The Pandemic Prophecy

I don't know if I had previously mentioned, Mike Osterholm is a friend of mine.
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He doesn’t know when it’s coming, or how bad it will be. But Dr. Michael Osterholm, one of the world’s foremost infectious disease experts, believes a flu pandemic is inevitable. And to hear him tell it, we’re nowhere near ready.

By Tim Gihring
Photographs by Eric Moore
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One hundred eighty million people are dead—two out of every hundred in the world—including 1.7 million in the United States and more than 30,000 in Minnesota. Vaccines are unavailable. Borders are closed, supply lines shut down. Victims huddle on cots in the Metrodome. Doctors and nurses are too scared to come to work. Bodies are piling up in the streets.

This isn’t the latest Steven Spielberg thriller; it isn’t the aftermath of a nuclear holocaust. It’s the flu. And former state epidemiologist Dr. Michael Osterholm, for one, believes this scenario could easily become reality.

“Pandemics happen,” Osterholm is fond of saying, as if it’s a catch phrase from a bumper sticker, as if it’s something we all just know. But most people don’t know that pandemics—diseases that spread across large swaths of geography and population—are as inevitable as earthquakes, hurricanes, and tsunamis. Or that the flu—which, in its so-called “common” form, currently kills 36,000 Americans each year—can potentially kill millions more. Pandemic influenza has rampaged around the world 10 times in the past 300 years, and three times in the past century: in 1918, 1957, and 1968. The big one was 1918, when more people died of the Spanish flu than fell in the trenches of World War I. And the disease didn’t just affect the very young and the very old. People between the ages of 20 and 40...
stood a better chance of living if they went off to war than if they stayed home in America.

Some people, such as government officials and business leaders who might mitigate a crisis, should know this. But they don’t, or they don’t believe it, or they don’t know what to do with the information. Not all of them, anyway. Not yet. And that’s why Osterholm, director of the Center for Infectious Disease Research and Policy (CIDRAP) at the University of Minnesota, can’t stop talking about pandemic influenza. “I can’t emphasis enough,” he says, “that it’s not a matter of if but when.”

The pandemic may or may not be H5N1, the avian flu virus currently winging its way around the world from Asia, where bird–human transmissions of the strain were first reported in 1997. The outbreak may happen tomorrow or 10 years from now—there’s no way to predict. And it may not be as bad as the scenario described above, which assumes a repeat of 1918. But Osterholm believes H5N1 is “a 1918–like virus.” Given the way it continues to evolve, to change genetically, it may one day develop the capacity to jump from human to human. Then, Osterholm says, we’ll be updating the death toll not monthly, as we are now in Asia, but by the minute.

“I believe an influenza pandemic will be like a 12– to 18–month global blizzard that will ultimately change the world as we know it today,” Osterholm testified before Congress in December. He’s been singing this dirge for years now, on CNN, Oprah, Nightline, and in the ears of some of the world’s most powerful people. Osterholm served as an adviser to the Clinton administration, and he consults with the Bush administration on numerous public health issues, from pandemic flu to bioterrorism. He was also an adviser to the late King Hussein of Jordan, who would fly him across the world on a day’s notice for briefings on infectious diseases, bioterrorism, and Jesse Ventura (the king was a big fan).

But it’s only in the past year or so that a critical mass of interest has developed around the pandemic flu threat. In his final remarks as the nation’s czar of public health, former Secretary of Health and Human Services Tommy Thompson surprised many in Washington by naming pandemic flu the health threat that worries him most. Last November, Bush appeared on national television to announce
the federal government’s pandemic flu response plan, which included the stockpiling of enough vaccine to inoculate 20 million Americans, and called on Congress for $7.1 billion in emergency funding (about half that much was appropriated).

Osterholm is right in the middle of these discussions, whether advising federal health officials or talking to the media. Former Nightline host Ted Koppel called a recent article in the journal Foreign Affairs, in which Osterholm outlined the need for pandemic flu planning at every level of society, “required reading for all Americans.” In February, Osterholm hosted a national summit in Minneapolis on flu preparedness for businesses; Thompson and his successor, Michael Leavitt, attended, as did Koppel. Tellingly, when national health officials launched a series of 50 state meetings on pandemic influenza planning in December, they chose Minnesota as the site for the first roundtable.

Will all this planning be too little too late? Or, as some skeptical scientists and journalists claim, is it too much? And while the nation obsesses over a falling sky, might the floor fall out from under us with the onset of some new public–health threat? Osterholm is convinced we must do whatever we can—as soon as we can—to prepare for pandemic flu. “I can’t think of anything that raises a greater threat to this country’s security, its health, and its economy,” he says. Lately, in fact, he’s been thinking of little else.

When I first meet Michael Osterholm, he loads me up with a transcript of his latest Congressional testimony, a printout of his new PowerPoint presentation, and several recent articles on pandemic flu. Osterholm does not merely chat with reporters, he educates them. We meet in his office, which is filled with memorabilia from the history of disease prevention: antique quarantine signs from diphtheria and scarlet fever outbreaks, a plaque that says “The bug stops here.” Within these surroundings, Osterholm monitors the world of infectious disease by phone, e-mail, Internet, and TV. The television, tuned to CNN, sits across from his desk, and he frequently glances at it as we talk. “See,” he says at one point, gesturing to the screen, “‘Bird Flu Facts,’ coming up.”

Osterholm does not look like the prophet of anything, much less a diviner of disease. Technically, he is an infectious disease
epidemiologist, which means he’s concerned with the incidence and spread of infectious diseases within populations. With his trim silver hair and blue suits, however, Osterholm resembles a businessman. And, like any good executive, he’s obsessed with results.

During his 24 years at the Minnesota Department of Health (1975 to 1999), Osterholm got those results, leading some of the nation’s largest investigations of infectious disease outbreaks, from HIV infection in health-care workers to hepatitis B transmission in hospitals. He first garnered national attention in the early 1980s with his work on toxic shock syndrome (TSS), a mystifying illness he helped trace to its bacterial source. The case put Osterholm and other researchers up against the U.S. Centers for Disease Control and Prevention, which initially focused its TSS investigation on a brand of tampon linked to the illness and which disputed arguments made by Osterholm and others that the culprit was a new strain of the staphylococcus bacterium. Osterholm, then only in his mid-twenties, may have suffered publicly for disagreeing with the medical establishment, but his sharp—and ultimately vindicated—instincts placed him in the vanguard of public health officials.

In the 1990s, Osterholm made waves again with a study of the country’s disease surveillance capacity. He and his colleagues found—along with comparatively paltry funding nationwide—that in 12 states and territories no official was specifically responsible for tracking food- and water-borne diseases. “You could sink the Titanic in their backyard and they would never notice,” Osterholm told a Senate committee in an early demonstration of his flair for vivid characterizations.

In 1999, seeking to tackle public health issues beyond Minnesota’s borders, Osterholm quit his state epidemiologist post to found Ican, a Web-based clearinghouse for medical information. By then, he had a worldwide reputation as an outbreak sleuth, as well as something of a doomsday aura—a vibe enhanced by the 2000 publication of his book Living Terrors: What America Needs to Know to Survive the Coming Bioterrorist Catastrophe. But Ican, which at one time had 60 employees, couldn’t drum up enough new capital to avoid folding in the dot-com bust of 2001. Osterholm shifted operations to the University of Minnesota, with a handful of employees and about $850,000 in start-up money from the public
foundation of the Robins, Kaplan, Miller & Ciresi law firm. One week later, 9/11 happened.

Osterholm was whisked to Washington to serve as a special adviser to Tommy Thompson on bioterrorism and public health preparedness. Suddenly, Osterholm was a frequent guest on talking-head news programs and a go-to source for reporters. But he was just getting started. The anthrax scare and SARS led to more interviews and more lectures. Now Osterholm is on the pandemic flu beat, his television appearances hyped with such dramatic sound bites as “Modern medicine will not save us.” Osterholm says he is “not trying to scare people out of their wits, but into them.” It’s just that the facts, as he sees them, aren’t always pretty.

A few of these nasty facts. Our health-care system, like our economy in general, operates on a just-in-time basis. Businesses order or make products only as necessary, rather than maintaining vast inventories. Osterholm has testified before Congress regarding health-care facilities’ lack of substantial stockpiles of surgical gloves, masks, and IV bags. On any given day, he notes, three-quarters of the mechanical ventilators in the country’s critical-care facilities are already in use; during a regular flu season, nearly all of them are occupied. In short, he says flatly, our hospitals have no “surge capacity,” which they’d need to accommodate a major pandemic. Or even a minor one. “It’s not that high-tech medicine doesn’t exist,” says Osterholm. “It’s that high-tech medicine won’t be available.”

Osterholm also points out that the raw materials for 80 percent of the pharmaceutical products in the United States come from outside the country. If international borders are closed in an attempt to seal off a flu pandemic, our drug supplies will dwindle. Moreover, the current prescription drug system doesn’t make it easy to stockpile medication, says Osterholm. With many insurance plans, you get a 30-day supply and that’s it.

Tamiflu, the most readily available anti-flu drug, is made by one company—Switzerland-based Roche Holding AG. Only recently has Roche agreed to sublicense Tamiflu production to a few select companies, none in the United States. And while Tamiflu is effective in treating everyday seasonal flu, a pandemic flu virus is quite a different beast.
Seasonal flu replicates almost exclusively in the respiratory tract; researchers believe the 1918 pandemic flu virus (much like the H5N1 virus, according to recent reports) replicated not only in the respiratory system but also in the brain, liver, and other organs—a veritable virus tsunami. Which brings us to the real killer: a cytokine storm. This phrase refers to what happens when the body, attempting to fight off the virus, releases a flood of immune chemicals. It sounds like a good thing until you realize this hyperactivity is a Keystone Kops-like response. When the immune system wildly fires off its guns, the bad guys escape unscathed while the body inflicts plenty of damage—specifically, acute respiratory distress syndrome (ARDS)—on itself. Osterholm and other researchers blame ARDS for the high number of deaths in 1918 among otherwise healthy people between the ages of 18 and 40. It takes a strong immune system to set off a powerful cytokine storm, and these people had immune systems just healthy enough to kill them.

As if that weren’t bad enough, H5N1 replicates in the body much more quickly than seasonal flu. In order to fight it off, you’d likely need Tamiflu sooner and for a longer period of time. If multitudes of people suddenly need immediate access to Tamiflu, who will receive the drug? For that matter, who gets the ventilators? A terrible pandemic flu, coupled with supply shortages, could trigger a Terri Schiavo-style debate—two people, one drug dosage, whose right to live?—every five minutes.

But there are always flu vaccines...right? Yes and no. Currently, almost all of the world’s influenza vaccine is produced—largely with 1950s technology—in just nine countries. Osterholm likens our ability to produce enough viable vaccine to help during a pandemic to “trying to fill Lake Superior with a garden hose.”

This is to say nothing of what might happen—or not happen—to the dead. In his recent media appearances on pandemic flu preparedness, Osterholm never fails to mention how offensive it was that, in the wake of Hurricane Katrina, dead bodies were left to rot in the open. During a pandemic, poor “corpse management,” as Osterholm calls it, might tip an already panicked populace toward angry chaos.
So we can build a missile defense system, but we’re just as vulnerable to a flu pandemic as we were in the Model T era? “I think we were better prepared in 1918,” argues Osterholm. And he has a point: America was more self-sufficient then, growing its food closer to home and producing a much larger share of its medical supplies and other essentials. Travel was slow, limiting the spread of diseases. During his lectures on pandemic flu, Osterholm always shows what he calls his most important slide: a graph of the number of days it took a person to circumnavigate the earth 150 years ago and today (365 versus 3), juxtaposed with a graph of the world’s population then and now (just under a billion versus more than 6 billion). His point is clear: since today there are many more people (read: potential virus hosts) in the world, and they get around much more quickly, we may be more susceptible to a pandemic than ever before.

“It’s obviously a big, big public policy issue,” Osterholm says of pandemic flu preparedness. He notes that HIV/AIDS has killed 28 million people over the past 30 years. Bad as that is, he says, pandemic flu “could easily kill 180 million people in one year. . . . [Pandemic flu] is the biggest thing I know I'll ever be a part of in terms of a public health problem.” In fact, Osterholm says this is the first such threat that’s kept him awake at night. “In terms of how it’s transmitted, in terms of how it kills,” he says, “this is everything that you could ever dream up in your worst nightmares of what an infectious agent could be.”

The Center for Infectious Disease Research and Policy is Osterholm’s command center. It comprises several offices tucked within the health center complex on the University of Minnesota’s Minneapolis campus, employs 14 people, and has an annual budget of about $1.5 million. But it’s not the sort of place that will save you when the flu hits the fan. There are no labs here, no microscopes, no test tubes. CIDRAP deals with information. Its staff analyzes the latest developments in bioterrorism, food safety, infectious disease outbreaks such as SARS, and, of course, influenza. They disseminate this news in staff-written reports on their website (www.cidrap.umn.edu), a leading source of information for public health officials around the world. CIDRAP also sponsors seminars on infectious disease issues and has several government contracts, mostly with the Department of Homeland Security and largely related to improving the nation’s bioterrorism surveillance program.
To the general public, however, CIDRAP is Osterholm. And for Osterholm, the center is not just an information clearinghouse, but a nonpartisan stump from which he can organize, advocate, and critique without censure.

Osterholm’s myriad media appearances and colorful style have fueled suspicion that he’s promoting himself along with his concerns. But while he allows that his provocative words sometimes draw attention to himself, Osterholm insists that’s not his intention. He has no ambition, he says, beyond the walls of this office. “I’m where I want to be and should be,” he declares.

Of course, immediately following 9/11, he was often in Washington. And in 2002, when the Centers for Disease Control (CDC) was searching for a new director, Osterholm’s name came up. At Tommy Thompson’s behest, Osterholm was then serving as one of four people on the CDC’s transition team, helping to run the health agency until a director could be found. According to the Atlanta Journal-Constitution, Osterholm’s name fell somewhere between the wish list of potential new directors and the list of those who provoked anxiety among the CDC rank and file. “Someone whom CDC employees both respect and are unnerved by,” the newspaper called him. Osterholm says he was never a candidate and, in any case, he values his freedom of speech too much to embed himself within a government institution. “I’m seen as a neutral broker,” he says.

This self-professed neutrality, however, hasn’t inoculated Osterholm against charges of bad science. In a September 2005 New Republic article titled “Chicken Little,” science journalist Wendy Orent (author of the 2004 book Plague: The Mysterious Past and Terrifying Future of the World’s Most Dangerous Disease), argues that a future bird flu pandemic of 1918 proportions is unlikely and that the officials suggesting such horrors are needlessly inciting panic. “Among these doomsayers,” she writes, “none has been more strident than former Minnesota Department of Health epidemiologist Michael T. Osterholm.” Orent suggests that Osterholm has promoted inaccurate assumptions before, citing public statements he made after 9/11 about King Hussein having evidence of illegal smallpox stashes in Iraq. (These stockpiles, putatively created for use in germ warfare, were famously never found.) Orent even quotes an anonymous government official as
saying that these statements by Osterholm “had a significant impact in high places” on the decision to invade Iraq. Osterholm says the idea that his remarks would have had such an influence on the Bush administration is “far-fetched” and “crazy.”

But the main reason Orent and other naysayers discount Osterholm’s pandemic scenario is that they believe the key to knowing whether a flu bug will spawn a pandemic is an understanding of how the virus evolves—and that Osterholm, not being an evolution expert, may not be in a position to know. These critics have aligned themselves instead with the theories of Dr. Paul Ewald, a University of Louisville-based expert on the evolution of infectious disease. Ewald believes a typical flu virus maintains itself at a low to moderate level of virulence, or infectiousness, because it needs its hosts alive and walking to propagate. The reason the 1918 flu evolved such exceptionally high virulence at the Western Front in Europe, he says, is that the trenches from which World War I was largely fought offered such an exceptional context in which to evolve—a place so crowded with bodies that transmission of the flu virus didn’t depend on a walking, talking person. The virus could kill with impunity. Such virulence, Ewald’s theory goes, won’t be seen again unless those exact conditions are duplicated.

“It’s BS,” Osterholm says of Ewald’s model, “plain BS.” He counters that the first country to be devastated by the 1918 flu was Switzerland, far from the front. Also, if unusually high crowding was a requirement of high virulence, he says, then the squalid, nearly trench-like conditions in developing nations today should provide even more reason for concern.

Other pandemic pooh-poohers, such as Time magazine’s medical columnist, Dr. Andrew Weil, suggest we could contain avian flu when it’s still localized. That would be nice, Osterholm observes, but he believes containment would be difficult, if not impossible. “We have as much chance of stopping a pandemic as we would of putting a curtain around Minnesota and keeping out winter,” he says.

This isn’t the first time Osterholm has been criticized for his predictions. In the mid-1980s, he was “royally panned,” as he puts it, in a series of Star Tribune articles on AIDS. The series offered an
analysis of the threat in which Osterholm came off as a fringe figure for suggesting two things he’s so far been proven right about: that an AIDS vaccine wouldn’t be created in his lifetime and that heterosexual transmission of AIDS would become a major issue in developing nations.

On the wall of his office, Osterholm keeps a plaque he received for giving a flu-preparedness talk at the CDC in 2003. Then, too, few people took the threat as seriously as he did; he beat the drum for two years before pandemic flu suddenly became the talk of the nation. “That’s what’s hard sometimes,” he says, staring at the plaque. “Think how much progress we could have made.”

A few weeks later, Osterholm calls me to say that he’s taped an appearance on Oprah. New York Times columnist Thomas Friedman also has talked to him about a flu story, he says. Momentum is building on the issue. Two days after that, he e-mails a Nature magazine article regarding the H5N1 virus in Turkey. “The naysayers,” he writes, “can’t deny the virus is doing exactly what we worry about most…mutating.”

In early February, sure enough, there he is on Oprah—for the full hour. Generally, only Tom Cruise gets the hour treatment. Pandemic flu has arrived.

On Oprah, Osterholm is asked how regular folks can prepare for the flu. Stockpile food? Certainly, he says. How about masks? Maybe, if they’re the right kind of masks. Think about what you’ll do, where you’ll go, how you’ll work under pandemic conditions, Osterholm counsels. And beyond that, push, as he is, for a more robust public health system. The one thing you can’t do, he says, is hope it won’t happen.

And yet...what if it doesn’t? That is, what if it doesn’t happen the way Osterholm is suggesting it could. Or it doesn’t happen soon enough and the public, feeling duped, begins a backlash. Osterholm is prepared: “You gotta stay the course,” he says. “The risk isn’t going to change.” Pandemics happen. In fact, Osterholm’s supporters say that even if we somehow end up overprepared, a buildup of social services and health-care infrastructure is greatly needed anyway. Thompson, for one, commends Osterholm for all his preparedness work. “This country owes him a debt,” he says.
America has been dangerously unprepared before—9/11, Katrina—with the result that localized disasters became crises of national identity. When Osterholm calls for the country to unite against pandemic flu, he is hoping to preserve not just the health of the United States, but the union itself. When discussing pandemic flu, Osterholm frequently quotes Ben Franklin’s observation, “If we don’t hang together, we’ll all hang separately.”

Last November, Osterholm spoke at a pandemic flu preparedness seminar sponsored by the Minnesota Chamber of Commerce and aimed at local businesses. Osterholm was asked his opinion of the federal government’s commitment to preparedness. He mulled the question so long it seemed he might not answer. Finally, he did. “I don’t give a **** about not being liked anymore—this is too important an issue,” he said. And then he laid into politicians who’ve paid lip service to pandemic preparedness but done nothing.

“I’m afraid we’re going to have a commission like [the one convened after] 9/11,” he said. In other words, a sweeping, klieg–lighted investigation into everything that went wrong during the Great Influenza Pandemic of 200–. “And this time,” he says, “we’re all going to be held accountable.” MM

Tim Gihring is senior writer for Minnesota Monthly.