

Prologue

Prologue: A Fear I'd Never Felt Before

What can be done to stop the next killer virus from destroying millions of lives?

Following a frightening meeting with my staff at the peak of the West Africa Ebola crisis, I asked myself, "What would it take to prevent such devastating epidemics?" A new pandemic could kill more than 300 million people worldwide. It could also reduce global GDP by five to 10 percent – an impact equivalent to the financial crisis of 2008. There will always be new outbreaks of infectious diseases. But as a medical doctor and a global health leader, I know that, by following the prescriptions laid out in this book, it is within the power of modern public health leaders to keep such outbreaks from exploding into catastrophic epidemics that kill thousands or millions.

I was more alarmed than I had ever been in my 35 years of working in public health. The world was facing a potentially global catastrophe unlike anything I, or any of my colleagues, had ever seen. In response to the fears of the far-flung people on my staff, I knew I had to be straightforward and talk frankly and calmly about the crisis.

It was a rainy Thursday morning, October 9, 2014, and a hundred of us were stuffed into a classroom-sized room where I was hosting a videoconference for the global health nonprofit that I lead, Management Sciences for Health (MSH). More than five hundred staff members from our home office near Boston, and those in field offices in Africa, Asia, and Latin America, were huddled around our various communication devices, listening intently. We had all read or heard appalling reports from medical teams on the ground in West Africa, where the Ebola virus was spinning out of control, condemning thousands of people—including some of our own beloved colleagues—to horrific deaths. At this moment, some team members were reporting in from ground zero in Liberia, where the epidemic was rampaging.

"The treatment facilities are overrun with cases," they told us. "Whole parts of the health system are at a standstill. Staff and patients are scared away. Patients refuse to go to community health centers; they see them as places to die. Corpses are lying in the streets." Women were delivering babies without trained help. Malaria cases were going untreated, adding to the death toll. In defiance of ancient traditions in which families lovingly touch and swaddle the dead, villagers were being instructed by strange people in alien-looking plastic moon suits not to hug each other, shake hands, or touch their loved ones.

"With the risk to our staff, why are we there?" someone sitting near me asked.

It was an obvious question. And we all wondered about the follow-on: where would Ebola travel next, given all the remote places MSH operated in around the planet? Thomas Duncan, the first Ebola patient in the U.S., had died just the day before at Texas Health Presbyterian Hospital in Dallas. Which city would be next? Paris? Tokyo? Moscow? Mexico City? Right here,

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where some of us were sitting, in Boston? Symptoms didn't show up for several days. Unknowingly-infected people who had been in West Africa could be coming to our offices.

I was especially worried for our staff in the hot zone. Ian Sliney, our stiff-upper-lipped British colleague, candidly admitted that, despite taking all precautions, he was worried. What could I tell him and the others? Ian and hundreds like him were real heroes, firefighters on the front lines of the outbreak. They were taking their temperatures constantly and dousing their hands, arms, feet and everything else in chlorine.

"I know there is a lot of fear out there and also among you," I said. "But, in good conscience, we can't not be involved." I then read a letter from Niniola Soley, a staff member in Nigeria. Her aunt had died trying to stop the spread of the disease. "My aunt's death is painful," she had written, "but it comforts me to know that I'm part of an organization that's truly committed to saving lives." I hoped her words offered at least a bit of salve.

In that meeting, we were all asking the big question of "how?" How could we help bring this horror to a halt? Better organization, better communication, better local community action, better leadership, more money, more global engagement? After all, our organization's mission is to save lives by closing the gap between knowledge and action in global public health. But with Ebola, we were all staring hard at that yawning gap. We didn't know enough, so we didn't know what actions to take. As experts, we were doing everything in our combined experience that we knew how to do to treat the sick and prevent the spread of disease, but the challenge was like trying to swim in a tsunami.

After that meeting, I also kept asking myself another big question: "Why?" Why had it taken months for the World Health Organization (WHO) to declare a global public health emergency? Why was there still no Ebola vaccine after more than 20 outbreaks of the disease since it was discovered in 1976? Why had the director of the Centers for Disease Control and Prevention (CDC) and the governor of Texas insisted the public was safe from this horrific disease, only to find days later that two nurses had contracted it at a Texas hospital from an infected man who had apparently come in from West Africa under the radar, potentially spreading the disease to an entire American city?

I began to reflect on what I had experienced first-hand or learned through colleagues about AIDS, avian influenza, severe acute respiratory syndrome (SARS), and other infectious disease outbreaks. I also studied credible scenarios of the magnitude and impact of future epidemics. And I became more and more frightened.

What frightened me? Certainly the prediction by Bill Gates and his team that an epidemic like the 1918 influenza pandemic that killed 50 million people could happen again today—and that in the first 200 days it could kill 33 million people.¹ That's almost as many people as AIDS has killed over four decades. Even scarier was the Bank of America/Merrill Lynch assessment that the threat of a global pandemic is "arguably higher than at any time in human history" and that a severe pandemic could claim more than 300 million lives and cost the global economy as much as U.S. \$2.5 trillion.²

We already know how to stop local outbreaks before they spread. But time and time again, our human failings—various mixtures of fear, pride, complacency, hubris, denial, and

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financial self-interest—have created, worsened, or delayed the response to past epidemics. I asked myself, why does this keep happening?

Yet I've also seen how, at our smartest, we have overcome our human failings. I know of myriad inspiring examples of intelligent, compassionate people—from presidents to paupers—who, throughout history, did the right thing. I have worked closely with colleagues and studied the success stories of those who eradicated smallpox, transformed AIDS from a death sentence into a treatable disease, contained the avian influenza outbreak in the late 2000s—and, of course, handled the nearly two dozen Ebola outbreaks in Africa that preceded the horrific West Africa epidemic of 2014-2015. Based on my observations and experience, I firmly believe that achieving the impossible is possible.

I was a little kid in May 1961 when President John F. Kennedy committed the U.S. to "...achieving the goal, before the decade is out, of landing a man on the moon and returning him safely to the earth." Over the next eight years, along with millions of other kids, I became more and more enthralled with all things astronaut. Like everyone else, I was awestruck on July 20, 1969 when Apollo 11 astronaut Neil Armstrong became the first person to put a foot onto the lunar surface and radio back to earth his famous line, "That's one small step for man, one giant leap for mankind."

When Kennedy set his famous goal in 1961, the technology that would take the three Apollo 11 astronauts to the moon did not exist. Neil Armstrong once observed that during the years of strategizing, innovating, and testing that led up to his landing, NASA engineers and scientists repeatedly ran into ferocious, unscalable walls. They often thought they would have to halt the mission. Nevertheless, each time the moon shot looked like a certain failure, they were firmly told: "We are going to the moon." They went back, reimagined the impossible and made it happen.

By contrast, when leaders shrug their shoulders in resignation, nothing happens. World Health Organization Director General Dr. Marcolino Candau spent most of his career in public health believing that smallpox eradication was impossible. After all, smallpox had been around for at least 3,000 years and was fatal in 30 percent of cases. That's probably one of the reasons why, when WHO finally committed to smallpox eradication in 1966, Dr. Candau's home country of Brazil was the only one in the Western Hemisphere that hadn't yet done so. It had taken global health leaders fifteen years to decide to rid the world of smallpox for good. But once they did so, it took just over ten years to eradicate the scourge.³

In late April 2003, at the height of an epidemic of the new respiratory disease known as SARS (severe acute respiratory syndrome), reporters asked then-CDC director Dr. Jeffrey Koplan whether SARS could be eliminated in Hong Kong. He said he would be shocked if it was. "To be realistic, what we can hope for is the suppression and a minimization of the disease and viral spread," he told them.⁴ A mere two months later, Hong Kong was declared SARS-free -- ahead of Toronto, Beijing, and Taiwan. The virus has never returned. The impossible had again happened.

In this book, through examples and evidence, I will establish the seven fundamental sets of actions needed for preventing epidemics: 1) ensuring bold leadership at all levels; 2) building resilient health systems; 3) fortifying three lines of defense against disease (prevention, detection and response); 4) ensuring timely and accurate communication; 5) investing in smart,

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new innovation; 6) spending wisely to prevent disease before an epidemic strikes; and 7) mobilizing citizen activism. I'm convinced that a combination of these actions could be achieved within a decade. Working together, The Power of Seven would put us well on the path to an epidemic-free world.

Dangerous microbes will always be out there and small outbreaks that kill tens or hundreds of people will continue to occur. But if we can send people to the moon, if we can eradicate smallpox, if we can mount the largest public health treatment effort in history as we did for AIDS, surely we *can* end epidemics.

In response to skepticism about sending a man to the moon, John F. Kennedy said, "We choose to go to the moon. We choose to go to the moon in this decade and do the other things, not because they are easy, but because they are hard." Pursuing the vision of making the world's last epidemic the very last one will be hard. To the skeptics who believe we cannot end epidemics, I say, "Let's imagine the impossible – then make it happen." Humanity simply cannot afford not to do this.

My sense of hope springs from my four-decade journey in global health. As a third-year medical student, I travelled to Latin America, Africa, Asia and the Western Pacific to document pioneering efforts to bring modern medicines to the world's poor. As a family physician at the U.S. Public Health Service hospital in Talihina, Oklahoma, I delivered babies, treated snakebites, and healed gunshot wounds. I lived in Pakistan and Kenya, where I helped to strengthen local primary healthcare. As a director at the WHO headquarters in Geneva, I expanded access to essential medicines, including AIDS treatment. And as the leader of Management Sciences for Health, I'm working to improve public health around the world.

Throughout my journey, I have witnessed intense suffering, but I have also seen the stunning results of concerted effort in turning around public health catastrophes. My experience as a family physician has put me face-to-face with the profound human pain experienced by families who lose a child, a beloved parent, or a sibling. Yet I have also observed the remarkable impact on entire countries when government officials, public health leaders, activists, and average citizens galvanize action against a global health threat like AIDS, maternal mortality, or a preventable childhood illness. This book is driven by my personal response to the human anguish caused by missed opportunities to help, and by the intense joy I feel when our work saves lives. In it, I'll describe what happens when disease takes hold and spreads due to all-too-human failings, and how the heroic actions of others help to slow or stop viruses. I'll suggest how forward thinking could save us from global threats like Ebola, Zika, and pandemic influenza.

At the end of that MSH global staff videoconference, Ian Sliney spoke again from his hotel room in Liberia. His fatigued but stalwart voice was the last one we heard. "Wish us the very best of luck," he said. "Pray that we get this right."

With this book, I hope that we can all work to get this right.