's foreign disaster response assets are unique within a whole of government

response. During the 2014–2015 West Africa Ebola epidemic, DOD was tasked with providing command and control, logistic support, engineering support, and medical training assistance.

Despite possessing some of the most comprehensive biosecurity capabilities in the world, the legacy of DOD's bifurcated approach to force health protection and biodefense has created artificial — and enduring — organizational stovepipes. The establishment of the DOD Global Health Engagement Council in 2017 was a step in the right direction, but deliberate structural reform is needed to ensure DOD's assets combine to detect, prevent, and respond to biological threats in the face of dynamic uncertainty.

To support globally integrated operations, the DOD biosecurity enterprise will need to streamline processes and organizations. Siloed programs and freestanding initiatives should be integrated into sustainable models for combatting biological threats that are aligned with other U.S. government programs as well as with the Global Health Security Agenda. Furthermore, medical and non-medical biodefense should consolidate according to an institutional structure that unifies DOD's biosecurity efforts and facilitates clear lines of command and control in order to clearly assign ownership of all biosecurity risk. Without agility and robust accountability, the U.S. military remains unable to respond at the speed of relevance. Ultimately, failure to align force posture with the entire spectrum of biological risks threatens the readiness of the warfighter, and by extension, the security of the American people.