

A REPORT OF THE CSIS
GLOBAL HEALTH POLICY CENTER

Global Health as a Bridge to Security

INTERVIEWS WITH U.S. LEADERS



Editor
Richard Downie

September 2012



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YEARS | CHARTING
OUR FUTURE

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INTERNATIONAL STUDIES

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Cover photo: A U.S. Marine hands a local Afghan boy a bottle of water at the bazaar in Nawa, Helmand Province. The U.S. Marines along with the ANA and ANP provide security in the area to allow the local infrastructure to grow. Photo by isafmedia, <http://www.flickr.com/photos/isafmedia/5284101291/>.

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CONTENTS

Acknowledgments	iv
Introduction by <i>Admiral William J. Fallon</i>	v
1. Admiral Thomas B. Fargo	1
2. Ambassador Cameron R. Hume	5
3. Rear Admiral Thomas R. Cullison	11
4. Ambassador John E. Lange	16
5. Ellen Embrey	22
6. Ambassador Donald Steinberg	27
7. General Peter Pace	30
8. Ambassador Jendayi E. Frazer	35
9. General James E. Cartwright	39
10. Ambassador Linda Thomas-Greenfield	42
11. Dr. S. Ward Casscells	46
12. Admiral William J. Fallon	51
13. Dr. Connie Mariano	56
About the Editor	60



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INTRODUCTION

Admiral William J. Fallon

Our understanding of global health and its relationship to national security, the safety of our citizens, and the well-being of the wider global community has grown and evolved over time. It is now widely accepted that nations with healthy populations are more likely to be productive, prosperous, and peaceful. This matters to the United States because peaceful nations generally make good neighbors. Conversely, poor health indicators are usually a sign that something is not right in a society. Nations with high numbers of unhealthy citizens are more likely to be poor, badly governed, weak, and prone to instability or even conflict. One need only take a sample of countries that fall into this category—Somalia, Afghanistan, North Korea—to understand the potential threat they pose to the United States.

For these reasons, health and security are no longer separate domains for policymakers. They interact with each other. Military leaders who once viewed the world through a narrow security lens have become accustomed to building health plans and programs into their decisionmaking. Health professionals appreciate that their engagement can help enhance the security and the well-being of the communities with whom they interact.

The men and women who have grappled with health and security issues in their professional lives have built up a considerable body of experience in this field. But to date, there has not been a consistent effort to document their activities, analyze their policies, and draw lessons from their experiences. For that

reason, I welcome this effort by the Global Health Policy Center at CSIS and have been glad to contribute toward it.

The approach CSIS took was simple: to explore the nexus between health and security by collecting the personal stories of a selection of our nation's leading military and global health professionals. We approached some of the men and women whose decisions have helped shape our thinking on health and security during the past decade or so and asked them to reflect on their experiences. In particular, we asked them to consider the moments in their career when health and security-related considerations came together or collided with each other. How did they reach their decisions? What was the outcome? What did they learn from their experiences? The interviews we conducted form the basis of each of the narratives that follow in this short volume. Each individual approached the subject in his or her own unique way, but despite their varied experiences and backgrounds—whether in the military, diplomatic, or medical fields—a number of common themes and messages emerged.

The contributors acknowledge that their thinking on the relationship between health and security has evolved throughout the course of their career. As the accepted definition of *security* has broadened out to include human or individual security, as well as national security, health considerations have begun to play a more central role in policy calculations and activities.

The world has changed beyond recognition since World War II, the era when many of our interviewees were born and grew up. An era of total war and of mass destruction, it was a time when militaries made the first, uncertain steps toward dealing with the health needs of the populations with whom they came into contact. The years of the Cold War were when many of our interviewees “cut their teeth,” so to speak, crafted their worldview, and made their first forays into public service. It was a time when national security considerations were paramount, but it was also a time when the battle for hearts and minds meant making appeals to citizens of nonaligned nations by showing concern for their health and well-being. As the Berlin Wall came down, our interview subjects were assuming leadership positions. They had to contend with a new international arena in which positive trends such as globalization and democratization rubbed up against less positive ones like state failure, which challenged long-held assumptions about the Westphalian system of states, with its edict against external intervention, even in the face of massive humanitarian abuses and genocide. As the new century dawned and the 9/11 attacks punctured the hopes that came with it, our leaders focused on a new set of complex security threats posed by nonstate actors—those who actively sought to target civilians with their bombs and bullets. Our interviewees’ views of how health fits into this picture have evolved to keep pace with the changing security outlook.

Several trends over the past decade or so have prompted a further shift in thinking and helped reinforce the links between health and security. Two long, bloody wars in Iraq and Afghanistan have caused enormous civilian suffering and placed huge physical and psychological burdens on U.S. servicemen and women. They have also led to postconflict reconstruction programs that have often contained a health component and involved both civilian and military personnel. There has

been an uptick in both the frequency and the severity of natural disasters. In scale, the 2004 Asian tsunami was an almost unprecedented disaster in the modern era, claiming the lives of around a quarter of a million people across six countries and prompting a complex emergency response effort coordinated by the United States. The threat of global pandemics has risen as globalization gathers momentum, with passenger aircraft providing an easy delivery mechanism for the spread of potentially lethal strains of influenza. The events of 9/11 prompted urgent efforts to assess the threat of biological terrorism and devise strategies to prevent it.

The experiences of the past 10 years have placed extraordinary demands on people working in the arena of health and security and forced them to work more closely together. By doing so, they have come up with some innovative solutions. The narratives that follow highlight some of the medical, logistical, and technological advances made by our military in preserving the lives of our servicemen and women and treating the wounds, both physical and mental, they have suffered in combat. These advances were spurred on by the urgency of having to fight two wars. Disasters like the Asian tsunami and the 2010 earthquake in Haiti have encouraged our military and civilian personnel to come up with creative solutions for maximizing their joint assets to deliver speed and efficiency to their emergency response efforts. The emerging threat of pandemic flu has focused the minds of our diplomats and health experts on leading global efforts to build a network of disease surveillance and response. The scourge of diseases like HIV/AIDS has prompted an outpouring of U.S. assistance and expertise to global health initiatives such as the President’s Emergency Plan for AIDS Relief (PEPFAR).

At the same time, the demands of the past decade have highlighted a number of gaps in our thinking and exposed shortcomings in

our ability to act in coordinated, preemptive ways to tackle issues concerning health and security. The absence of an overall strategy for tackling global health issues has led to haphazard and ill-planned initiatives. Opportunities have been missed to link up with partners both inside and outside government. The failure to adequately join up institutions within our government and military has frustrated efforts to deploy our resources to their maximum effect to deliver health care and security. Our overseas engagement has often been fitful and short term in nature, making it difficult to achieve the kind of sustained improvements in public health we desire. The lack of a deployable civilian capacity within our government has meant that military personnel have ended up performing health roles by default in conflict-afflicted or postconflict environments—not because they are the best equipped to do so but because they are the only people on the ground. When dealing with health issues in combat environments or disaster zones, we have found it difficult to define exactly where the responsibilities of the military end and those of civilians begin. Institutional cultures have made working relationships problematic.

Although missteps have been made along the way, overall the picture is one of progress. More often than not, positive outcomes have been the result of individual initiative rather than the strength and flexibility of our government institutions. We have done an admirable job in meeting the challenges of the past decade and learned a lot of lessons along the way, but more must be done in the future to enable us to remain the true leader on global health. Our health assets are one of our core strengths as a nation. We should actively seek new opportunities to use them in the pursuit of our security interests, to build friendships, and to improve the health of people around the world. ■



ADMIRAL THOMAS B. FARGO

During a naval career spanning more than 30 years, Admiral Thomas B. Fargo (USN, ret.) held five commands in the Middle East, Indian Ocean, East Asia, and Pacific Ocean. They included commander Naval Central Command/commander Fifth Fleet, commander in chief of the Pacific Fleet, and, finally, from 2002 to 2005, commander of the U.S. Pacific Command (PACOM), where he was responsible for joint operations of the U.S. Army, U.S. Navy, U.S. Marine Corps, and U.S. Air Force across PACOM's 100-million-mile area of responsibility. He is currently chairman of Huntington Ingalls Industries, the nation's largest shipbuilder, and holds the Shalikhshvili Chair in National Security Studies at the National Bureau of Asian Research.



Our definition of security has widened tremendously from when I was a young officer on a submarine right in the middle of the Cold War. As well as the military component, there are also economic, energy, and health components. Health and security are very closely tied together. On a very basic level, we recognize that the health of a country is closely linked to its people's prosperity, productivity, and economic well-being. All these things are critical to a country's stability. On a second, even more direct level, are the kinds of health emergencies that I had to deal with when I was Pacific commander—things like SARS (severe acute respiratory syndrome) and bird flu—which can have a dramatic effect not only on the security of a country but also on that of an entire region.

As commander of PACOM, I was typically involved with two kinds of health-related programs. The first involved building health programs and outreach into my security cooperation plan, which helped build and maintain relationships and establish process. The second was disaster response. The two efforts are linked because if you've built a solid foundation with the first set of programs, it's much easier to move into action quickly to deal with a calamity.

Part of any commander's engagement plan is to be able to move medical forces into the area of responsibility to do medical-capacity or dental-capacity exercises. These exercises take our professionals and put them in the field to deal with very specific problems that a country might have. The emphasis is on providing a

form of training to people on the ground so that what they learn can be passed on from town to town and professional to professional. These efforts included conferences where we would bring medical military professionals together to try to share best practices and fundamentally lift the health of the entire Pacific region by its bootstraps.

The Philippines offers a good example of this type of programming. It's a place that has always been beset by natural disasters and where poverty is high. In addition, in Mindanao, and specifically the Sulu Archipelago, there was a serious Islamist insurgency. PACOM put a plan together to support the government of the Philippines. This plan included what you would call soft power to make sure that we had the support of the indigenous people. We brought engineers to Basilan Island, for example, where they repaired the basic road that ran around the island, dug wells, and worked with the local community to repair the schools.

These activities had very practical outcomes. Better roads meant you could more easily get to the people who were causing problems for the local communities. The wells improved the quality of the water, which meant health improved dramatically throughout the island. These efforts helped gain the support of the people, improve their feelings toward the government, and set the insurgency back on its heels. The thing about insurgencies is that when the people trust the government more than they fear the insurgents, then you've reached a tipping point that increases your chances of success.

To illustrate this point, I recall that we sent a medical group of young navy corpsmen to provide basic medical care to a small village. Upon arrival, they were greeted by local veterans from World War II, who had come into town just to provide security for this team. There's a clear message here: not only is this type of assistance tremendously appreciated

by individual people, but it also establishes relationships and builds trust and confidence that are important to the United States and all of our regional allies.

For some time now, we've been building humanitarian assistance and disaster relief preparations into our large exercises. A multinational exercise like Cobra Gold in Thailand includes 10 plus players and observers and provides an opportunity to build standard operating procedures and also strengthen relations with the nongovernmental organizations (NGOs) that have a great deal of expertise to bring to these problems. What you find is that if you exercise regularly and improve your capacity for response, when a very serious disaster strikes, your ability to react quickly and effectively rises dramatically.

At the time of the 2004 Boxing Day tsunami, I had been back in the Pacific for over five years, so I knew the leadership in the region. These relationships proved to be very important. After the initial news report of the tsunami, the first call I got was from General Peter Cosgrove, Australia's chief of defense. That call gave us an immediate opportunity to put in place initial coordination, and from there we made a clear decision about which other leaders in the region we were going to call and get involved.

But I want to underscore that the Indonesian government was in charge of this relief effort, not the United States and the multinational force. We coordinated immediately with my Indonesian counterpart and Indonesian president Susilo Bambang Yudhoyono to make sure it was absolutely clear that they were in charge and that we were in a supporting role. They understood that we'd provide all the help, expertise, and advice they wanted but that fundamentally, as the host nation, they were in charge.

I was able to call my counterparts in Malaysia, Thailand, and Singapore not only to

provide coordination but also to discuss access to the worst-hit areas. We needed to be able to get into Aceh, right on the very northern point of Indonesia, where there isn't a lot of base support. The infrastructure in Aceh had been fundamentally destroyed; everything from the coastline to two miles inland was completely knocked down and devastated. Of course, the world was energized by wanting to help, to move food and relief supplies into the area, but because there was only one relatively modest landing strip in Aceh, coordinating how to move supplies into the area was a key challenge. We established a forward operating base in Butterworth in Malaysia, which was immediately adjacent across the Malacca Strait from Aceh. This allowed us to move critical people and supplies into the area.

We built a multinational joint force and headquartered it in U-Tapao, a Royal Thai Navy airfield very close to Bangkok. We used the same structure that we actually had for Cobra Gold. With liaison officers from Australia, Singapore, Japan, Malaysia, and Thailand, we had a cohesive group that could deal with the magnitude of the crisis. And because we knew that a very large portion of the disaster relief effort was going to be done by NGOs and UN organizations, we brought them into the fold quickly.

The scale of the disaster was incredible. In some areas, the wall of water leveled everything in its path. Approximately 250,000 people died, and many were displaced. When I flew over the area, I could see that not only had the houses been knocked down but also that they'd been dragged out to sea. All I was looking at were the cement foundations. The ability to shelter people, make an immediate assessment of their medical condition, and, of course, to get fresh water in were therefore vitally important. If you don't have water for the people, then you have the potential for outbreaks of disease that could be even more tragic than the initial disaster.

One of the assets that we had available immediately and that I could deploy under my own authority was the aircraft carrier group led by USS *Abraham Lincoln*, which was at port in Hong Kong. We immediately ordered the battle group to head to the Malacca Strait because we knew it had the capacity to help in a very substantial way. We also had an amphibious ready group, which included another large-deck ship, and of course all these assets bring a lot of capacity.

They bring helicopters, for example, which are lift assets, enabling us to move into relatively remote areas where the support structure had been devastated. With the helicopters, we could put our personnel on land to work on the disaster response effort during the day and bring them back to the ships at night. That was very helpful because we didn't have to build a huge infrastructure within the country just to support our people. The large-deck amphibious ships also bring very significant medical capabilities. In some cases, they are big enough to accommodate a 600-bed hospital. On top of that, you have the talent that doctors and medical professionals bring that can aid in the initial response and move supplies into the devastated regions.

In addition to the military assets, we deployed the hospital ship, USNS *Mercy*, right away, but I recognized it was going to take about three weeks to arrive from its base in San Diego. Because of that delay, there was a handoff that occurred at about the one-month point of the operation where the military vessels left the area and the hospital ship, with its very sizable capability, continued to provide the support necessary for a fairly significant period of time.

The military's role in these situations is to provide the initial disaster response, and of course we have a lot of communications, logistics, command-and-control capabilities and other resources that allow us to be very

effective. But it's important to remember that there's huge capacity in the international community. The UN has a number of organizations that specialize in this work. In addition, the host nation is going to get back up on its feet pretty quickly. The military in my view ought to do everything it can to get in at the outset, stabilize the situation, stop the loss of life, and make sure the basics are covered so that the situation isn't going to get any worse; and then it should provide, as early as possible, a handoff to organizations that are designed and equipped to do this on an international basis.

Our relationship with Indonesia was transformed by our response to the tsunami. It built a lot of trust. If you looked at data from a survey conducted afterward by the Pew Research Center, the standing of the United States in Indonesia had doubled in its approval rating. But the crucial thing to remember is that relationship building is not a one-time event. After the tsunami, we continued to deploy the hospital ship under an exercise called Pacific Partnership, where we moved around the archipelago and the whole of Southeast Asia to provide support, training, and medical assistance. I think that consistency of support is important.

We applied lessons learned from the Aceh tsunami to the 2011 tsunami in Japan. In addition, our very strong, ongoing alliance with Japan played a big role in the response. We have exercised together over the years to the point where we are very comfortable coordinating in the most difficult situations. Often, these very strong relationships tend to fall below the radar screen, but it's important to nurture them because they will be needed at some point in time. Certainly that's what we saw in the Japanese tsunami: it really was an incredible effort to deal with three crises—an earthquake, a tsunami, and a nuclear incident—simultaneously. You have to be proud of all the people from both governments, as well

as all the nonprofit organizations, that provided assistance. The world really stepped up.

This leads me to my final point. The fundamental lesson you learn from disaster response is that no one country, no single organization, has the capacity to deal with these problems on its own—they're just too large. Faced with a disaster on the scale of the Boxing Day tsunami, you're going to need to have a broad range of players, both inside and outside government, coordinating together to provide the support necessary to relieve the suffering.

Anything you can do in advance of the calamity really helps. I have seen organizations that didn't previously cooperate on a regular basis but that now are getting together frequently to talk through plans and work together to solve problems. Those mechanisms are in place, and they're improving every day. The dialogue is more sophisticated, and certainly the willingness to come together has never been higher. ■



AMBASSADOR CAMERON R. HUME

A career diplomat, Ambassador Cameron R. Hume represented the United States in a range of positions at the United Nations and in Europe, Africa, Asia, and the Middle East. He served as U.S. ambassador to Algeria (1997–2000) and South Africa (2001–2004), as chargé d'affaires to Sudan (2005–2007), and as ambassador to Indonesia (2007–2010).



If you go back 40 or 50 years, the concept of foreign policy was more Westphalian. There was a sense that issues could be dealt with by states within their sovereign limits and that the international system consisted mostly of regulating those relations. Today there's a much greater appreciation that the interstate system is not an adequate prism for understanding the impacts that people in one area have on people in another area. Global warming and the depletion of maritime resources are two examples; another is infectious disease. Diseases don't know when they cross a state border. They don't know the citizenship of the person they infect. Thus you have an awkward match between state action and germ action that affects human security and, potentially, state security.

There are two reasons why this matters to the United States. One is the role of the United States as a superpower or trustee of the international system. It is in our interests to work for structures of cooperation between states to limit the damage, not only to ourselves but also to others. The other reason is that the spread of infectious disease affects our own citizens. Both of these interests are rising in importance because increased travel means that the risk of spreading disease is far higher than it was.

Health care and foreign policy intersected most closely in two of the places I served. The first was South Africa. I was there from 2001 to 2004. Thabo Mbeki was the president. A high percentage of the world's HIV-positive people lived in South Africa, and the rate of infection was very high. At the time, the government

in South Africa did not feel there was a policy solution out there that was adequate to confront the scale of the problem.

Before I went to South Africa, I spoke to several people I knew who gave me some advice. One was Dick Holbrooke, who at the time was head of the Global Business Coalition to Fight HIV/AIDS. In his characteristically direct manner, he told me there was absolutely nothing more important for me to do than to get the South African government to change its policy on HIV/AIDS.

The second person was then-Secretary General of the United Nations Kofi Annan, who shared my concern over the health situation in South Africa but cautioned me that as a white man I should never raise the question with Thabo Mbeki.

As a result, I had an unclear path ahead as I set off to South Africa. What I found was that it was possible to talk with Thabo Mbeki about HIV/AIDS but in a particular way; that is, it was possible, if it was not the main subject of the meeting, to brief him at the end of the meeting on what the United States was doing about HIV/AIDS, maybe to leave a memo with him, but not to be under the illusion that I was going to be so persuasive that I would change his deeply held views. My goal was simply that he should understand that it was a subject that was always on the mind of the United States.

This was a time when U.S. policy toward HIV/AIDS was evolving, with the introduction of the President's Emergency Plan for AIDS Relief (PEPFAR). I think this was due in large part to the personal influence of President Bush, who cared deeply about it. He visited South Africa in the summer of 2003, at the time the legislation was pending in Congress. Secretary of State Colin Powell, like Dick Holbrooke, told me there was nothing more important for me to work on than HIV/AIDS and said I should be ready to help implement the PEPFAR policy in South Africa.

After President Bush's visit, I called together the people on the "embassy team." We had people from the Centers for Disease Control and Prevention, the U.S. Agency for International Development (USAID), the State Department, and the military, all of whom owned some aspect of the issue. We talked about what we imagined would be required to stand up a program in South Africa and how we would go about it.

At the end of the meeting, I asked how long it would take between the adoption of the law, the signing into law of the program, and the first grant in South Africa. One of the people, I think from USAID, looked at me and said, "Ambassador: 10 months." I was a little surprised; I thought this was a matter of urgency. I said, "Well, OK, but since we don't have the law in place, why don't we start working today on the critical paths? Maybe that way we'll take a month or two off of that estimate. Every month or two we take off, we may save some human lives, so why not try it?"

We had very good people, and they did work together as a team—even though when you come back to Washington, agencies often seem to be on opposing teams. They came up with a structure to go out and solicit bids or proposals; they set up a panel to review the bids that came in. We posted online our solicitation explaining that if PEPFAR wasn't passed into law, there would be no money but people who wanted to take a chance on getting an early grant were welcome to apply.

I went out with junior Foreign Service officers to find groups the embassy had never dealt with before, and we discovered a lot of very creative people doing good things. And five months later, at the end of the year, I went to another working group meeting and said, "Congress hasn't passed the legislation yet; what are we looking at here?" They said, "Sir, we've made some progress. We've gotten through the initial reviews of the proposals. But we have a lot of work left to do. It prob-

ably will be another two months.” I said, “Well, that’s great!” And we went off for our Christmas holidays.

At the end of January, we had another such meeting. And I consider it a highlight of my career that when I asked the same question about how much more time we needed, an argument broke out between those who thought it would take one week and those who thought it would take two weeks. I said, “Don’t worry; you started with an estimate of 10 months; now we’re down to one or two weeks! And you’ve got there in six months.” Two or three weeks later, the PEPFAR legislation was signed into law, and within 24 hours we’d given the first grants.

Our strategy on PEPFAR was to simplify, get to the goal line, find good programs, have good input; be legitimate, open, transparent; and—critically—use one process for all agencies of government. I don’t know how we got away with that because at the time there was a form of warfare between the Department of Health and Human Services and USAID. But because we were able to agree at post, Washington let us go ahead. We had the most creative and dynamic launch of the PEPFAR program of any place in the world, and we developed our approach before the legislation was adopted. I would say, then, simplify, and keep your eye on the distant target. That worked for the PEPFAR program.

I spent a great deal of my time on a program with the South African military, between the South African military medical system and the U.S. National Institutes of Health (NIH). The military, given its demographics, has a high percentage of people who are HIV positive, about 20–30 percent of its forces, including senior officers. Critically, the South African military hospitals keep records. NIH—which, I think, played an absolutely critical role in all the struggles against HIV/AIDS—saw that if it was able to work with the South African military, it could get more information on two

important things: how people in an African environment were responding to the different cocktails of drugs and whether or not people would be compliant with the treatment regime.

With NIH, we structured a series of meetings and conferences with people from all over the world to come up with a plan for clinical trials with the military hospitals. These groups are not used to working together, and I think it was very difficult; but NIH had the guts to reach out and begin the implementation of the program before we actually had signed documents. The military saw it as a way of getting treatment, and the bet we made was that the more people we got on treatment, the more the South African government would be morally bound to permit the program to continue. By the time there were 600 or 700 people on treatment, we were able to get the signatures. The then-health minister couldn’t stop it because she couldn’t tell the military, “Go commit suicide.” And President Mbeki wasn’t going to tell the military to go commit suicide.

Thus we were able to begin treatment in South Africa—in South African military hospitals, training the staff doing the treatment—three years before the change in South African government policy. And this enabled the development of actual knowledge, clinical knowledge, about how the South African population responded to the drugs that were on offer and to help design the best treatment regimen. That meant that when the government changed its policy, it wasn’t stumbling around saying, “How do we do this?” The pioneers already knew how to do it.

My view was that the health challenge was the greatest security challenge South Africa faced. And my hope was that South Africans wouldn’t wonder who we were as a people; they would understand that in their moment of need, facing a new challenge for the twenty-first century, the United States was there and helped. We were helping the South African military deal with illness among its own people

at a time when its own government wouldn't help. That's pretty powerful. And because we didn't talk about it and try to draw political gain from it, we had the traction to go ahead. I think it was a unique set of circumstances that allowed us to do that. But often, if you look hard, you'll find the key that fits the lock.

I think the program between NIH and the South African military potentially laid a basis both for better clinical knowledge and better relations with the security services. And, along the way, we established great relations with a broad network of researchers, activists, and people in government, including future President Jacob Zuma, who encouraged this work to go ahead even though he knew it wasn't a government policy. I think we got a lot done.

When I went to Indonesia, I had to deal with a different set of health challenges. There were two things going on: first, Indonesia was the epicenter of the bird flu outbreak; and, second, the future of the U.S. Department of Defense overseas medical research laboratory in Jakarta, called NAMRU, was under negotiation.

Some may have the impression that the people in our military labs spend their days imagining how to deal with mustard gas attacks. It's not that at all. It's very practical. How do you help your troops survive in the most extreme circumstances? And by extension, how do you help others living in extreme circumstances, who tend to be poor people in poor countries?

To give an example, the use of little saline packages for rehydration treatment wasn't developed by the Red Cross or the World Health Organization; it was developed by an American scientist working in one of these military laboratories in the Philippines, seeing how to help people who were suffering from severe dehydration, particularly caused by diarrhea. I think that the scientist in that laboratory has saved hundreds of thousands of lives. The laboratory in Jakarta was mostly interested

in infectious diseases. Given its location, it was particularly interested in flu. Why? About 40,000 Americans die each year from seasonal influenza. Where does seasonal influenza come from? It comes from Southeast Asia.

Indonesia is home to 43 percent of the people of Southeast Asia. Because it's the place where you have the best opportunity to collect flu samples in order to develop the vaccines that are used in the Northern Hemisphere during the flu season nine months later, there's a direct impact on U.S. health from this research. I'd point out that people in Indonesia don't die from seasonal flu; it's a mild infection that becomes more virulent in the Northern Hemisphere. But when I went to Indonesia, there had been outbreaks of bird flu, and bird flu is pretty lethal; it has about a 50–60 percent mortality rate for people who are infected.

Half of all bird flu infections have occurred in Indonesia, and more than a third of all bird flu deaths in the world occurred in a township called Tangerang, outside Jakarta, which is a city of 12 million people. Tangerang is where the international airport is. At the time, there was a great fear—there's still some fear—that bird flu might become contagious. And it's important to understand that influenza usually vectors when people are still healthy; you're no longer contagious by the time you get sick. The fear was that someone would get on a plane in Tangerang and go to, say, Frankfurt. And he'd be sneezing in Frankfurt. People in Frankfurt would get on planes, and it wouldn't take two or three days before there were people who had the pathogen in almost every country in the world.

To prepare for the eventuality of human-to-human transmission, we had to be able to study samples of the flu with a possible view to developing a prototype for a vaccine. I thought this issue was critical. Indonesia had previously shared flu samples—not necessarily with NAMRU, the military lab, but often through it to CDC. But at this point, Indonesia had cut

off sharing these flu samples. The Indonesians were concerned that, by handing over samples, vaccines would be developed by rich countries and they would be the last in line to receive them. They therefore refused to share them, claiming “viral sovereignty.”

At the same time that the bird flu crisis was playing out, we were negotiating the future of the NAMRU lab. The lab had been set up with the approval of President Suharto 40 years ago. There had been, off and on, for different reasons, mythic charges about what was going on in that laboratory. What evil doctor is in there cooking up pathogens to kill the world? Is this a germ warfare laboratory? The discussion had become politicized. Eventually, the lease, or the agreement, had to be renewed. And we tried to get it renewed so that there'd be a clear future ahead.

Our own military was superb. I explained the political context to them and said I thought the one chance we were going to have to straighten this out would be if we were able to have the lab run as a binational laboratory in which Americans would be doing the actual management of the laboratory but where there would be a binational oversight board and it would no longer be a closed military environment. We would have to have scientists work there who were appointed by the Indonesian government. Amazingly, our military agreed. It was very open. It said, “This is only about science. We have to be careful about management for use of U.S. Government resources, but we are glad to open the doors to the Ministry of Health.”

With that, we went back and had a potentially fruitful negotiation articulating how a new arrangement would be structured. But in the end it didn't work. And it didn't work, I think, because the then-health minister had a slightly different agenda. She didn't want to be the one who signed the document. Although a doctor, she wasn't really a clinical researcher. This wasn't her thing.

I think that most of the people in the Indonesian government understood the lab's value, but it was an issue on which none of them would take on the populist voices. Certainly President Susilo Bambang Yudhoyono encouraged me directly to go ahead with the negotiations, but in the end he wasn't about to instruct his health minister what to do. And when we saw that, my judgment was, “OK, let's not have a constant argument; close the laboratory and in the morning we'll get up and we'll rebuild the health relationship with Indonesia.” And I think that's what's happening. The interests between the two sides are strong and we're back to cooperating, but, unfortunately, not with the NAMRU laboratory. One of the scientists there went on to another of our labs in San Diego, where he correctly typed and identified the subsequent outbreak of swine flu in Mexico. The previous year he'd been working in Indonesia, but that was an asset that was lost and sent elsewhere. What's lost as well is that we weren't able to use the lab renewal as a pivotal point to contribute to a strengthening of relations between the United States and Indonesia, the third- and fourth-largest countries in the world. I think health care will come back and be part of that; I think education has to be a part of that; security obviously has to be a part of that. But because of the loss of NAMRU, I think we lost 10 years on the health care component.

As for bird flu, I think it was contained simply by fate. But it's not gone away. It's just not shown the capacity to mutate into something that's contagious between two human beings. When I reflect on the negotiations with the Indonesians over bird flu samples, my view is that if people cooperate you can come to agreements. It comes back to what I said at the beginning about states and sovereignty. What happens if an American is in Indonesia and gets bird flu, gets on the plane and comes home, gives a flu sample, and some American company makes a vaccine—who owns that? The Indonesian is going to tell me, “No, that

was an Indonesian virus that jumped into a person. It happened on our territory.” It becomes silly. I think it’s better to address these issues and discuss them. If we’d reached a cooperative agreement in Indonesia, the investment in their health infrastructures would be increasing, and it would result in better health care for Indonesians, too.

What do I take away from these experiences, working on health and security? First, I’d underscore the importance of establishing personal relationships with the health experts in our own government and understanding what they’re about. In the U.S. federal government, health is the responsibility of the Department of Health and Human Services, and it has a number of really wonderful institutions, particularly NIH. When I went up to visit NIH before going to South Africa, it was seen as very unusual; I would bet today it’s still unusual. Most Foreign Service officers, most ambassadors, wonder why they need to talk to these people. I tried to get the Africa Bureau of the State Department to invite NIH to its weekly staff meeting and failed. But it was people from NIH who had the courage in our government to make a bet on change in South Africa and to leverage the influence of the South African military as the one place in the South African government that could make a decision independent of the health minister. I think we should be more open to those kinds of collaborations and more willing to deal directly with the actual players; and in the case of NAMRU, that meant dealing with the military.

Remember, we’re structuring a foreign policy for this century, not for the last century, not for the nineteenth century. We’re not sending the Great White Fleet around the world. What are we sending instead?

People look at the United States, and they have one impression of us from our use of drones; they have another impression of us from the excellence of our health care. I think

that the United States benefits enormously from people admiring us for our restless determination to conquer disease. That’s part of what makes an American an American. If we have a legitimate claim to leadership in the world, part of that should be sharing our ability and determination to confront humanitarian challenges. I think health care is a strong point in our engagement with the world. We ought to make more of an effort to facilitate it. ■



REAR ADMIRAL THOMAS R. CULLISON

Rear Admiral Thomas R. Cullison (USN, ret.) capped a 42-year naval career by serving as deputy surgeon general for the U.S. Navy and vice chief of the Bureau of Medicine and Surgery from 2007 to 2010. Following his retirement from the navy, he was the chief operating officer of the Center for Excellence in Disaster Management and Humanitarian Assistance, in Honolulu, Hawaii, from 2010 to 2012.



Some may ask why health outreach is important. Why is it important for the United States to spend its treasure on somebody else's health care, to put it bluntly? Look at the relationship between the United States and Vietnam, for example, which has evolved in my lifetime from active combat to very good relations; much of that improved relationship was developed through health care. Look at the relationship between the United States and Thailand. Look at the many countries that right now don't have a very good relationship with us but with whom we can talk about nonthreatening topics, such as basic health, HIV/AIDS, and noncommunicable diseases. These are the reasons we should support the use of both uniformed and nonuniformed U.S. capabilities to help countries develop their health systems. These efforts will deny a base

to those who would like to see countries stay unstable; they will help develop close relationships—both military and civilian—between countries and the United States; and they will create friends out of what could potentially have become enemies.

The navy has a long history of health engagement. Navies tend to be far flung across the world, and part of their job is to develop friendly relationships with whatever country they happen to visit. Health outreach is certainly a way to do that.

When I was in Guantanamo Bay in the early 1990s, there was a mass migration out of nearby Haiti. We were taking care of people's medical problems in the displaced persons' camp. I treated an HIV-positive boy who was probably 12 or 13 years old. He'd broken

his shin bone when he was young, and it had never been properly treated; he had this chronic, seeping wound—an infection that had been there for years. We took him to the operating room and dealt with the problem in about 15 minutes by scooping out the infected bone and treating him with antibiotics. As far as I know, he recovered well. And I thought, “By gosh, we’ve just done in a few minutes something that will probably benefit this person for the rest of his life.” And I tucked this observation away as an example of how small interventions can really help the United States gain friends.

Using medicine to build friendships goes beyond the individual level. I began my career back in 1972 as a line officer and a diver, serving in Vietnam during the war. In the early 2000s, when I was at U.S. Pacific Command, we had the opportunity to engage with the Vietnamese once again. I took the Vietnamese surgeon general on board a navy ship in Hawaii. We subsequently visited him in Hanoi—a place that in 1972 I never thought I would see—where I met with the Vietnamese Army medical department and arranged for a follow-on visit to engage its military on HIV/AIDS prevention.

Working with our former enemies on a topic that was of concern to both countries was, I think, very helpful in developing a relationship. It seemed to me that health could be a building block, a common issue for discussion among military people that was nonthreatening to either side. It offered us a way forward with Vietnam at that point, and our relationship has now matured into one that is much more diverse.

Disaster response is another way of building relationships. The navy knows it will be called on in that regard, and we really practice for such emergencies. The most recent strategic document that the commandant of the Marine Corps, the chief of naval operations, and the commandant of the coast guard signed treats

disaster response and humanitarian assistance as a core concept, a core duty that the sea services will be required to provide.

Everyone views the 2004 tsunami in Aceh Province of Indonesia as a turning point. A lot of things came together during that disaster: a vast international response, a large U.S. military response, and an indigenous response in a province of Indonesia that at the time was experiencing an insurrection against the government. Everybody knows that the rebel movement signed a peace deal after this huge disaster hit. I think the international response and the way it was received by Indonesians helped strengthen the idea that “soft power,” or the ability to work on the human level, can have a longer-lasting effect than kinetic interventions.

The first thing one must realize when disasters occur is that the primary responsibility for response lies with the host country. The U.S. military will not be involved without a formal request from the country. That request comes through our embassy, is relayed to the Department of Defense, and is then transmitted to a U.S. military organization to respond. If a country’s own capability is overwhelmed, and if there is no international capability that can quickly and effectively respond, the U.S. military can be brought in to do those things that nobody else can do, for a very short period of time.

That was the case during the Haiti earthquake in 2010, where the government itself was largely destroyed. My involvement was to deploy our hospital ship, the USNS *Comfort*, with the right specialists and supplies on board and to get it to Haiti. The *Comfort* is berthed in Baltimore, and it takes about five days to get from Baltimore to Haiti. A lot is going to happen in the first five days following a disaster of that size. The hard part for us was to predict what type of medical response would have occurred during that period, what would be needed when we arrived, and how we would best fit with the ongoing response.

The response to a major disaster is just the same as response to a war: the information that comes out initially is often incorrect, it's often either understated or overstated, and the situation becomes clearer as you go along. What we did was to get the ship moving with a base medical capability on board—about two-thirds of the medical staff that we knew we would need. Meanwhile, we sent additional staff to Guantanamo Bay, from where they could join the ship when it arrived in Haiti. This approach gave us an opportunity to choose the staff whose skills best matched the needs on the ground. Even though we were fighting a war in Iraq, we had people in Afghanistan, and we had other deployments going on, staffing the ship wasn't a problem. A day and a half after the disaster, we had roughly 500 people ready to go when the ship went. As the situation evolved, we worked with many nongovernmental organizations (NGOs), including Project Hope and Operation Smile, which came to assist on the ship. Because we had already worked with these organizations during peacetime hospital ship deployments since the 2004 tsunami and had become very comfortable with each other, in this time of turmoil it was easier to take a civilian organization and incorporate it into a navy ship.

The relationship between the NGOs and the military has been developing over the past decade or so. Some NGOs feel threatened if they're anywhere close to anyone in military uniform because they may suffer the consequences of being perceived as being on one side or the other. We respect that, and we want to maintain a distance when required. Other NGOs want to work with us because they see the synergy of the military and civilians working together.

When you're on a hospital ship, you're on one of the largest trauma centers in the world. The navy's two hospital ships, the *Comfort* and the *Mercy*, both have 12 operating rooms and can take care of 500–1,000 patients at a

time. The capability that we bring with our ships is something that nobody else has. For surgeons, this is a good place to work. I also think it's quite good for the United States to be able to show other countries that when we all put on scrubs and go to the operating room, it doesn't really matter who is the military doctor and who is the civilian doctor: what matters is who's the best surgeon to take care of the problem. And that's the person who operates. We had a very close relationship with the Orthopedic Trauma Association, which toward the end of the Haitian earthquake sent many of the country's finest orthopedic surgeons down to the *Comfort* to deal with some of the most difficult trauma problems they'd ever seen. That was a great example of private-military partnership.

When you look at the areas of responsibility of the different parts of the U.S. government, what are the borders of humanitarian assistance and health outreach? Where does the military stop, where do others take over, who should be where, and when? I think we all need to remember that it's the United States that we're representing. We need to work together to both define and blur those borders as much as we can. When a hospital ship turns up, it's usually a big media event and there's a lot of interest paid; it can be a great time to drive other goals and work together on specific capabilities that a country might need.

But the military realizes that its approach is episodic. Except in very specific situations, the military is unlikely to be in one place for a very long time. For many events, our hospital ships have gone out to a country and stayed for a couple of weeks. Working with the host country, they can do a lot of things in those two-week periods, but it will be two years before they come back. Other U.S. government agencies, the U.S. Agency for International Development, for example, will be in-country long term, supporting domestic organizations.

If we in the United States are going to provide humanitarian assistance successfully, the first thing that needs to be developed is a good game plan so that we know what assistance will be helpful and what won't. Much humanitarian assistance has been provided in a piecemeal fashion, based on the capability and interest of the organization that's doing it and what the receiving country or organization says it would like to have, which is sometimes driven by political decisions. We need to come up with an objective way to figure out what will benefit the host organization, community, province, or country. Everybody could then contribute the particular piece of the development process or the engagement process that will ultimately benefit the recipient most.

Turning from health outreach to looking after our own servicemen and women, which was my primary duty as deputy surgeon general for the navy, I look at the wars we have been fighting for roughly 10 years now, in two locations; the interesting thing from a medical standpoint is that we truly rose to the occasion. If you look at health outcomes, two things stand out. One is that in World War II and in other wars prior to that, the likelihood of becoming incapacitated from illness was actually higher than the chances of being killed in combat. In these latest wars, that's not been the case. This improvement can be attributed to superb leadership and excellent preventive medicine: finding out what's there, what we are likely to get sick from, and where we should build our bases to avoid exposure to dangerous elements.

The other incredible thing that has come out of these wars has been that even though we've had many small unit actions in many diverse places, the number of people who actually die from combat has been the lowest of any previous warfare.

There are several reasons for this. One is that the body armor and the vehicles we have today provide better protection than

ever. Another is the development of a trauma system that allows us to deliver more capable surgery, farther forward than ever. Our ability to do aeromedical evacuation of patients from both Iraq and Afghanistan to the U.S. military hospital in Landstuhl, Germany, and back to the United States, has evolved through the past 10 years into a worldwide trauma system that's saved lives. The army's Institute of Surgical Research, based in San Antonio, has studied all aspects of trauma care, from the moment of injury, to care in the field, to care at the initial hospitals, to what goes on during the air evacuation, to what happens in Landstuhl, to care for our patients when they come back to the United States. We've been able to make stepwise advances that have made an excellent system even better.

One thing that is critical for a surgeon or a physician to have is information about the patient, preferably before he or she arrives. In an ideal world, we would be able to plan their treatment in advance, making only minor modifications to take account of what's happened to the patient in transit. In the military, we require people to move about a lot. We might need to transfer a patient from Baghdad to San Antonio; from Kandahar to Bethesda, Maryland, all within three days, without losing any information about them.

The only real way to do this is electronically, both to transmit images and to transmit electronic medical records. There's been a lot of angst over the past several years about the development of an electronic health record. There have been many proponents and many naysayers. From personal experience, having been treated in at least five different military facilities from the East Coast to Hawaii, it's really refreshing to come in and find my entire record for the past 10 years available to whichever physicians are treating me, to have it there sequentially, and to have them make a decision based on the data rather than send me to the lab for my nineteenth blood test that day.

The key is making the electronic health records user friendly for the provider and also having them available so that the patient gets the undivided attention of the provider. We're not quite there yet, but we're getting closer. ■



AMBASSADOR JOHN E. LANGE

Ambassador John E. Lange (ret.) spent much of the latter half of his career working on global health and health diplomacy issues, including serving as the special representative on avian and pandemic influenza in the U.S. State Department (2006–2009) and as deputy global AIDS coordinator for the President’s Emergency Plan for AIDS Relief (2003–2004). He served from 1999 to 2002 as U.S. ambassador to Botswana, where HIV/AIDS was his signature issue. He was deputy chief of mission at the U.S. embassy in Dar es Salaam, Tanzania, from 1997 to 1999, and headed the embassy as chargé d’affaires from January to September 1998. Ambassador Lange currently works for the Bill and Melinda Gates Foundation as senior program officer for Africa in its global policy and advocacy program.



I didn’t make the connection between health and security until I was nominated by President Bill Clinton to be the U.S. ambassador to Botswana. When you’re the U.S. ambassador, you look at the entire range of U.S. interests in the country. Botswana had many positive things going for it: it was a long-standing democracy, it had a free market orientation, it had a relatively free press, it had a good military that was clearly under civilian control, and it had low levels of corruption. But when I went there, it was estimated that 38 percent of adults aged 15–49 were HIV positive.

Subsequent estimates indicate that the figure of 38 percent could have been high. But other than how it affects the individual, it doesn’t really matter—for the need to take

immediate action—whether one-fourth of the adults in a country are HIV positive or whether one-third of the adults are HIV positive: it’s a disaster in either case. Here was one of sub-Saharan Africa’s true success stories, and yet, as one book on the AIDS epidemic in Botswana put it, “Saturday is for funerals.”¹

This was 1999, before the advent of affordable, accessible antiretroviral therapy. The cost for this treatment was some \$10,000 per person, per year, which was out of reach for the vast majority of Botswana. Moreover, at the time, to learn if you were HIV positive, your doctor had to send a blood sample to a laboratory in South Africa. When I looked at the

1. Unity Dow and Max Essex, *Saturday Is for Funerals* (Cambridge: Harvard University Press, 2010).

panoply of U.S. interests in Botswana, many things were going well, but I thought I needed to focus on HIV/AIDS.

I didn't want to be known as the HIV/AIDS ambassador and have some audiences ignore my message. But I ensured that in every speech, no matter the context, I wove in the need for HIV prevention, urging people not to take risks and to protect themselves from HIV infection. We produced a pamphlet entitled, "The Partnership: Botswana and the United States against HIV and AIDS." We made HIV/AIDS a significant focus of every U.S. agency that was based in Botswana. One of the great programs, which predated my arrival, was the BOTUSA partnership involving the Centers for Disease Control and Prevention (CDC) and the Botswana health ministry that focused on prevention, care, treatment, and research on HIV, AIDS, and tuberculosis.

I worked the same way with all seven U.S. government agencies on the embassy's country team. For example, while I was there, the International Law Enforcement Academy was established to train middle-management law enforcement professionals from sub-Saharan Africa on a campus just outside Botswana's capital, Gaborone. Working with the program director, we ensured that the multiweek study course included a two-hour program about HIV/AIDS. Some police officers from one country with a very high HIV infection rate took part and said, "What do we need this for? HIV/AIDS doesn't affect us." But it did affect them.

In my mind, the connection to security was the destabilizing effects that a large number of deaths could have on a country. The effects would be much slower moving than, for example, a coup d'état. But life expectancy could decline, and some people in high positions in government would die prematurely from AIDS. Tens of thousands, even hundreds of thousands, of children would grow up as AIDS orphans. Health services

would be overwhelmed, and huge resources would be needed to provide medical care to people as they developed AIDS and eventually died. With that kind of socioeconomic crisis, more and more young people would become unhappy—and radicalized—because their lives weren't improving while their government devoted more and more resources to health care. An unchecked AIDS epidemic was a recipe for political instability.

I remember talking to officials of a company in one of the worst-affected cities in Botswana; they thought they normally needed 500 employees but were planning to have 600 on their rolls because they had to take into account frequent absences of those who were suffering from AIDS or had family members suffering from AIDS who needed care at home.

Fortunately for Botswana, the president at the time was Festus Mogae, who later received global recognition for his leadership on HIV/AIDS. He talked publicly about the threat of "blank extinction" of the Botswana people. And the minister of health at the time, Joy Phumaphi, was very energetic and committed to saving the populace. She gave very emotional speeches urging people not to take risks that could result in an HIV infection. This leadership was critical for Botswana and, at the time, set it apart from some of its neighbors.

During this period, on the world scene, Richard Holbrooke, then the U.S. ambassador to the United Nations, organized a historic UN Security Council meeting on the impact of AIDS on peace and security in Africa. The January 2000 session was the first council meeting ever devoted to a health issue, and it made clear the connection between AIDS and security and stability.

I remember in early 2002, the then secretary of health and human services Tommy Thompson brought a delegation of about 50 people to Africa to look at the HIV/AIDS situation. They came to Botswana from South Africa, and it was interesting to hear them

talk about the contrast. That was a time when key leaders in South Africa were questioning whether HIV even caused AIDS, and the delegation had left that country dispirited. In Botswana, right across the border, the argument about whether HIV caused AIDS never really resonated. It was very clear that President Mogae and the minister of health were deeply engaged, and their leadership made a major difference in how the country dealt with its AIDS epidemic.

It was also clear that the U.S. government cared about Botswana's single-biggest issue and was a key partner in helping the country confront the epidemic. As a result, our support in combating HIV/AIDS was a major factor in expanding the good relations between the U.S. government and Botswana.

Many other U.S.-based entities helped Botswana deal with its terrible HIV situation: the Harvard AIDS Institute, the Bill and Melinda Gates Foundation, the Merck Company Foundation, the Baylor International Pediatric AIDS Initiative, and others. Civil society's engagement, coupled with the leadership of Botswana's government, made a huge difference.

About a year after my time in Botswana, I was asked to help the U.S. global AIDS coordinator set up the new PEPFAR office in the State Department. I stayed on as one of two deputies during the program's start-up year. I had been deeply engaged on this critical health issue during my three years in Botswana, and I brought that concern to the program.

It was clear that the United States was serious about confronting the threat of HIV/AIDS. PEPFAR was a huge, historic commitment to combatting a single disease. While the program was based in the U.S. Department of State, it was implemented primarily by the U.S. Agency for International Development (USAID) and the U.S. Department of Health and Human Services through the CDC. The focus was on having strategic, clear, and

measurable objectives that were monitored and evaluated and that required new country operational plans and reporting requirements. This effort initially placed an additional burden on USAID and CDC staff stationed in the PEPFAR focus countries. There was the usual friction among U.S. government agencies as the bureaucratic layers tried to work together in a way they had not done before. Still, PEPFAR was put together quite quickly. I think everyone was well meaning, because—for those who cared about HIV/AIDS—there was a clear realization that this was a historic opportunity to make an enormous difference in an emergency situation.

Many actors are working on health issues, the most important of which are the government, private sector, civil society organizations and others in each affected country. Globally, numerous international and regional organizations, governments working multilaterally and bilaterally, nongovernmental organizations, private foundations, and others are involved in this effort. The U.S. government is without doubt a global leader. The creation of PEPFAR, and the extraordinary amount of money that came with it, was the major factor back in 2003. Since that time, other major U.S. programs on health—such as the President's Malaria Initiative, coupled with the integrated, coordinated, and results-driven approach of President Barack Obama's Global Health Initiative—have kept the United States in the forefront of those caring about improving the health of people in developing countries. This undertaking has not only benefited many of the poorest people in the world but has also brought great benefit and real political capital to the U.S. government. That said, I'm not sure that the United States is getting all the credit it deserves for saving as many lives as it has and for its continued, generous health programs delivered on behalf of the American people.

Regarding PEPFAR, the program needs to continue, in part for fundamental humanitarian reasons. We can't put people on antiretro-

viral therapy and then take them off it without serious potential medical consequences. More broadly, however, this program has dramatically changed countries with high HIV infection rates, particularly in southern Africa. In 2010, I met with the current president of Botswana, Ian Khama, and he recalled the days, 10 years earlier, when one would see motorcade after motorcade of cars going off to rural areas on the weekends to attend funerals. That's no longer the case.

PEPFAR is saving lives and helping these countries get back to normal so that they can develop economically and socially. With the widespread use of antiretroviral therapy now provided by PEPFAR, as well as by the Global Fund to Fight AIDS, Tuberculosis, and Malaria and other organizations, the security threat has greatly diminished. Countries are now very unlikely to suffer from political instability due to large numbers of HIV/AIDS deaths and the diversion of massive government resources to those suffering from AIDS. Substantial credit for this change goes to PEPFAR.

The last three years of my Foreign Service career, prior to retirement in 2009, were spent working on the threat of pandemic influenza. In 2005, President George W. Bush became very concerned about the threat posed by the H5N1 virus. It was spreading among chickens and other fowl, in Asia in particular, and experts were greatly concerned that it could mutate and become a human influenza pandemic. If we look back on the history of pandemics, perhaps 40 million people died from the influenza outbreak of 1918–1919. The United States therefore considered the pandemic threat to be a matter of national security, because literally millions of Americans could die in a severe outbreak.

But we couldn't fight the pandemic threat alone; we needed to work globally. Within the U.S. government, pandemic influenza policy was driven by what was then called the Homeland Security Council, which in 2006

produced the National Strategy for Pandemic Influenza Implementation Plan. It served in many respects as a blueprint for how to bring the national security interests of the United States into the health field, because it showed how a catastrophic pandemic would affect the entire fabric of American society.

Pandemic preparedness and response needed to involve other governments. In the Department of State, I led a task force called the Avian Influenza Action Group that sought to work with other countries and international and regional organizations in preventing an influenza pandemic and in preparing for one if we could not prevent it.

In the United States, every agency in the U.S. government had a role, including the Department of Defense, the Department of Homeland Security, and, of course, the Department of Health and Human Services. Issues involved vaccine manufacturers, border officials, and even the financial services industry. State and local governments, the private sector, and civil society also had critical roles.

The federal government estimated that, at the peak of a severe pandemic, perhaps 40 percent of the workforce would be absent. People could be afraid to leave their homes, they could be caring for sick loved ones, they could be sick themselves, or they could have died. And if 40 percent of the workforce is missing at a nuclear power plant, for example, that's a national security concern.

At the time, many of us looking at the spread of H5N1 saw Indonesia as the epicenter. It had the largest number of cases of H5N1 among birds, as well as among people. The CDC needed to be able to monitor the virus that was in Indonesia to determine if there were any mutations or changes that would bring it closer to possibly starting a human pandemic (which experts defined as sustained and efficient human-to-human transmission). For that, CDC needed virus samples. But the Indonesian health minister at the time, Siti

Fadillah Supari, was concerned that if samples were given to CDC and other laboratories and then a pandemic occurred, Indonesia would not receive lifesaving vaccines until after everyone in the United States and other rich countries had received them—even though the vaccines may have been created using viruses originally supplied by Indonesia. The U.S. government’s position was that Indonesia could not claim ownership of a virus, which was a pathogen.

This dispute raised a fundamental point about the difference between looking at an issue in terms of global health and looking at it through a national security lens. In global health, we try to work for the benefit of all. For decades, the World Health Organization’s Global Influenza Surveillance Network had received influenza virus samples from all over the world in order to monitor changes that could affect global health. That network, which included the CDC, needed the free flow of virus samples—including those from Indonesia, which were particularly worrisome—for the benefit of the world.

By looking at this question through its own national security lens, however, Indonesia was disrupting the institutional order and the long-standing precedent of unencumbered virus sharing. In May 2007, the Indonesian delegation brought the issue before the World Health Assembly. I was on the U.S. delegation, and we negotiated for long hours. In the end, the best we could accomplish was unanimous passage of a resolution that created a negotiating process. Indonesia’s concern about being required to share virus samples without receiving guaranteed benefits in return resonated with a group of developing countries.

Subsequent diplomatic negotiations were difficult but dealt with an issue of paramount concern. If the H5N1 virus mutated in Indonesia to the point where a pandemic actually began, and if Indonesia had not been sharing those virus samples to give the world

advance warning, the delay in preparations could have been catastrophic and resulted in many needless deaths. In November 2007, Minister Supari and I, along with two colleagues, held a one-hour negotiating session in the United Nations Office in Geneva. I considered our discussion to be a frank and candid exchange of views; she later described it as the most violent argument she ever had.

While these negotiations were going on, the world experienced an influenza pandemic caused by the H1N1 outbreak in 2009. In a sense, we all dodged a bullet with H1N1 because it turned out to be a moderate pandemic. In some respects, you could argue that the delegations negotiating the pandemic influenza preparedness framework didn’t get the message—that pandemics occur, there was a real threat out there, and that we urgently needed to solve this. The negotiations dragged on, almost divorced from that reality.

Finally, in May 2011, four years after negotiations began and two years after the H1N1 epidemic, the World Health Assembly adopted a pandemic influenza preparedness framework that put the sharing of influenza samples on an equal footing with benefits derived from those samples. Now a structure is in place whereby the companies that benefit from receiving virus samples, such as vaccine manufacturers, will pay a certain amount to help the Global Influenza Surveillance and Response System defray its expenses. They can contribute in a variety of ways, but the idea is that developing countries will derive some benefits from sharing samples of influenza viruses with pandemic potential.

When we look at this issue from the perspective of global health diplomacy, we can see the distinction between meeting immediate health needs and participating in cumbersome, multilateral negotiating processes that can take years to conclude because of the many vested interests and legal, foreign policy, and health issues to be resolved. It was almost as if

the reality on the ground was irrelevant to the negotiations.

As we look at some of today's pressing global health issues—including the spread of HIV/AIDS, the continuing threat from pandemic influenza, the millions who die from diseases that are easily preventable by vaccines, the opportunities to eradicate polio and other diseases, and the need to improve the health of women and children to save lives and to enhance productivity and social and economic participation—we see that health is critical to a country's development and, in particular cases, has a definite, direct impact on a country's security and stability. And that, in turn, can have a significant impact on U.S. national security. For many reasons related to its national interests, including the fundamental humanitarian goal of helping those in need, the U.S. government has responded to a multitude of global health challenges. Millions of people are alive today as a direct result of that response. ■



ELLEN EMBREY

Ellen Embrey spent 35 years in the federal government, serving in a variety of positions straddling the fields of national security and public health. She was acting assistant secretary of defense for health affairs at the U.S. Department of Defense from 2009 to 2010; deputy assistant secretary of defense for force health protection and readiness from 2002 to 2010; and deputy assistant secretary of defense for military assistance to civil authorities from 1998 to 2001. Currently, Ms. Embrey is a counselor at the Cohen Group and president and chief executive officer of Stratitia, a management consulting firm she started up after leaving government service.



Health and national security clearly intersected in my various positions at the Department of Defense (DOD)—first in my work on disaster and emergency response policy and, second, in ensuring the health and medical readiness of our troops and the medical forces that support them.

The links became clear to me in 1993 after the first World Trade Center bombing, which killed six people. The attack prompted a considerable effort in trying to understand emerging threats to our country. I knew nothing about health at the time; I was working in disaster response policy and coordination. But I got to talk to experts on bioterrorism, who had concerns about the threat of infectious diseases being used as weapons. They were saying that our nation had no ability to protect its citizens against these threats. After

more engagement with these colleagues, I appreciated the need to invest in the research necessary to protect not only U.S. citizens but also any citizen against these kinds of weapons. As a result, I started getting more and more involved.

I changed jobs after September 11, 2001, and began working on Department of Defense force health protection issues, where I focused on understanding and protecting against the health threats to our military personnel, particularly when they were deployed around the world. Because part of this effort meant trying to understand emerging infectious diseases, I got involved in global health surveillance and in understanding ways to collect and monitor information about diseases and examining the potential impact they might have.

Soon after 9/11, the issue of biological weapons came up in Iraq. Did Iraq have these weapons, and if we went there, how would we protect our forces? My very first task in DOD force health protection was to work with the Food and Drug Administration, the Department of Health and Human Services, and Wyeth Laboratories, the company that manufactured the smallpox vaccine, to bring it back to life so that we could administer it to our troops. It had been more than 20 years since the vaccine had been used.¹ The effort to ensure that the old vaccine was safe and effective and to build a reliable and effective screening, education, and vaccine administration capability for deploying troops was a huge undertaking, and it had to be done in less than six months.

At the time, it was considered to be a risky vaccine because there was a fairly high rate of associated morbidity, particularly triggering neurological and cardiac complications in certain high-risk people.

We had to come up with a very strong screening process to ensure we didn't vaccinate people at risk of complications from the vaccine, as well as to check that the vaccine actually offered protection. The screening process involved taking comprehensive health histories, excluding those at risk of experiencing complications from the vaccine, and holding an educational session where we described how to protect and prevent spread of the live virus while the vaccination site healed and produced the signature smallpox scar. We aggressively monitored the daily health status of every person for 10 days after vaccination and set up an elaborate adverse reporting system to make sure we understood and reacted in a timely way to any new health risks

1. The United States stopped childhood vaccinations in 1977, and in 1980 the World Health Organization declared that smallpox had been eradicated from the globe.

that emerged. We undertook a different, but no less significant, effort to protect our deploying forces against anthrax attacks, which we saw as the most likely potential biological threat they might face in Iraq and Afghanistan.

Together, the ongoing operations in Iraq and Afghanistan represent the U.S. military's longest continuous conflict. We've had to adapt to a series of health challenges for force protection, and I think we've improved the way we operate as a result.

The size of our military hasn't grown that much, despite the burden of these conflicts. Over the past 10 years, many servicemen and women have deployed at least three times either directly in theater or in supporting combat operations. You can see the effects in some people, with higher rates of depression and of anxiety and sleep disorders than before the wars. These problems are also symptoms of traumatic brain injury (TBI), which some have characterized as the signature wound of this war. Certainly, TBI is closely linked to what I would say is the signature weapon of the war, improvised explosive devices. The cumulative effects of exposure to these explosions on the head, brain, inner ear, balance, and cognition can affect soldiers' ability to perform, even though they might not realize it.

Mild TBI may be far more prevalent than posttraumatic stress disorder (PTSD)—a very acute and then potentially chronic problem usually related to a specific incident of trauma. But it has very similar symptoms; soldiers find they get anxious, irritable, can't sleep very well, and can't focus or concentrate. Although DOD invested significantly in research to better understand how to identify, diagnose, treat, and recover from TBI, as yet we don't have the sophisticated diagnostic tools in place to definitively distinguish a mild-to-moderate TBI diagnosis from a PTSD or severe depression diagnosis. The diagnosis is complicated by the fact that because blasts usually have trauma

associated with them, it is not infeasible that our warriors are legitimately suffering symptoms from both at the same time.

Understanding brain injury has been this war's biggest health challenge, but it has also been the one that's yielded the greatest hope, not only for the U.S. military but also for civilians as well, who have benefited from the research. DOD has partnered with the National Football League and hockey leagues, for example, to do extensive research on how brain injuries occur and how to improve our knowledge of what it takes to help the injured person recover.

Congress has given us millions of dollars to research the problem, including funding the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury. The Department of Veterans Affairs and DOD collaborate through the center to better understand TBI and PTSD. They've worked with the national governing body that creates diagnosis codes to include the kinds of brain injuries we're seeing from Iraq and Afghanistan. Now physicians have more discrete ways to characterize and evaluate the extent to which TBI is affecting a person's cognitive function.

New technologies at various stages of clinical trials will help determine the brain's performance, and a significant amount of work has been done to collect baseline information about cognitive function prior to troop deployment, so that we can understand people's brain function before they are sent into a war environment. If servicemen or women are exposed to anything during their deployment that could affect the brain, we have new policies in place to respond. Instead of saying, "Shake it off, keep going," they must now be administered a test and the results must be compared to those of the baseline test before they first deployed.

The conflicts of the past decade or so have also spurred improvements to our military health system. Before the wars, we used a fleet of dedicated aircraft just for medical purposes. But because they had become very old and expensive to operate, we made a decision in the year before we actually went into Iraq to use opportunistic airlift, so that when someone was wounded, any aircraft in the area could pick him or her up.

We put portable, certified airworthy "stabilization and care suites" into our aircraft, with a common set of medical supplies and helped streamline patient movement protocols across the armed services. We also improved our medical supply chain management from garrison to theater. The daytime heat in Afghanistan and Iraq meant we had to come up with more effective ways to acquire, collect, store, transfer, track, and use blood and other cold chain medical supplies.

We created what we call the joint theater trauma system to improve the evacuation of injured personnel from the battlefield by ensuring they were taken not necessarily to the nearest facility but to the place where their requirements could best be met, even if it was a two-hour flight away. We have reached a point where less than 72 hours passes from the point of injury to life-saving surgery and stabilization in theater and then to the United States for critical care, rehabilitation, and recovery. That's pretty amazing, and it's due to the commitment and dedication of all the talented people involved.

We have also made big advances in operational medicine. We've learned how to manage bleeding through new technologies and by issuing easy to use, self-apply tourniquets to our soldiers. I would say that thousands of lives were saved as a result. We've also learned that in trauma situations, controlling the temperature and the hydration of the patient has made

a big difference in survival rates. That realization has fundamentally changed emergency medicine, even in the United States.

On top of that, we've also made significant progress, in collaboration with the Department of Veterans Affairs, in producing much more sophisticated prosthetics and have added to our knowledge of restorative care and recovery for post-amputation. Among other advances, we now have prosthetic knees that bend so that the person can walk up and down stairs more naturally. The list is too long to detail, but the emphasis on helping to restore capability for our wounded and injured warriors has led to some pretty amazing developments that will have significant implications for the civilian medical world.

The conflicts in Iraq and Afghanistan also exposed other, very different, challenges related to the health and security of our forces. Relatively early in the conflict, there were reports of an increasing number of sexual assaults committed in theater by U.S. military personnel on their colleagues. Defense Secretary Donald Rumsfeld thought this was a command issue and ordered a quick DOD-wide assessment of the processes then in effect for reporting assaults, the services available to individuals who had been raped or sexually assaulted, the repercussions for individuals that reported abuse, how the guilty were held accountable, and the quality of the care that was offered.

I was asked to lead that taskforce. We carried out a 90-day assessment of the system, and we went to several U.S. bases and every major base in Iraq and Afghanistan. We talked to commanders, victims, law enforcement officials, counselors, and the medical community. We found that the rate of reported instances of sexual assault in the military was actually lower than in the private sector; however, the reason for this was that people were afraid to report and it was difficult to report. When people did report abuse, they got widely

varying treatment, from isolation to coddling to being sent home to being forced to "shake it off and move on."

At every site, we provided oral feedback to the commanders so that they understood the areas they needed to pay attention to. A lot of different issues came up, including the need for better training and awareness, a consistent policy, a better understanding of how victims should be treated, and the kinds of counseling and support that should be offered. Our report resulted in the creation of a program that implemented virtually every one of our recommendations.

There are a small number of sexual predators in the military just as there are on the civilian side. We are a reflection of the population from which we draw. And the predators are very good at hiding their behavior and their actions. They are the people that our programs were primarily organized to detect. While I think very good structures are in place right now, the military still doesn't have a good handle on alcohol abuse and binge drinking, which are prime contributors to these kinds of incidents.

The wars in Iraq and Afghanistan have also taught us lessons about how the military can best use its assets to promote public health among the people with whom we interact. Undoubtedly, health leads to stability, and stability leads to security. It's a very clear, repeated, proven path.

During peacetime, the military can leverage its relatively large footprint overseas to help arrest instability and economic decline by working with military or civilian partners to build infrastructure and capability around public health. When disasters strike, we coordinate through our embassy on the ground to lend assistance. When we're in conflict, wearing the uniform becomes a challenge for the U.S. military because we carry guns and yet at the same time we're trying to protect people and sustain their health. That's something of

a contradiction to people, and even our own government recognizes this. I think the State Department is less enthusiastic about the role of the military in providing global health support during times of war.

In my view, what the military does best is create the conditions for stability in nations through building infrastructure—lighting, roads, water facilities—and then helping those nations preserve that capability so that it can lead to more permanent stability and security. I think the U.S. coalition in Afghanistan, which included both civilian and military assets, learned that it shouldn't immediately build sophisticated modern medical facilities and equipment for a country that has limited potable water, weak electrical power grids, and limited medical training. We later refocused our efforts on introducing basic infrastructure, meeting basic public health needs, and providing training programs that allow people to operate in ways consistent with their culture and beliefs, not ours. We learned to be more sensitive to capabilities, resources, and basic needs when we make our plans to provide global health assistance and to communicate and collaborate in a much more culturally appropriate way.

When we first went into Afghanistan, children were not being vaccinated against childhood diseases, and few if any women got regular health care. The mortality rate for pregnant women and babies was incredibly high. Together with the State Department, we introduced vaccination programs and prenatal care, but I wouldn't say our effort was a total success because there were cultural issues we didn't think enough about.

I think the United States has probably learned these lessons before, but I'm not sure that we've applied them, and that has held us back from effectively planning and providing early, meaningful, and useful assistance that's well received. I think U.S. global health programs are slowly realizing this shortcoming,

and as a result we're more willing to work with nongovernmental organizations and others to make sure that when we go into countries we give them the kind of support that allows them to succeed on their own in the long run. ■



AMBASSADOR DONALD STEINBERG

Donald Steinberg is deputy administrator at the U.S. Agency for International Development. Previously, he was deputy president for policy at the International Crisis Group. During a three-decade-long career in the U.S. government, Ambassador Steinberg served in a variety of positions, including director of the State Department's Joint Policy Council, deputy White House press secretary, senior director for African affairs at the National Security Council, U.S. ambassador to Angola from 1995 to 1998, special representative of the president for humanitarian de-mining, and officer-in-charge at the U.S. Embassy in South Africa during the transition from apartheid to nonracial democracy.



There is a direct link between health and security in several key areas. When you are involved in peace processes and trying to bring warring parties together, for instance, health is often a “soft” issue that can be used to draw people together and seek consensus.

When I served at the U.S. Embassy in South Africa during that country’s transition from apartheid to nonracial democracy, for example, we would draw together the apartheid government, the African National Congress, other political parties, and civil society groups to discuss HIV/AIDS. It was essential for these groups to remember that the political negotiations and interracial machinations were taking place against the backdrop of an AIDS epidemic that could potentially sweep away all the progress that could be achieved.

Later, when I served as U.S. ambassador to Angola, one of my key roles was to support a peace process designed to end 25 years of civil war. Because the government and opposition UNITA forces frequently refused to come to the table to discuss substantive peace process issues, we used a nationwide polio eradication effort as a unifying factor. We got both sides to set up vaccination programs throughout the country, which helped extend national administrative control throughout the entire territory, opening up areas of Angola that had previously been either completely government controlled or completely rebel controlled.

Equally important, the effort reminded the armed forces on both sides that larger issues were at play: Angola was losing as many people to diseases, whether malaria or HIV/AIDS or polio, as it was to the conflict itself.

There is no stronger signal that a peace process is working than improvement in health conditions or, conversely, that a peace process is failing than a deterioration in those conditions. In modern conflict, it is civilians who suffer the most, about 90 percent of the deaths that occur. Further, the death and suffering that result from poor health conditions, poor educational conditions, sexual and gender-based violence, and other socioeconomic conditions swamp the impact of the conflict itself.

In Angola, our peace commission worked not only on issues related to disarmament, security sector reform, and forming a unity government but also on mother-child health care, psychosocial programs for the victims of violence during the conflict, assisting the survivors of land-mine accidents, and so on.

Regarding land mines, at the time the peace agreement was signed, about 4 million Angolans were displaced out of a population of about 12 million people, and about 1 million land mines had been planted throughout the country. We wanted to get people home as quickly as possible so that they could get their lives going again. We de-mined the major roads, but mines were everywhere; they affected the ability of people to farm their fields, reach water sources, and collect firewood. The return of people to their homes without the clearance of these mines led to a massive flood of land-mine accidents. Even where land-mine accidents didn't occur, they stopped life from getting back to normal. On top of that, about 25,000 land-mine survivors injured during the conflict itself were in desperate need of health support. This was one of the biggest challenges we faced, and it remains so today, just as it does in Vietnam, Laos, Cambodia, Iraq, and Afghanistan.

The United States is coming to accept the whole concept of human security: that is, the idea that when you're trying to bring an end to conflict, security doesn't mean just

restoring a strong and accountable police or military force. To have meaning, peace must be reflected in improved socioeconomic conditions and an end to other forms of violence in society. Unless you do a peace process properly, the end of conflict on the battlefield can simply lead to a different kind of violence in society. If you demobilize soldiers, you need to provide them with skills, psychosocial support, and resources; otherwise, they find themselves alienated and disempowered when they go back to the communities they left and find that their wives and families have moved on. If that happens, there is a rash of domestic violence, rape, alcoholism, drug abuse, and divorce. It's as if the end of the formal conflict is simply the beginning of a new and more pernicious form of violence, usually against women.

Indeed, women must be factored into peace processes more directly and from the outset. Yet, in the initial stages of negotiations, the mediator and armed combatants almost always fail to incorporate key socioeconomic and accountability issues into the process. The process usually addresses formation of a national unity government, disarming and demobilizing soldiers, and putting into place commissions to extend government control of the national territory. Civil society gets the message: the peace process is designed for the men with the guns, not for them.

In postconflict situations, you need to build popular support for peace and security as a way of life. You need to bring in civil society as planners and implementers of all programs and demonstrate the real benefits that the population is getting from the peace process. That can be through expanded education for their kids and better infrastructure for the country—lights, electricity, and water—but a key element is restoring health systems. In Iraq, for example, the hospitals stopped running in the immediate postconflict period. People knew that; they viewed it as a sign that their lives had gotten worse, and it added to the instability.

The challenges of engaging in health in postconflict and emergency situations abroad have brought about changes in the way we do business as a government. The various agencies that are involved in global health issues—the principal three being the President’s Emergency Plan for AIDS Relief (PEPFAR), the Centers for Disease Control and Prevention (CDC), and USAID—have come together with a whole-of-government approach.

Haiti provides a good example. In the period after the 2010 earthquake, PEPFAR, CDC, and USAID came together in response to the destruction of Haiti’s health system to define what our specific roles were and to make sure we weren’t stepping on each other’s toes. But beyond that, there was a synergy among our activities. When, eight months after the earthquake, a devastating cholera epidemic broke out, we were able to use HIV/AIDS platforms that PEPFAR had set up to distribute Ringer’s Lactate (a fluid replenishment solution administered intravenously), clean water, and oral rehydration therapy.

Haiti’s cholera epidemic fundamentally undercut the reconstruction effort. We responded well as an international community, and, fortunately, that response helped build up systems that will address broader public health throughout Haiti. But there was clearly a trade-off. We had to move a lot of resources into the purchase of basic commodities that would otherwise have been available for more basic health system strengthening.

In such situations, you’re always torn between addressing the crisis right in front of your eyes and building systems that will expand public health in the longer run. If you do it right, you can build systems that both respond to the immediate crisis and address long-term development, but it’s difficult. When one of these crises hits, you are flush with resources that you will not have later. You therefore have to use those resources effectively

to build institutions, whether it’s government health ministries or whether it’s civil society institutions, that can then deliver a more fundamental form of health in a postconflict period.

South Sudan is a perfect example. We’ve been working very diligently to build up health systems there, and the improvements in maternal mortality, child mortality, and nutrition have been impressive over the period since the North-South peace agreement was signed. Yet, the recent austerity and insecurity have produced food shortages, disease outbreaks, and population displacement that have forced us to divert our resources for long-term development assistance to immediate needs.

As we look ahead, we recognize that poverty, malnutrition, and instability abroad are among the greatest national security threats the United States faces. We need to remember that countries that are healthy, prosperous, and secure don’t tend to traffic in drugs, people, and weapons; they don’t send off huge numbers of refugees across borders and oceans; they don’t transmit pandemic diseases; they don’t house pirates or terrorists; and they don’t require American troops on the ground. The nexus between our own national security and well-fed, healthy populations abroad is clear.

It’s also important for health issues to be viewed in the context of American interests and influence abroad. Health issues are a means for the United States to build up credits in the “soft power” account. To the extent that you’re demonstrating your interest in the well-being of Angolans or South Africans or host-country citizens, such credits give you access and help soften the edges of other actions you have to take as the representative of a superpower. ■



GENERAL PETER PACE

General Peter Pace (USMC, ret.) served as the sixteenth chairman of the Joint Chiefs of Staff from 2005 to 2007. He was the first marine to hold the nation's most senior military position. His other four-star assignments included a term as vice chairman of the Joint Chiefs from 2001 to 2005 and as commander in chief of the U.S. Southern Command from 2000 to 2001.



My thinking about health and security went through an interesting transition during the 40 years of my military career. As a young lieutenant, a rifle platoon leader in combat in Vietnam, I was concerned about the health and well-being of my troops but not overly concerned about the civilian population in my area because we were transiting all the time and didn't have responsibility for one specific place. If we saw somebody we could help, we did, but it wasn't part of my day-to-day process to think who we could help today.

It was in Somalia, where I spent a total of nine months in the 1990s, that the possibility of strategic medical impact first crystallized in my mind. I went in as a deputy commander of the marine force whose mission was to take

the capital, Mogadishu, and the country, in December 1992. The second time was after the United Nations had taken control, after Black Hawk Down; because of the realization that things were not going well, we went back in for an additional six months. The living conditions in Mogadishu were horrendous. When you drive through a city and you see kids picking through a trash dump, looking for food, you know you're in a situation where the health needs of the population are enormous. It was during this second tour that I began to think more about what we might use, other than force, to gain the influence we wanted to have.

When I was commander in chief of the U.S. Southern Command, all our engagement in South and Central America and the Caribbean centered on doing good works.

Many of the things that I asked for were focused on medical teams. I was delighted when I was allocated the USNS *Comfort*, the navy medical ship, to take a swing around all of South America, because that meant that we were going to do a lot of good and also generate a lot of good feeling for the United States.

When I was vice chairman and then chairman of the Joint Chiefs, it seemed clear to me that as you try to persuade people in the countries you're involved in that your way of life is better than the way of life they have been living, you should focus on things that have immediate impact for them. Medical assistance plays a big part. To the extent that you do medical activities for a population, you increase the probability of making friends, and you decrease the probability of having to get into a gunfight with them.

I am proud that I was a proponent of standing up the U.S. Africa Command. We specifically set it up as a joint interagency command, not just U.S. military. The proposal was to have, in addition to a military commander and a military deputy, a second deputy who would be an ambassador in the State Department and then senior leadership from USAID. In other words, all the elements of U.S. national power were represented. This entity would prevent conflict on the continent by getting in early, by affecting people's lives early, so that when al Qaeda came along and said, "What have these guys done for you lately?" people would say, "Wait a minute—these folks are here. They're helping us build schools. They're doing all the things, other than shooting, that help change a nation."

I'm a huge proponent of that. Let's get the population to the point where they are confident that their government is working for them and they believe that tomorrow is going to be better than today. If you can walk up to someone in any country and ask them, "Is today better than yesterday? Is tomorrow going to be better than today?" and the answer to

both of those questions is yes, then you are in good shape. Folks who answer yes and yes are not going to be revolutionaries. If the answer to one of those questions is no, then you have got to ask yourself what the problem is here.

We gained enormous credibility with many people in Pakistan, for example, when we responded to the earthquake and resulting flooding that occurred in 2005. We did the right thing for the right reason, and the people appreciated that. That goodwill has dissipated over time because of the kinetic action that followed; militarily, we had to go get Osama bin Laden, which was also the right thing for the right reason, and that upset the population. But even in a country that, arguably, is half for and half against the United States, you can see that when you go in with no prejudice other than responding to a disaster, that help is very much appreciated.

In the planning to go into Afghanistan and later into Iraq, a great deal of thought was given to medical issues. First, for our own medical needs, you want to make sure that when you send Private First Class Pace into battle, you're prepared to take care of his wounds and any other health issues he has. But in the formative stages before the battle begins, there's also a great deal of preparation for helping the civilian population. Then, everybody goes into his or her lane. As a senior officer, I'm relying on my medical officer to help me understand whether or not the plan we have is working and what else we might do for our own troops, the civilian population, and—by the way—the enemy wounded who come into our hands.

Once you've completed the military operation and you've secured Baghdad, for example, then you start refocusing. You ask, How do we consolidate what we've done? How do we start fixing things that we've destroyed? How do we get the population's support? And the more you think about the impact of what you've done and the need to have the local

population be supportive, the more that things like medical outreach come to the fore.

You learn as you go. One thing we learned was that we needed to have smaller teams available in more places to find out what people needed. Those teams included medical folks who could assess the health of the local population and make some determinations about what could be done right now. For example, would a dentist visit here for a day make a huge difference? And in most places the answer was yes, it would.

The nature of warfare has changed. We've moved from an approach of complete devastation—destroying another country, its cities and crops—to an understanding that what you're trying to do is influence populations. In World War II, because there were no precision weapons, you laid down as many bombs as you could, as close to the target as you could, in the hope that you'd also get the target. During World War II, to take out a bridge, you'd need 3,000 bombs, on average. In this war and the next war, it's one bomb, one bridge. The amount of destruction is very much diminished, which allows you to spend fewer of your resources rebuilding a country's infrastructure and more of your resources, more quickly, on things like medical engagement.

I think there's been a positive evolution, not only in the way that force is applied but also in our understanding of the other elements of national power, like our medical assets. We're one of the very few nations on the planet that has that capability. I'm proud that when disasters happen around the world, it's not long before a U.S. aircraft carrier or an amphibious ship or the USNS *Comfort* shows up and we start helping as best we can.

The problem from my perspective, as a military guy, is that often it's only the U.S. military on the ground. Only the U.S. military has the capacity to order people overseas quickly to do things. You end up with Major

Pace in a town in Afghanistan or Iraq, trying to run the water works, trying to run the medical facilities, because he's the guy on the ground. We've recognized that problem, but we have yet to respond to it as a nation. You have your military medical teams that you can deploy all over the world, but there's so much more in a nation's capacity that's not "deployable." I felt we were lacking the whole civilian piece during the six years that I was part of the leadership responsible for the conduct of the war in Afghanistan and Iraq, and I still feel like that today. We're using the wrong tools in many cases.

If we really believe that our medical capability—as one example—is a true differentiator and a strategic asset, then why wouldn't we have more than just the U.S. military configured to be able to deploy? Why doesn't the nation have a system like the National Guard whereby in the event of humanitarian need, disaster relief, or postwar reconstruction, doctors and nurses go overseas for six months or a year to apply their skills and talents? Of course, if you're going to put people in harm's way, you've got to train them in how to deal with that. But if you're serious about both the human value of doing the right thing and the impact value of doing the right thing, then you ought to get more people involved than just the U.S. military.

When I consider the health impact on our own military personnel of the wars of the past decade or more, there's a fundamental reason why I think the strain on the force has been bearable. When I came back from Vietnam, those fellow citizens who thought we were doing the right thing were very warm toward me, appreciated me, and said thank you. Those who thought we were doing the wrong thing were hostile and were willing to accost me in public. What has happened in the subsequent 40 years is that the population has matured, as has the military. Nowadays, when people don't agree with what we're doing, they will

say so, but they'll also say that they appreciate our willingness to do it. Today, the members of the U.S. military feel very much appreciated by their fellow citizens, and that's critical to the health of the force.

Since 2001, less than 1 percent of the nation has been defending the 99 percent. They have done so as volunteers. You have a need for forces overseas, which until recently was probably close to 400,000 when you add up all the deployments around the world. It's not like World War II where you could conscript people, send them to war, and then bring them home when it was over. We're in year 11 of this war, and our enemy has told us they have a 100-year plan. We can have arguments all day about the rights and wrongs of going into Iraq and Afghanistan, but the fact is, until we defeat al Qaeda and its philosophy, we're going to be in this war, which means we're going to have to keep up this kind of tempo.

Since 2001, we've had great young Americans who've been on five, six, even eight deployments. It takes a toll when they're there, and it takes a toll when they come home. And for kids born during the past 10 years whose mom or dad or both are in the military, they've seen nothing but mom or dad or both home for a year, gone for a year, home for a year, gone for a year. That does a lot of damage, yet to be totally understood.

We have no clue about the psychological impact of this many deployments, not only on the troops themselves but also on their families. I am working with a company that crunches data in unique ways, and I've asked them to take a look at this issue. Take all the data we have about posttraumatic stress disorder, for example, and crunch it to see whether there is a common denominator. For example, if you could tell me that somewhere after the third deployment and before the fifth deployment, the probability dramatically increases that Sergeant Pace will come home with emotional problems, that information

would be hugely valuable to me. I would then know that after three deployments, you stop. I could use that data to better protect my men and women.

Another problem is that the macho part of what we do gets in the way of taking care of our troops' medical needs. In my own experience, I know that marines are proud of the fact that we don't lose. We're going to do whatever it takes to win. I love that attitude; I've lived it for 40 plus years. The problem is that now, when Sergeant Pace comes home and is a little bit sideways emotionally, he thinks it's not warrior-like to look for help. We spent a lot of leadership time in the last part of my tenure trying to identify and help soldiers and marines understand that it's OK to get help. They may not have suffered a wound that bleeds, but it's a wound all the same.

I think we've done a much better job of knowing what to look for in our predeployment briefings to the troops themselves and to their families. I think we've done a really good job of postdeployment briefings and checkups. But if it's a journey of 100 miles, I would guess we've probably gone the first 10. You can understand that Sergeant Pace, who's looking to get home, probably isn't going to say anything that's going to delay his departure. If you say to him, just as he's getting on the plane to go home, "Hey, how are you doing today?" he's not going to tell you that he needs some medical help. He's going to tell you, "Great!" so that he can get on that plane, get home, and hug his wife and kids. That's why the follow-up is so important—the one-month, two-month, three-month, six-month rechecks with the families and with the troops themselves after they've had a chance to get home and decompress.

The families are important because they're the glue that holds everything together. You recruit individuals, but you retain families. Guys like me deploy and come back, deploy and come back, but our families have more

strain. If I'm gone, I know when I'm in trouble. And I know as a marine that if I'm going to be in trouble, there's no place else I'd rather be than with a bunch of other marines. My family has no clue when I'm in trouble, and every day I'm away, they're thinking the worst. Then, when you come home, you have to go through a process of reassimilation. I don't care how much people love each other; you know that when you've been gone for a year, there are lumps and bumps in relationships that have to be smoothed out.

When I was chairman of the Joint Chiefs, stress on the force and stress on the family played a major part in discussions about troop deployments. When we debriefed President Bush on how we could do a surge in Iraq, we told him that it would mean extending deployments from 12 months to 15 months and that would affect the guys on the ground as well as all those families who thought their loved ones were coming home in January but now wouldn't see them until April. That was very much part of the dialogue, which is why, when President Bush made his decision, he also increased the size of the army and the Marine Corps, to get the deployments back to 12 months as quickly as possible.

Obviously when you talk about the wars in Iraq and Afghanistan, you can have lots and lots of arguments on both sides of that issue. But once our nation's leaders had made the decision that it was important for us to go in, the question became, What's our goal?

What's clear is that whether you start out using military force or you start out using humanitarian assistance, at the end of the day, you end up doing humanitarian assistance. And that's why our medical personnel are always important. Sometimes they're important from the get-go, because USNS *Comfort* shows up and you go in and it's all about disaster relief or tsunami relief, for example. Sometimes you go into a country like Afghanistan, there's

combat, and then you've got the destruction and the population to deal with.

My bottom line is that we've identified medical opportunities in these countries. Take any mother, any father. First of all, they want their kids to be healthy. You look at your baby, you look at your daughter, you look at your son, and if they've got medical problems and you can't do anything about it, you feel despair. Folks coming in from the outside promising you a better life start to resonate with you. Medical outreach is the right thing to do as a fellow human being. The outcome is that families will have the ability to answer yes and yes to those two questions about whether things are better today and will be better tomorrow.

We're a great nation that truly does care. Now we need to figure out how to take the lessons we've identified from the recent conflict and translate them into policies and processes that allow us to more quickly make a positive impact on people's health. ■



AMBASSADOR JENDAYI E. FRAZER

Jendayi E. Frazer is Distinguished Public Service Professor at Carnegie Mellon University in the H. John Heinz III College's School of Public Policy and Management. Ambassador Frazer spent a decade in a variety of senior government positions related to Africa, including serving as special assistant to the president and senior director of African affairs at the National Security Council from 2001 to 2004, U.S. ambassador to South Africa from 2004 to 2005, and assistant secretary of state for African affairs from 2005 to 2009. She was instrumental in establishing some of the Bush administration's flagship initiatives in Africa, including the President's Emergency Plan for AIDS Relief (PEPFAR) and the Millennium Challenge Account.



Health is absolutely critical to the stability of societies in Africa. A decade or so ago, huge numbers of people were dying from HIV/AIDS. We were seeing the entire middle class of some countries wiped out. How could there be a stable society, a prosperous society, a secure society, if all the professionals, the teachers, the nurses, were dying of AIDS? Children were being left as orphans; grandparents were raising little kids. It was a tremendous crisis that required a global response.

In addition, we had the health impact of civil wars and guerrilla struggles, such as those in the Democratic Republic of Congo (DRC). Most of the deaths that happened in the Congo during the two wars of the 1990s and early 2000s were not caused by bullets; they were

caused by the health impact these conflicts had on societies. Populations were on the move constantly. Because people were living in unsanitary conditions, without access to health care or adequate nutrition, they were more vulnerable to diseases. The high morbidity rates in the DRC were the outcome of this lack of stability.

I think all these considerations have led to health becoming an integral component of U.S. national security policy and national security interests. We obviously understand that, because diseases don't respect borders, a global approach to public health is required. I think the United States has become more aware of and responsive to the issues.

Security and health came together for me when I was at the National Security Council

during the Clinton administration. At the time, there was a lot of discussion about trying to raise the profile of HIV and AIDS internationally; the Clinton administration declared a “war on AIDS” as a means of conveying a sense of urgency. One of the ways of framing the issue that came up when Richard Holbrooke was the U.S. ambassador to the United Nations was to link HIV/AIDS with peacekeeping. The administration had already conducted a national security estimate about the impact of AIDS on global security and stability, and the logic was to point to the problem of HIV/AIDS among peacekeepers and how it affected their ability to serve in UN missions such as the one in the Congo.

Later on, when I served as U.S. ambassador to South Africa, we had Project Phidisa, which was an HIV/AIDS intervention research program that was done in conjunction with the South African National Defense Force (SANDF) and its medical health services. It specifically linked HIV/AIDS to military preparedness issues. We gave out antiretroviral drugs to uniformed military personnel as well as their dependents. This program had a huge impact and was very positively received by the government as well as the SANDF.

Project Phidisa involved giving out antiretroviral drugs before the Mbeki government did it on a national level, and I think it led the way. It certainly helped military preparedness, because the SANDF was one of the major contributors of peacekeepers across Africa. Its military preparedness affected not only its national interests but also U.S. national security interests in Africa.

During the George W. Bush administration, the focus on HIV/AIDS was there from the start. I have to give Secretary of State Colin Powell a lot of credit. Within the first week of the administration, he put to the White House the notion of having a cabinet council on HIV/AIDS. Some people were opposed, but the ones in favor prevailed. A decision was made

to keep the White House Office of National AIDS Policy, and I think that was very helpful.

In addition, some of us in the administration wanted to do far more in Africa, given the emergency nature of the crisis there. In May 2001, a team of us accompanied Secretary Powell to Africa. We went to Kenya, Mali, and South Africa, where we saw people who didn’t have access to antiretroviral drugs dying of AIDS. When we returned, with the support of National Security Adviser Condoleezza Rice, we were able to push the issue fairly high up the agenda, to the point where the president picked it up as well; it was then decided in the White House early on to do something big on HIV/AIDS. We were all in.

The first G-8 meeting took place in July 2001, and one of the big announcements was that the United States was going to put another \$200 million toward tackling AIDS. Another \$200 million followed shortly after, and from there we just kept on going. Kofi Annan was calling for an international fund on AIDS. We took the lead in mobilizing international resources and then standing up the new Global Fund to fight AIDS, Tuberculosis, and Malaria. Tommy Thompson, secretary of health and human services, became the fund’s first chairman. We played a huge role in the design, and we were very insistent that scientists and doctors should be the ones to vet grant proposals to the fund and decide who would get money. We really wanted it to be accountable, which was very much President Bush’s approach.

In that period, a lot of things were coming together to make it more feasible to get antiretroviral drugs into the field. The National Institutes of Health were coming up with innovative ways to get drugs out to the population, using motorcycles and bicycles in Haiti, for example. The prices of drugs were coming down; the whole issue of intellectual property rights was being worked through at the World Trade Organization.

And at the same time, a drug called Nevirapine was discovered, which reduced mother-to-child transmission of HIV. This drug provided us with a compelling argument, because who can argue against saving a baby's life? Getting Nevirapine out into the field through USAID and the Centers for Disease Control became the next U.S. program, and our success built confidence that we could actually do drug therapy in poor, hard-to-reach places.

President Bush always wanted to do something big in addressing the global AIDS challenge. We would hold seminars on the issue, experts would come in and brief him beforehand, and he would always ask, "Where are we on the cure?" He was very engaged with African leaders on the issue and was very taken with what Presidents Festus Mogae and Yoweri Museveni were doing in Botswana and Uganda to educate citizens about the illness and speak in public about the threat it posed. All of these shared experiences and confidence-building measures are really what led to PEPFAR.

But there was a fight in the administration over the allocation of funding. Some people were saying the money was better spent domestically, on education, for example.

The argument pitched those who favored doing something big on public health, who said we had a responsibility and a means of doing it, against those who said, "We are fighting a war in Afghanistan; we have a global war on terror. You've got all this international spending and now you're talking about doing another billion-dollar program on top of all of that?" The argument was really framed as one of domestic versus international spending.

Condoleezza Rice became the true champion of PEPFAR; she took the brunt of the battle. Her perspective was, "I didn't start the war on terror. HIV/AIDS is a national security challenge for our country, and we have no choice but to respond." The rationale for creat-

ing PEPFAR wasn't framed in security terms, at least explicitly. The focus was more on what we could do and whether it would be effective. The impact of AIDS on society and on security was known implicitly.

When the \$15 billion PEPFAR announcement was made, African leaders were quite stunned. The scale of the commitment created a "wow factor." But after the president made the announcement, we had to fight a battle in Congress to get it funded. We mobilized the African Ambassador Corps to be advocates on the Hill, explaining to congressmen and senators the impact that AIDS was having on their societies. They played a very important role.

PEPFAR gave us tremendous credibility in our diplomacy, and we saw this expressed when President Bush went to Africa in 2003 and 2008 and the reception he received from governments there. This response was a reflection not only of PEPFAR but of the way the president had been engaging African leaders on the issue during their many visits to the White House and at all the meetings at the UN General Assembly and the G-8 summits. They built a foundation for good relations and strong diplomacy.

Another factor was President Bush's credibility. When he was sitting in the Oval Office and talking to leaders, he'd always say, "I'm not going to just sit here and tell you something that you want to hear. I am going to tell you if I can do it; I am going to tell you if I can't do it." I think that approach helped build credibility, and the PEPFAR program was evidence of that.

When I became ambassador to South Africa in 2004, President Thabo Mbeki was fairly shut down on the issue of AIDS. He wasn't speaking about the challenges his country was facing on AIDS because he had come out wrong on the issue earlier, by saying it was really about economic development and that nutrition was key rather than antiretrovirals. He wasn't wrong entirely, but he didn't

show the type of clear leadership that was desirable for his own population as well as for the international community.

In addition, he had a health minister, Mantombazana Tshabalala-Msimang, who was far more extreme about the problems of antiretroviral drugs. In a well-known episode, she suggested that people with AIDS should drink beet juice. When I became ambassador, I was determined not to antagonize her but rather to try to co-opt her. In some of our first meetings, I said to her, “You’re absolutely right; nutrition is critical. I am going to support you on nutrition. But you have to understand that you have to use pharmaceuticals as well.”

With President Mbeki, my approach was to try to get him to speak out, because President Bush truly believed that national leadership was necessary. There had even been some questioning of how big South Africa’s PEPFAR program should be, given that we didn’t have the perception, and frankly the reality, of presidential leadership. But fortunately, South Africa had capable cabinet ministers; the deputy minister of health was fantastic. And indeed, the South African government did quietly allow antiretrovirals to come into our program and did not stand in our way. As a result, we were able to do a lot.

Nowadays, the global landscape on AIDS has changed significantly; antiretroviral drugs have been pretty much universally introduced, prices for those drugs have gone down, and access has improved. With PEPFAR, of course, there is a certain bureaucratic inertia, which happens whenever a major agency is created. But PEPFAR continues to do good. My view is that the United States should continue to provide significant resources in this area.

Of course, national governments have to take greater responsibility for providing for their populations; this can’t be the U.S. role forever. But we shouldn’t use talk about national responsibility as an excuse to cover the fact that we aren’t prepared to provide

more money. I think some of that is happening right now. We are in a much tighter budget cycle and are having to prioritize.

Unfortunately, one of the things that we are not prioritizing is global health. I think that omission will fundamentally undermine our role in national security in the long term. Of course, a country like South Africa should show a commitment to make HIV/AIDS a top priority, and if it can increase its funding capabilities, programming, and national infrastructure, it should do so. That said, we have to remember that it is still a developing country with multiple challenges.

Keeping people alive on antiretroviral drugs for longer periods of time is a key factor in the stability of these societies. It keeps families alive and productive, enabling them to bring up their young people and keep them out of the hands of social services. If we start cutting back on programs like PEPFAR for budgetary purposes, we put long-term stability at risk. We could face reversals that get us right back to where we were a couple of decades ago, when vast numbers of people were dying and destabilizing society, which has a direct impact on the United States.

We have to be careful. Public health investments are for all of us: they are worthy investments and we should continue to make them. ■



GENERAL JAMES E. CARTWRIGHT

From 2007 to 2011, General James E. Cartwright (USMC, ret.) served as vice chairman of the Joint Chiefs of Staff, the nation's second most senior military position. Previously, he was commander of the U.S. Strategic Command, which oversees U.S. nuclear forces; among his other assignments, he served as director for force structure, resources, and assessment, J8, providing analysis and advice to the Joint Chiefs of Staff, and he was commanding general of the First Marine Aircraft Wing. In 2011, General Cartwright was appointed the Harold Brown Chair in Defense Policy Studies at CSIS.



In my opinion, what will come out of the wars we've been involved in since 2001 is the rise of machines and machine learning and the need to understand the correct interface between the machine and the person. The scientific breakthroughs that lie in front of us are likely to present us with moral dilemmas but will also present us with significant and unprecedented opportunities. We will have to work our way through those ethical dilemmas and decide which discoveries we're willing to accept and which ones we are going to outlaw—but at the same time recognize that even if we outlaw them, the discoveries are still going to be out there.

I spent a substantial amount of my time in the vice chairman and J8 roles, ensuring that our research labs, such as the Defense Advanced Research Projects Agency (DARPA),

were properly integrated and had an element of military health innovation in their charter. An analysis of data from our medical institutions yielded correlations suggesting that when a university, a military hospital, and assisted-living facilities are located close to each other and working collaboratively, the growth of medical technology will be superior to that of the best stand-alone research hospital. When we inserted multidisciplinary researchers into those organizations, we could see the benefits of cross-pollination. For example, in our work on prostheses, we put together software engineers, chip development engineers, and prosthetics experts, and these teams made significant advances.

Meanwhile, universities appreciated working with the military because it enabled them to make technological leaps in the quantity

and scale of procedures that they wouldn't otherwise have been able to afford.

Growth in computational power has been one key to breakthroughs, as researchers mapped the human genome and expanded that research to map larger populations. Another area of concentration has been on man-machine interfaces: in other words, seeking the optimum working relationship between human and computer.

The 1997 experiment that saw the computer, Deep Blue, take on the world chess champion, Garry Kasparov, is generally believed to be the moment when the computational power of the computer exceeded the capacity of the human mind. The chess exercise was particularly interesting because when the computer made a mistake, it was so drastically wrong and so nonsensically wrong that it defied explanation. However, when a person was teamed up with the computer, the two together were better than either alone, and the chess master would be the first to tell you that he improved. In other words, there was a synergy between man and machine.

What are the implications as we go forward for man-machine interfaces and for machine learning? Where do machines belong and where do people belong? And how do we start to apply this research to conflicts in ways that might make a significant difference to our health and our ways of doing business? The government is now working on these questions through DARPA, along with universities and medical labs. The belief is that as our computational power increases over the next two or three years, we'll soon have the capacity to map everyone's genomic information and build on the advances of machine learning, along with man-machine interfaces only dreamed of a few years ago. These advances could fundamentally change medicine.

For example, one endeavor has been the detailed mapping of the brain. The hope is

that science can turn that mapping into an understanding of how to stimulate the brain in the absence of normal stimulus—for example, when a patient has lost a limb or suffered nerve damage. Researchers have found they can interpret and translate certain “thoughts” from a patient into electromechanical actions.

Researchers are also investigating what has been termed “phantom pain”—the patient's sensation of pain in a missing limb. When the brain is stimulated to operate an artificial limb, the feedback loops to the brain seem to reduce or eliminate phantom pain.

These and other breakthroughs are a by-product of the wars in Afghanistan and Iraq—health care advances that are likely to yield significant benefits in prognosis and diagnosis for individuals and eventually populations, at what I believe will be a significantly reduced cost. But when peace breaks out, the imperative to put the resources behind these breakthroughs, to follow them through from development to introduction, is going to be a challenge. We know that unless there is an imperative to develop these resources, health costs will continue to escalate. We have an aging population, and as a result of the wars, we have large numbers of injured former soldiers who are going to be very expensive to care for 30 years from now.

The issue of man-machine interfaces is not only recasting medical boundaries, but it's also changing the way we think about war and the way we fight it. People talk about unmanned aerial vehicles, or drones, and say that people can now be pulled out of warfare and that casualties will be reduced. It's not as simple as that.

From my perspective, the main challenge of this conflict, and most likely the main challenge going forward, is where to put the person in the fight. At Gettysburg, opposing forces were merely a few feet apart; they could have been sitting across a table from each

other. By the time of Vietnam, the distance had increased. We thought that the bomber pilots really weren't in the war. They flew overhead at 30,000 feet, dropped their bombs, and went back home for happy hour. The guys fighting on the ground felt as if the aviators didn't really deserve to be treated like war fighters because they weren't getting muddy.

In today's conflicts, the same argument is used relative to the people controlling the drones. People say to them, "Because you live in Las Vegas, for example, and go to your office nearby every day, you're not really in the fight." Outsiders tend to dismiss the trauma, the stress, the sleep deprivation, and all the issues that are actually the reality for the drone pilots—no days off, no leave, and the tours that don't end after a year, 15 months, or even 18 months. The trauma is very real, and we don't understand the health implications of what drone pilots have been through.

What we *do* understand is that through a drone, pilots can be on the other side of the world, prosecuting a fight that no human being is capable of fighting. In other words, that man-machine interface is doing what no person can do, doing it for 24 hours at a time, with high precision, high awareness, and lower casualty and collateral damage rates than any comparable man-machine combination has done in the past. It's not hard to imagine a future in which the man is part of a chain that is directly linked to the movements of the drone. What will that mean for warfare? There will be numerous ethical, cultural, and moral issues to be worked out. But unmanned warfare is not going away. It's too late for that. The question is, What is the correct balance between man and machine, so that we get the best out of the man and the best out of the machine? How do we use computational power to give soldiers an advantage on the battlefield that they would not have by themselves? How do we put a 19-year-old soldier in an unfamiliar place and

have him speak the right language, know the right gestures, know how to stay alive?

To help us answer these questions, we've conducted a series of experiments to understand the different cognitive levels of human processing. The first level of processing is iconic; it allows us to identify the images in front of us. The next levels involve putting the pieces together and understanding how they relate. Iconic processing is easy for a computer to do; it's pure computation. The second levels are a little harder, but we're aiming to get there through better computational power.

In one of our experiments, we took away the radios of a ground unit heading to Afghanistan and gave them commercial cell phones and pads instead. They had custom apps on their phones, which provided battle-field maps and global positioning system software, so they could see the locations of their comrades and enemies. They could gather real-time information about the operation and swap photos and intelligence with other soldiers. And time and again, we heard from the soldiers, "After a week with this technology, I'd just as soon leave the barracks without my rifle than leave without this stuff. I know what's going on around me, I can stay out of trouble, I can get help if I need it, it always works, and I didn't have to go through any training to use it." I see real potential for engineering more tools that can augment human capabilities with significant computational power, whether it's through their communications systems or the weapons they use. ■



AMBASSADOR LINDA THOMAS-GREENFIELD

Ambassador Linda Thomas-Greenfield is director general of the Foreign Service and director of human resources at the U.S. Department of State. She has been a career member of the Foreign Service for 30 years and served as U.S. ambassador to Liberia from 2008 to 2012. From 2006 to 2008, she was principal deputy assistant secretary in the Bureau of African Affairs. She served as deputy assistant secretary in the Bureau of Population, Refugees, and Migration from 2004 to 2006. She has also served in Jamaica, Nigeria, the Gambia, Kenya, Pakistan, and Switzerland.



When I arrived in Liberia as U.S. ambassador in 2008, the country was in transition. From 2003, when the second civil war ended, through 2007, Liberia faced a humanitarian emergency. Our government's support and approach were primarily humanitarian, as opposed to providing development and reconstruction. By the time I got there, we were shifting to a development approach, and the infrastructure requirements and the technical support requirements were much more defined by that point. We were ready to start helping Liberia rebuild for the future.

Two sides of the security problem in Liberia were linked to health. On the one side were the obvious victims: the women and children who may have survived the war but

had suffered terribly in the process. Women were the biggest victims of the war in Liberia. Not only during the conflict, when they had to take on sole responsibility for their children, but after the war as well, when they were victims of violence committed by men who had themselves known only violence in their lives.

On the other side were the combatants: the young boys and sometimes young girls, who in my view were victims as well but who had perpetrated violence against the population. They did not feel that they had a stake in peace. They were terrorizing people on the street through begging and intimidation. One day I met a young man at a university who stood up and proudly introduced himself as an ex-combatant. I looked at him and asked, "What are

you now?” He replied, “I’m a student.” I said, “In the future, introduce yourself as a student. You cannot wear the status of ex-combatant as a badge of honor.” Yet, people were doing that because they felt they needed to use intimidation to get their point across.

I constantly reminded my colleagues that these young men were very much victims of the war as well, despite the fact that they had carried out many of the killings and perpetrated much of the destruction that took place. They had done so at such a young age that you could not hold them accountable or responsible. You had to be conscious of the health needs that arose as a result of their participation in the war.

In 2008, as today, Liberians were still dealing with the psychological impact of the war. I think that was one of the most significant health problems we dealt with. We could see the people who had bullet wounds or whose limbs had been hacked off. We knew the people who had been killed. But the psychological impact of the conflict was not always obvious. Frankly, I can’t say we’ve focused enough attention on mental health, because it is not always visible. You only start to see it when it starts affecting security or people’s ability to do their jobs.

Within the context of the embassy in Liberia, we had employees who had serious problems with stress-related illnesses: high blood pressure, diabetes, high cholesterol. Many of these illnesses were related to the stress of trying to survive in a postwar situation. Many of my American colleagues at the embassy had not experienced Liberia at war, but our Liberian staff had gone through those horrors. Many of them had lived in camps for internally displaced people and had been separated from their families for long periods. When the fighting in the embassy neighborhood was at its most intense, some of our staff were forced to stay in the embassy for weeks

at a time, not knowing whether their family members were dead or alive.

As U.S. embassy officials in a postconflict environment, we needed to be very conscious that while we may have moved on, the local population has not. When I first arrived in Liberia, everybody seemed angry to me. I felt they were looking back at what they’d lost, still mourning the deaths of relatives, the loss of property, the loss of a generation’s worth of education for their children. All those things had a profound effect on Liberians’ mental health. Inside the embassy, we constantly focused on trying to help our staff deal with the issues that affected them. By the time I left in 2012, that look of anger on people’s faces had dissipated somewhat because Liberians were beginning to feel the benefits of peace. They had begun looking to the future rather than looking back at the past.

Outside the embassy, I don’t think we dealt with mental health consistently. If you have a limited budget and someone is dying of malaria, you’re going to cure the malaria; but the needs of the person with mental health problems may not be as obvious. We are realizing that this is something we need to focus on because until we start addressing mental health needs, people will continue to have difficulty adjusting to Liberia at peace.

On another note, I would like to mention that during my time in Liberia, we worked very closely with the Ministry of Health and Social Welfare. Liberia had the good fortune of having an outstanding health minister, Dr. Walter Gwenigale, who had a vision and who knew where he wanted to take the health sector and what the requirements were for training, capacity building, and infrastructure. He took the lead in setting the agenda, and over a period of four years, we started to see the capacity of the ministry grow. By the time I left Liberia, we needed fewer outside experts because Liberia had begun to produce experts internally.

The minister called me at one point, very early in my tenure, to say he was not prepared to meet with a group of American aid representatives until he was sure that they were focusing on the priorities that he had established for the Liberian government. I supported him 100 percent on that. I think part of our success was due to the fact that we allowed the Liberian government to set the priorities and we worked with the government to fulfill them. Doing things that way sometimes required patience. When there are huge capacity gaps, the easiest thing is to go in and do the job yourself. Sometimes it's hard to stand back and watch while mistakes are made. But that is part of building capacity. And now the Ministry of Health has reached a point where we have enough confidence in its management capacity and accountability systems to give it direct budget support. That's something we have not done in many places and certainly nowhere else in Liberia.

Looking back, I think the main asset the United States had to offer was experience. We had a number of very well qualified health professionals from USAID and the Centers for Disease Control and Prevention who worked closely with the Liberians as part of our embassy team. Because I'm not a health professional, I depended on their advice and the ministry's leadership to determine where we should focus our attention. For example, we knew that mother-child health was a key to success, including ensuring that mothers didn't transmit HIV to their children. Malaria was another key problem; we were finding that more children were dying of malaria than from any other disease. Those became important focuses for our health program.

In addition, we recognized that the focus should not just be on building infrastructure—things like hospitals and clinics. The Chinese had built a very large hospital up country, but that kind of facility is of no use if you don't have the capacity to run it. Given that there

were very few trained nurses, doctors, and health workers in Liberia after the war, one of our priorities became building a program that trained the first cohort of nurses to graduate from the University of Liberia.

As U.S. ambassador, I saw an important part of my role as trying to determine the top priorities among many priorities. On any given day, the priority could be energy, which is important for health. If you don't have electricity and you don't have clean, running water, you cannot run a well-functioning health facility. The next day, our focus might be on training health workers. Another day we might be working with traditional leaders to help us get the message out about HIV, family planning, or whatever the top health issue might be. This didn't mean that we were not working on all of the issues on a daily basis, but the issues we highlighted on any given day might change.

Our embassy did lots of great work in the health sector, but I can't say that my primary focus as ambassador was health; my primary focus was stability. It's important to recognize that stability is about much more than security. Yes, we worked very hard to help Liberians rebuild their army and police force, but it was equally important that we help build the Liberian government's ability to provide essential services for its people. I always told my staff that our key objective every single day was to help the people of Liberia succeed, whether that was in the health sector, in education, in infrastructure, or in democracy and governance. For example, the 2011 elections became a key focus for us. If you don't have a peaceful, stable government elected in a free and fair democratic process, then you're not going to have a health system that functions. All of these issues are interconnected.

Looking at the challenges facing the health sector in Liberia, I think capacity continues to be a problem. There are still very few trained doctors. The University of Liberia's medical school graduated its first cohort of doctors

last year, but that's just a drop in the bucket in meeting the population's health needs.

A second challenge is getting health care out of the urban areas and into the rural areas. If you don't provide health care in the countryside, people will keep coming to the urban centers.

One-third of the entire country of Liberia lives in the capital, Monrovia. It was initially constructed for about 50,000 people, but now you have about 1.4 million people jammed into the city, looking for jobs, looking for health care, looking for education, and looking for the comforts of life because few of those things exist outside of Monrovia. Trying to establish health care outside the capital city is important. That means focusing on infrastructure, on getting roads and health clinics into rural areas, but it also means trying to convince health workers to go there as providers. They don't want to go, because there's no housing for them, they can't pick up their salaries, and there's no education for their children. Many components go into getting a solid health care system up and running, issues that go beyond simply training health care providers.

Let me close by making two final points. We in the United States want to see countries succeed; and when they don't succeed, we want to help. We don't want to see disasters destroy countries. Looking at this from a self-interested point of view, we recognize that funding a humanitarian crisis response costs much more than helping a country build its capacity to grow and become stable.

In the particular case of Liberia, we recognize that our country has a long historical connection with Liberia, going back many generations. We have tried to honor that relationship. And we want to help the president of Liberia—Africa's first woman president, Ellen Johnson Sirleaf—succeed. My goal every day as the U.S. ambassador to Liberia was to show the people of Liberia that they can live in a country that is peaceful, that can prosper, and

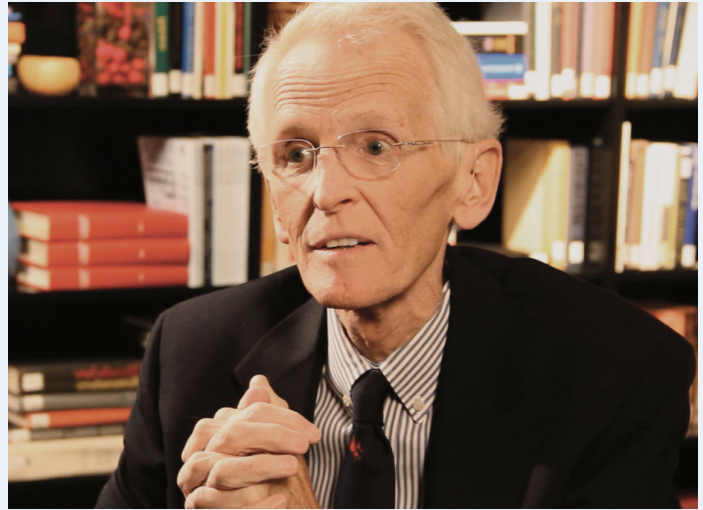
that is a place where they can build a future for their children.

I think health is critical to the overall picture. The job won't be finished until health care is available to everyone in the society. We're still working on that, but health will be key to Liberia's success. ■



DR. S. WARD CASSCELLS

S. Ward Casscells is Tyson Distinguished Professor of Medicine and Public Health at the University of Texas School of Public Health. A cardiologist by training, Dr. Casscells joined the U.S. Army as a reservist in 2005; he helped devise the army's avian flu preparedness plan and went on to serve in Iraq. Dr. Casscells was assistant secretary of defense for health affairs from 2007 to 2009, taking on responsibility for the nation's military health system in the wake of newspaper revelations about substandard conditions for wounded servicemen and women at the Walter Reed Army Medical Center.



I first got interested in the intersection of health and security while at the University of Texas, from the standpoint of improving the care of patients who'd suffered heart attacks. Fifteen years ago, telecommunications between the emergency medical services and hospitals were almost nonexistent. We began to put wireless video communications in ambulances so that we could get the right patients to the right facilities faster. The army took an interest in our attempts to make better use of telecommunications, gave us some grants to continue our work, and later adopted quite a bit of what we learned to the situations in Iraq and Afghanistan.

Soon afterward, I got interested in disaster response after a terrible flood and storm in Houston destroyed much of our huge medical

center in 2001. We learned a lot from that dreadful experience. By the time 9/11 came around, we had amassed quite a bit of experience in responding to industrial disasters and natural disasters like floods, hurricanes, and earthquakes. It was natural that we would try to put some of the expertise of the University of Texas at the military's disposal.

The more time I spent with the military, the more interested I got in what they were doing and the more admiration I gained for them. And then one morning, my younger son Henry, who was just a little boy at the time, asked me if my father, who had been in World War II, had seen active combat. In fact, he had; in North Africa, Italy, and German-occupied France. I showed Henry my father's tattered uniform, that of an army medical captain, and

he looked at it with awe. Then he gave me a look. I said, “Off you go to school.” And as I walked past the bedroom, I said to my wife, “Roxanne, I’m going to join the Army Reserve if they’ll have me.” I was 52. She said, “When pigs fly,” and rolled over and went back to sleep.

I did try to join, but they turned me down because I’d had bad cancer, which hadn’t stabilized yet. But eventually we got the cancer under control, and the army took me on a waiver. My first deployment was very quick; within a couple of days of being sworn in, I got a call from the army surgeon general, who said, “I’m looking over the list of new medical officers and I see you have been publishing about influenza.” I said, “Yes, sir, we found it is a trigger of heart attack and stroke,” and I started to go on and on. And he said, “Well, cut it off right there. I need you up here in 72 hours to help me formulate a policy, because I gather you have a paper that says influenza might be used as a biological weapon.”

The research we conducted for the army concluded that the threat of the H5N1 strain of influenza being used as a biological weapon was quite significant. We found that influenza was so easy to mutate in the wild that one could, with very little technology, develop a malicious strain and send it in the mail. Our work followed the 2001 anthrax attacks in Washington, at a time when there was a lot of concern about respiratory threats from biological weapons.

We published the policy, and at the end of my mobilization, as I was getting ready to come back home to Houston, the army surgeon general decided to give me a medal. He called in all of the officers and, in front of my wife and kids, said, “Well, I bet you’d love to go to Iraq, wouldn’t you?” What could I say? “Yes, sir!”

But this was in January of 2006, during the worst of phase of the war. I was a nervous

wreck, thinking, “What in the world did I get myself into?” I had pre-traumatic stress disorder.

My mission was to try to help Iraqis—particularly civilians—figure out how to take better care of themselves. We were not received very favorably, except by the Iraqi military, with whom we developed very close bonds and who proved to be a very positive influence. On the civilian side, the Ministry of Health was under the thumb of Muqtada al-Sadr, the Shi’a cleric and political leader. He not only controlled militias but also controlled a lot of popular opinion and made it very difficult for the Ministry of Health to do anything useful. In fact, he basically used the ministry as his piggy bank. We made almost no progress. We had Iraqis help build clinics, but most of the money was wasted or stolen. When a clinic was finished, it was often bombed and the people we had trained disappeared. It was very disappointing and discouraging.

Interestingly, I kept hearing about an Englishwoman, Emma Nicholson, who was having extraordinary success in restoring health and education services with her charity, the AMAR Foundation. Her clinics were built on time, under budget. They were staffed by Iraqis. They were not bombed. They were simple clinics, but they were very popular. I studied her, and I was deeply impressed because she was doing with pennies what we were failing to do with dollars. She believed in her mission, and she made it clear that she was going to be in Iraq for the long term. I think that was an important point. She also insisted that Iraqis contribute to her project in some way, in labor, money, or something else, to ensure buy-in.

In most postconflict countries where the United States operates, a lot of our State Department funds for renovation, rehabilitation, education, and so forth are run through nongovernmental organizations (NGOs). But in Iraq, the military got into the habit of doing

civilian projects on its own, because so many places were just too dangerous for most NGOs. The military's tendency is to say, "No, we'll do it; stand aside. Once the local people see what we can do, they'll trust us." But I believe there are reasons to do more through the NGOs.

Frequently, for example, a captain gets sent to a country like Afghanistan and basically has to learn everything on his own. There are manuals out there, but he's deployed suddenly and may not have time to read them. When he gets there, he finds there's not enough time to learn how to really relate to the Afghan elders. The captain has to struggle to learn lessons that many of the NGOs know by heart.

I agree with the new presidential policy that deemphasizes counterinsurgency in favor of counterterrorism; it puts less emphasis on winning hearts and minds because there aren't the funds for the military to do it. Such funds that are available perhaps would be better spent in partnership with NGOs. People in the host country believe that the better NGOs are offering a long-term commitment.

All that said, I do believe the military cares deeply about doing right by civilians. To illustrate that with a story, while I was in Iraq, I got a minor elbow injury in a humvee, and it got infected. I knew it needed to be drained. So I went to the combat hospital and found a major there who was an orthopedist, a reserve doctor from Seattle. He said, "Colonel, you don't need any anesthesia for this, do you?" And I replied, "No, no need," and he began to scrape it all very thoroughly. It was tender as could be.

I was face down on the gurney, my head in a pillow, when I heard a nurse come in. She had a voice like a foghorn, and she bellowed, "I've got two choppers coming in with Iraqi IED victims. I'll need all available stretchers and gurneys, and anyone who hasn't given blood in the last six weeks, prepare to give blood."

Then she said to the guy operating on my arm, "Major, get that Colonel out of here; he's not injured in any significant way." I got a big laugh out of this. But there was a lesson here, too. Here was an army nurse, triaging, freeing up the emergency room, not based on nationality or rank, just on how critically injured these Iraqis were. I thought that was a wonderful lesson, and I hope that the Iraqis who were in there picked up on it. I don't know if they were soldiers or civilians, but they were going to get care, and the U.S. Army colonel was going to be in the hall.

While I was in Iraq, I got a call from the White House saying, "We have several positions we are looking to fill; we are going to fly you back." Eventually, I was offered the position of assistant secretary of defense for health, and I jumped on that. Suddenly I had gone from being a professor to being an army officer to being a government health policy person. I had responsibility for a \$50 billion budget, 140,000 employees all over the world, and 100 hospitals and clinics.

As assistant secretary of defense for health affairs, my primary job was to improve combat and convalescent care for our own troops. We had many challenges. Information technology was balkanized, staff weren't communicating well with each other, and there were controversies about how we could better screen and monitor people who'd suffered combat stress. On top of that, the problems at Walter Reed Army Hospital had just received a lot of attention in the newspapers—problems related to prolonged outpatient rehabilitation that was in many cases bureaucratic, frustrating, cold, and ineffective. We had a lot to do to improve our TLC of injured, and particularly psychologically injured, service members.

We introduced simple things, like making sure that a soldier's or marine's room at the hospital had a foldout sofa for a family member to spend the night or a battle buddy to

come visit them. We eliminated visitor hours, so that kids could visit, because people don't want to be alone in the hospital. We provided a counselor who could cut through the maze of the many, many advocacy options that these injured soldiers have. We provided entertainment and other activities to help people get through a long, stressful rehabilitation.

For years, the military's modus operandi was to patch people up and get them back on the battlefield or, if they couldn't return, retire them. Nowadays, people so badly want to stay with their unit. For some of the wounded, we know that it may take 6 or even 18 months of rehabilitation before they can go back to their unit or at least stay in the military in a desk job. But we now offer that opportunity.

In our combat theater care, my most embarrassing day in the Pentagon was when Defense Secretary Robert Gates revealed some data that I didn't have: that we were not reaching the majority of our Afghan casualties within 60 minutes. That was the only time I felt that we hadn't done absolutely everything possible to get the best outcomes.

The survival rates of those we reached at 75 minutes were very nearly as good as the ones who got in at 45 minutes. Nevertheless, we changed things to have more medical evacuation helicopters, so that we could get everyone within an hour. In fact, the data show that we have the best survival outcomes not only in battlefield injuries but also in disease and nonbattlefield injuries. Our service members are more safety and health conscious. And through many advances, we've improved combat care, particularly self-care, for example, in the use of self-applied tourniquets.

On top of this have been medical advances such as understanding how best to delay or prevent bleeding. One of the simplest improvements that I was credited for was abolishing aspirin in theater. Aspirin prevents clotting; in fact, it promotes bleeding. If one has had a bad bump in the head or in the chest or in the

pelvis, for example—someplace where it's hard to compress the bleeding—taking aspirin is a very dangerous thing.

We were able to clear all of the aspirin from our stores and throughout all of our theaters of operation and get all of our soldiers warned before they deployed that even one aspirin a week before combat can increase their risk of bleeding. I was very proud of that.

At the time I was assistant secretary of defense for Health affairs, another issue we were thinking a lot about was how you could use health care to win hearts and minds. Does it win people over when you vaccinate their kids or their cattle, or pull their bad teeth, or build clinics, or teach them barefoot doctoring? I got very involved with that set of issues. We can't prove that health has been an effective bridge to peace, and there are critics who say that in Iraq today, the Iranians have more influence than the United States does. But those of us who have been involved in health care feel it has a positive impact.

To give one small example, in 2007 I was in Ecuador on the USNS *Mercy*, one of the navy's medical ships. When there was an earthquake in Pisco, Peru, the joint staff surgeon, Rear Admiral David Smith, and I got on a plane and headed to Peru. We got there so quickly—only 49 hours after the earthquake—that the Red Cross from Ecuador, where we had been, was just arriving on the same plane. This timing made a huge impact on the president of Peru, Alan García, when he came to meet us at the earthquake site. He said he couldn't believe that an assistant secretary and a navy two star were supervising aid to help poor families in Pisco.

We were, of course, delighted to meet the president of Peru, because he had been aligned with the Chavez and Castro camp against the United States. The next day the American Ambassador Michael McKinley phoned President Bush during a National Security Council meeting and said, "You won't believe

this, but the President of Peru called me to tell me that the high-level medical delegation you sent is the first time that America has ever done anything useful in Peru.”

Of course, it's not true—the U.S. government had done a lot for Peru—but this help was visible. Senior-level officials were on the ground making sure that people got pulled from the rubble and got first aid, blankets, food, and shelter. Obviously, President Bush was thrilled that Peru was now leaning away from Chavez and Castro. And how, after all, did Castro get that influence in the first place? By sending a great many doctors to Peru over the years. Health assistance speaks to people. ■



ADMIRAL WILLIAM J. FALLON

Admiral William J. Fallon (USN, ret.) served more than four decades in the U.S. Navy. From 2007 to 2008 he was commander, U.S. Central Command—the first navy officer to hold that position. His other four-star assignments were commander, U.S. Pacific Command (2005–2007); commander, U.S. Fleet Forces Command (2003–2005); and vice chief of naval operations (2000–2003). Shortly after his retirement, Admiral Fallon cochaired the CSIS Commission on Smart Global Health Policy, which completed its work in 2010.



My view on the role of health has changed during my more than four decades of service, in tandem with the evolution that has taken place in my understanding of security. When I began my career, we tended to view security in terms of state actors and state security. Certainly that was the case during the Cold War, when it was “us versus them,” with each country siding with one of the two great powers and some nations, in places like Africa, going back and forth.

But as I gained more experience, it became obvious that for individuals in this world, security is much closer to home. It begins with their own personal security and that of their family: in other words, hearth, health, and home. And if we attempt to work on security

challenges only by looking at the political and military side, we miss many opportunities. Not only that, we misunderstand where individual priorities lie. It is in our interest to have better public health because it enhances security and stability. People are less susceptible to being lured away by extremists when they feel healthy and secure.

This realization has several implications for us as a nation and as a military. On the positive side, it helps that people are fundamentally the same. They may come from many different backgrounds with differing ethnicity, religion, politics, language, and culture, but in the vast majority of cases, people are looking for the same basic needs to be filled.

The downside is that the local and individual factors combine to make our operating

environment much more complicated. As a result, we need to approach security issues from two directions: bottom-up as well as top-down. We need leadership at the top; we need governments and states that have the power to bring resources to bear. But at the end of the day, we depend on individuals, and it is essential to work from the bottom-up to achieve effective results. The U.S. military is attempting to adapt to this evolving worldview, but big institutions are difficult to change.

The most significant experience in my lifetime was probably World War II, when we were forced to do virtually everything from A to Z in the course of projecting power around the world. We got involved not only in combat operations but also in the care and feeding of our people and the indigenous people with whom we interacted. Our experience in World War II taught us that we needed to have a broad range of national capabilities to deal with security challenges.

Some of that legacy carried forward to the present. For example, the U.S. military made it a priority to pay close attention to emerging public health challenges around the world, such as tropical diseases. We established Department of Defense research laboratories, including in Egypt and Indonesia, focused on studying regional health challenges. We have learned a lot, thanks to the networks they have formed and the interactions they have had.

In the beginning of the Cold War, as our country grew in power and wealth, we put a lot of resources into helping ravaged areas of the world recover from World War II and learned a great deal in the process. The Cold War's end, which allowed us to breathe a sigh of relief and think that maybe we would not have to worry about nuclear exchanges for a while, enabled us to focus on a broader set of security issues. It also gave countries in the so-called third world the opportunity to focus less on picking sides with East or West and more on the task of doing things for their own people.

Opportunities arose for the U.S. military to get involved in helping build trust and confidence with other nations and thereby to prevent conflict. We engaged with leaders in other countries—in many cases for the first time, such as those in Central Asia—where we found people eager to learn more about us and about how we could help them help themselves. We began to look at how we could combine our experience with that of others who were trying to make things better in different countries and with that of U.S. and foreign government organizations that were of the same general mindset, as well as with nongovernmental organizations. We had a significant opportunity and began to devote more resources to our health engagement, but, unfortunately, after 9/11 the focus shifted to dealing with the terrorist challenge. Since then, we've had a decade of conflict in the Middle East and southwest Asia.

The demand for resources, particularly personnel resources, has been significant, and we never had quite enough to do all we wanted. There were specific, dedicated efforts on health within Afghanistan and Iraq; but as a regional geographic commander, I was focused beyond those areas. While the conflicts were raging in the Central Command area, I was trying to scrape together enough resources to bring them to bear in other countries and other parts of the world.

For example, the U.S. Navy has a couple of wonderful hospital ships—one berthed on each coast. A number of us thought it could be really useful to take the ships to other parts of the world, to do a little bit to help people. Manning the ships was challenging because the medical personnel we needed already have full-time jobs, typically in U.S. medical centers, treating our citizens, including those wounded in combat. Getting personnel to commit to an extended period of time at Pacific Command or in Africa was hard, but it actually worked out pretty well because we invited civilian

organizations to augment the force by placing some of their doctors and medical people on board.

The only challenge I had was that everybody on the receiving end wanted a lot more than we had resources to provide. Every U.S. ambassador in the region wanted a visit, but the ship can only be in one place at one time.

As the ship visits unfolded, it struck me that however good these one-time shots may be, the real need is to figure out ways to sustain them and to transfer capability to the indigenous populations so that they can continue to take care of their people. Of course, it is great to go in and immunize kids, check them for tooth decay, and treat them for chronic illness. The military can get a lot done very quickly and have a near-term effect on a particularly critical pop-up situation. But the long-term improvement of public health requires something else. An infrastructure and a network of support within the country of interest must be built, and technology must be transferred into people's hands in an affordable and sustainable way. That is the real challenge. It has several components.

First, if the U.S. government is going to continue to devote substantial resources to global health, the U.S. Congress will demand results. American taxpayers will want to see convincing metrics that their tax dollars are being invested wisely. But measuring health improvement is difficult, particularly over the short term, and we can end up demanding a lot of time and resources from host countries to document results—so much so that they sometimes begin to wonder if this assistance is really worth the effort required.

The next challenge is how to take advantage of the surprisingly large number of people who are willing to invest their time and resources to go to distant lands, put themselves on the ground, identify a need, and try to work on that need. Wouldn't it be wonderful

if we could figure out a way to leverage their activities with some bigger "muscle movers," perhaps link them up on an episodic basis, for a specific problem, with a visit by the U.S. military?

Take for instance diarrhea-related illness, most of which is caused by contaminated water supplies. The military could help by doing things like well drilling. We have significant engineering capability that we could share, perhaps for a few weeks or a month. This effort could have a lasting effect, if we could link up with people on the ground who could keep the pumps running after we have left and educate them to carry on the work. I think there are many opportunities for people to orchestrate these types of activities.

The final challenge is to tie all our development activities together: those of the U.S. government, which has invested over \$60 billion in global health over a five-year period, with other major international donors and philanthropic organizations like the Bill and Melinda Gates Foundation. That requires a lot of effort. At the country level, our foreign engagement is organized around our ambassadors, who are critical. But at the international level, we need a strategy and clear policy direction. What do we want to go after, what are our key objectives, how do we define success, and then how do we propose to get there?

To take an example, most of the money our government spends on global health is being put into HIV/AIDS and malaria prevention. On HIV/AIDS, big progress is being made in working on the problem, making people feel better through treatment, and extending their lives. But there is still a long way to go; who knows how much research is necessary to come up with a medical solution? Malaria, however, is something we know how to deal with. We have experience, we have a grip on it in many places in the world, and, in my opinion, it would not be so difficult to

get to the point where it becomes almost a nonissue. But it requires an orchestration of resources and effort to make it happen.

Here we have two different diseases that are tying up the bulk of our financial resources in public health, requiring different solutions. In one case, we can almost solve the problem; in the other, we have work to do. What we need is a strategy, a set of policy goals that can be reviewed periodically. Let's lay it out, try to get the major actors to agree to it, and then see what can be done.

Of course, we need partners on the host country side as well if we want to make lasting improvements to public health. Relationships differ from country to country. Things are much easier if there is a history of trust and a record of positive activity. If a government is distrustful of us and our motives or if the medical bureaucracies are not particularly well trained or have other agendas, then it is much harder.

Some governments want help only on their own terms. They do not want to feel that they are being talked down to, and they may wonder whether we are just trying to make them feel good so that we can “end-run” them with something else.

Another big issue is corruption. No matter how good our engagement may be, if the country's leadership is skimming off the resources we give, it presents a real challenge for us. Not only does it make us inefficient, but it also raises suspicions among the citizens of the host country, particularly if they are well aware of their own so-called leaders' corruption. If they find us dealing with those same leaders, they may start to wonder if we are just the same and whether they should trust any of us.

Again, this is an area where grassroots engagement from individuals can make a difference. When local people see an American far from home, living and working and swatting mosquitoes in the same conditions as they

are, they get a powerful message that we do really care.

Based on my experience, many countries are willing to have the military come in to undertake health missions or engineering-related health missions—but not all of them. When I was at Pacific Command, we were able to get the Vietnamese government to agree to allow us to put a clinic in place in central Vietnam, but they did little or nothing to publicize that it was a U.S.-initiated and supported operation, and they made sure the clinic was located off the beaten track, in the middle of the jungle. Still, people eventually figured out where it was and found it was something that could address their needs. The important thing was that it was a start, and we hope it is something we can build upon to improve people's health and well-being.

Across the border in Laos, the relationship was even colder and more challenging. In the only real interaction with the government at that time, it agreed, in return for substantial remuneration, to allow us to try to locate and excavate remains of our soldiers who were missing in action from the Vietnam War. I spent several days working to convince the government leaders that it was really in their interest to expand our relationship, that there were many things we could do to help them and their people, and that health was one of them. Progress in that country has been slow in coming but is improving.

The 2004 tsunami in Indonesia was a great example of how a terrible disaster can have surprising consequences—even providing opportunities to reshape relations and end conflict. The United States was very quick to respond to the disaster by getting relief and medical supplies to Aceh Province, the worst affected area. Meanwhile, the Indonesian government, which had a major military contingent in Aceh, had a tough decision to make. It was facing an insurgency and was under constant attack by the rebels. To his

credit, Indonesian president Susilo Bambang Yudhoyono directed the military to focus on helping the recovery effort.

The rebels made many threats, both to the Indonesian government and to us. But there must have been a couple of enlightened heads among them who concluded that while they might be able to get some short-term military gain out of the disaster, in the long term, maybe it was not such a smart approach to take. And they backed off.

As a result, people focused on attending to the civilian population's needs. After a couple of months, the fact that the government had told its troops to forget about shooting and focus on the people instead had begun to have an effect. The European Union and the Malaysians stepped up and said, "Maybe we can help broker a settlement." Lo and behold, discussions began, and within several months an agreement was reached. The government withdrew a large military force, the rebels put down their guns, and they began addressing the real needs of the indigenous population. The combination of U.S. assistance, medical and other disaster recovery efforts, helped facilitate that outcome.

Another interesting result of the tsunami was the demonstration effect our recovery effort had on China. China, a huge country with a tremendously large population, has to deal with disasters all the time. It has a well-developed cadre of health expertise that has learned from the rest of the world. But because it has not really figured out how to apply this expertise outside its borders, it is pretty slow in contributing to the kinds of relief efforts that we and other Western countries do as a matter of routine.

When the tsunami struck in December 2004, the Chinese were way behind the rest of the world in delivering anything to the Indonesians, and I think they took a fair amount of criticism. But they are learning. I happened to have had a meeting with

the Chinese foreign minister the day after Hurricane Katrina, and he was pleased to tell me that his country had loaded a jumbo jet of relief supplies and dispatched it to the United States to help out.

As for our own military, emergency response is our forte. We have extensive logistics capability, we have accumulated medical capability, and we can move quickly. The long-term sustainment piece is a little more challenging, both in terms of our ability to do it well and from an interest standpoint: the U.S. military has other priorities, and global health is not at the top of the list.

We need to think more about how we can link up the episodic use of our health capabilities with other actors, in concert with a well-thought-out regional plan. This is where our geographic combatant commanders come in: they are engaged, and they certainly want to help. ■



DR. CONNIE MARIANO

Eleanor Concepcion “Connie” Mariano is a Filipino-American physician and former flag officer in the U.S. Navy. She became the navy doctor to the White House in 1992 and in 1994 was appointed director of the White House Medical Unit, the first woman to hold the position. In that role, she served as physician to President Bill Clinton. After retirement in 2001, Dr. Mariano went on to found the Center for Executive Medicine, based in Scottsdale, Arizona.



Over the course of my nine years at the White House, I followed the president of the United States, the vice president, and their families around the world, providing service and care. Being health care provider to three presidents—George H.W. Bush, Bill Clinton, and George W. Bush—gave me a unique perspective. I got to observe their attitudes toward health and security based on how they looked after their own health, their outlook toward care, their experiences with other people’s health issues, including other leaders’ health issues, and their impressions of health in general.

When I came to the White House in 1992, I was assigned to serve as the navy doctor. There was also an army doctor, an air force doctor, and another physician who was senior

to us: physician to the president. His policy was that we didn’t need to have 24-hour medical care at the White House; he felt the president was healthy and that when he was in for the night, we could all go home and the Secret Service could handle any emergency.

That bothered me. When I came on board, I spoke to the Secret Service and heard from them that they weren’t comfortable with that policy either. Their job is to protect the president; they’re not trained to administer medicines. I said, “If I ever run the White House Medical Unit, I’ll bring in 24-hour care,” because if something happens to the president in the middle of the night, it’s not enough to assume you can throw him in an ambulance and go down to the hospital. What if the president had to be evacuated in the middle of

the night to go someplace else, by helicopter? Where are your medical people then?

I was the first White House Medical Unit director to stay overnight at the White House. We instituted an agreement between the White House Medical Unit and the Secret Service to provide round-the-clock, on-site medical care, and it's been carried forward ever since. After all, whenever we left the White House compound and traveled, we were always beside the president. It makes sense for the most powerful leader in the world to have a medical professional "a few heartbeats away" who could resuscitate him or her in case of an emergency, somebody who could render medical care any time of day.

But whenever you make a change like that in an organization, there are repercussions. I think the most resistance I got was from some of the doctors and nurses who said, "I don't want to sleep at the White House." I said, "Well, explain your reasoning to me; you don't mind sleeping down the hall in the president's hotel when he's visiting Paris, but you don't want to sleep in the White House shelter? Come on, how does that look?"

From my observation of the presidency, I believe that if the president is not well, or is not feeling well, it's felt throughout the government, throughout the country. People wonder, "Is everything going to be OK for us? What's our future going to be like? Do we feel secure?" Other countries see illness as being weak; they think that if the president is going to be preoccupied with his health, his surgery, or whatever issues he has, he's not going to be able to focus on the security of our country. When George H.W. Bush had his atrial fibrillation (irregular heart beat) and had to be hospitalized, that was a scary time. Suddenly we were wondering, "Is our president healthy enough?"

Fortunately, during the eight years of the Clinton administration, which covered most of my time at the White House, we had only two major medical issues requiring hospitalization.

In 1994, Vice President Al Gore was hospitalized with an Achilles tendon rupture.

Then, in 1997, when President Clinton was on one of his many trips, he was going to spend the night at the Florida home of Greg Norman, the golfer, but as he was walking down the steps of the house, his leg buckled. He had ripped the quadriceps tendon in his thigh muscle.

This happened after hours; the White House press corps were already asleep in their hotel rooms. The duty physician quickly went out, assessed the president's condition, and said, "We have to bring him to the emergency room." They loaded the president in an ambulance, and I met them at the hospital in West Palm Beach, where it was determined that he needed surgery. Rather than have surgery there, we elected to fly back to Washington and perform it at Bethesda Naval Hospital, because that's our secure hospital. President Clinton said, "I don't want general anesthesia; I want to stay in charge."

Whenever the president undergoes any kind of procedure, as White House physicians, we have to make decisions based on what's best for our patient and what's best for the country. What's important for the country is the 25th Amendment, which was instituted in 1967 and deals with presidential succession. The most important section concerns presidential disability. If the president should become disabled in any manner preventing him from performing his job, then a decision needs to be made to invoke this amendment, which transfers the powers of the presidency to the vice president.

The president can voluntarily do so; or if he refuses, there's the very painful task of taking the powers away from him, which fortunately has never happened. But in the case of President Clinton, he said, "Listen, can you do this with a spinal anesthesia?" I said, "We can, absolutely." They did, and he did fine. He spoke throughout it, and afterward he spoke to the press by telephone, saying, "My surgery

was OK; everything's OK," because the country needs a lot of reassurance in these situations.

When he got back from his surgery, he wanted to go to Helsinki within five days to meet with Russian president Boris Yeltsin. I said, "That's not a good idea." He said, "I know; just make it happen." We brought one of the surgeons, a physical therapist, and a whole team of people with us to keep an eye on him, to make sure he didn't fall or trip.

We also had to work out how to move him about. Because he didn't really like to be in a wheelchair meeting another leader—it made him look weak—we got him some crutches, which looked like the ones Franklin Roosevelt had used. But still he wanted to stand. And we said, "You cannot stand on that leg, you cannot weight-bear, you will rip the muscle." There were a lot of arguments. That's when you really have to be determined and frank, saying, "Mr. President, you need to listen here." One of the secrets of the White House doctor is that if the president doesn't want to listen, you go to the first lady: you appeal to a higher authority. I did that several times during my career.

Naturally, the president, vice president, and first lady have a strong sense of needing to maintain their mission. Their health unfortunately takes second place because they want to project that they're strong, they're fit, and they're able to continue their job. They travel nonstop, they suffer from jet lag, they don't sleep, and they have lots of occupational injuries like back pain from standing up for long periods of time; they get respiratory infections from all the people with whom they come into contact. My job as a doctor is to make sure they are healthy enough to maintain their mission. But it's a struggle. If they'd been regular citizens, in some instances they would have been in the hospital.

Overseas travel presents a different set of risks. Before the president traveled, we would send a medical representative, usually a physician or one of our senior nurse staff, with the

White House team that goes out to the country a year to six months in advance of the visit. They would look at all the potential health hazards such as temperature, climate, and the presence of endemic diseases, so that we could ensure that the president as well as the traveling party was immunized. They would look at sites to see whether there were places such as cobblestone streets where the president could potentially trip.

We would work closely with the Secret Service and then educate the president. We would say, "This is a country where you're going to need all these shots, so we'll immunize you. You're going to need malaria pills; this is what we'll give you." We'd caution him about healthy food, healthy water. Fortunately, the president travels with a team of food service officers who make sure he's not given tainted food and water. But once in a while he would get sick, and we were prepared to take care of that as well.

The most frightening trip for us was to Morocco, where President Clinton attended the funeral of King Hassan II in 1999. There was a huge state funeral in Rabat; thousands of people were in the streets. There was very little security, and the crowds were lunging at the motorcade. After President Clinton went in to pay his respects to the late king's family, he was going to go over to the mosque for the funeral service. But as President Clinton walked out of the palace with the new king, rather than get into the limousine, he decided to walk with the king behind the casket, in the streets of Morocco.

We were terrified. He was now an open target, walking in the middle of the street. It was a hot, humid day; the crowds were wild; there were people on the rooftops. The security hazard was huge. The Secret Service was very uptight; this was the only time I saw them nervous.

I got into the president's limo, and we followed him through the streets. We finally

got to the mosque, and he went inside. About an hour later, I was called over the radio; they said, “Eagle”—the president—“needs you.” I entered the mosque, and it was wall to wall human bodies. I couldn’t even get to him; I had to kick and push my way through all these people.

One of the agents finally found me, grabbed me, and pulled me through. I went over to the president’s side; he was sweating, he was tired, and he looked a little disoriented. I think the jet lag, the fatigue, and the dehydration had caught up with him. I said, “Let’s give the president some water,” and I asked him, “Do you know where you are?” And he said, “Yeah, I know. I’m just tired.” I took his pulse; it was a little fast but not bad. I said, “Let’s go.”

We got him out of there, again pushing and kicking our way through. But there were no magnetometers; anybody could have gotten him. In these situations, you’re in fear; you hope and pray nothing bad happens. And even when you have a plan, when the president decides to do something else, you can’t force him; you just have to respond.

Since 9/11, I think security has gotten tighter. Presidents don’t stay overseas as long as they used to. They have their meetings, and they get out. I think we’re as good as we can be, but nothing is 100 percent ironclad safe. We can’t put the president in a protective bubble. There’s this constant tugging and pulling between the need to keep the president safe and the need not to isolate him from his people and from the job he needs to do.

As for the White House Medical Unit, I’m proud to say not much has changed since my time there because we fine-tuned it to the point where it was very efficient in recognizing health hazards and in knowing what to do. The biggest change was 24/7 care, which we also instituted for the vice president. Dick Cheney had that advantage when he was in office, and I think in a lot of ways we may have helped extend his life because we were constantly

there to remind him to take his medications, to watch his diet and activity, and to be close by should he have another cardiac problem.

Now we are in a presidential campaign year. Barack Obama and Mitt Romney are both young men, who by history are healthy. But the issue of medical records always comes up during a campaign. Knowing their health records and health issues are under scrutiny, will candidates want to hide things? I look at how the candidates are holding up to the grueling campaign schedule to see whether there could be a problem down the line. Are they able to maintain their stamina, their endurance during those long hours of answering all those questions?

It’s amazing how important a role the health of our leader plays in delivering a positive image to the world. The image we want to portray is of a president who is strong and robust, a president whose health does not affect his soundness of mind and his ability to make quick decisions.

If a leader is suffering, that suffering affects people’s vision of what’s going on in a country, the kind of challenges a country is facing. If you have a healthy leader, you’re way ahead. If you’ve got one who’s vulnerable and ill and struggling with physical or mental health issues, then you’ve got a big problem that has an impact around the world. ■



ABOUT THE EDITOR

Richard Downie is deputy director and fellow with the CSIS Africa Program, based in Washington, D.C. In this role, he analyzes emerging political, economic, social, and security trends in sub-Saharan Africa with the aim of informing U.S. policymakers, the U.S. military, and members of Congress. Downie recently codirected a major project commissioned by the U.S. Africa Command that “stress-tested” African states, identifying possible sources of instability in 10 countries during the next decade. He authored the Sudan country report in this series. He also completed a project looking at the challenge of police reform in sub-Saharan Africa.

Downie joined CSIS following a decade-long career in journalism. He was a reporter for several newspapers in the United Kingdom before joining the British Broadcasting Corporation (BBC), where he worked as a senior broadcast journalist covering the leading international stories of the day for radio and television. Since then, he has conducted research and completed writing projects on Africa for the Council on Foreign Relations and the U.S. Institute of Peace. He is a contributor to the Africa section of Freedom House’s annual report, *Freedom in the World*. He is a frequent commentator on African issues for the BBC, Al Jazeera, CNN, and other international media. He teaches seminars on U.S. foreign policy in Africa at the Africa Center for Strategic Studies, part of the National Defense University, and at the State Department’s Foreign Service Institute. Downie holds a master’s degree in international public policy from the Johns Hopkins School of Advanced International Studies and a B.A. in modern history from Oxford University. ■



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