

One hundred years since the 1918 flu pandemic

America is unprepared for the next deadly influenza outbreak

By Kate Randall and Tom Hall
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In 1918, a deadly influenza pandemic struck, infecting some 500 million people around the world, including in remote Pacific Islands and the Arctic. An estimated 50 million to 100 million people, 3 to 5 percent of the world's population, died as a result. More than 25 percent of the US population became infected with the influenza virus, and some 675,000 Americans died. US life expectancy dropped by 12 years.

On September 29, 1918, N.R. Grist, a doctor stationed at Camp Devens, a military base west of Boston, wrote a letter to his friend describing how soldiers began to suddenly die from the spreading influenza. It read in part:

“These men start with what appears to be an attack of la grippe or influenza, and when brought to the hospital they very rapidly develop the most viscous type of pneumonia that has ever been seen. Two hours after admission they have the mahogany spots over the cheek bones, and a few hours later you can begin to see the cyanosis [bluish discoloration] extending from their ears and spreading all over the face, until it is hard to distinguish the colored men from the white. It is only a matter of a few hours then until death comes, and it is simply a struggle for air until they suffocate. It is horrible” (*American Experience: Influenza 1918*, PBS).

One hundred years later, the US is in the grips of a flu epidemic. By all accounts it is the worst flu outbreak to hit since at least the 2014-2015 season and possibly that of the “swine flu” epidemic of 2009. The Centers for Disease Control and Prevention (CDC) estimates that in 2014-2015, 34 million Americans contracted the flu, 710,000 were hospitalized and about 56,000 died.

These numbers are unquestionably dwarfed by those of the 1918 Influenza. But is the United States, and indeed the world, prepared to face the challenge of a catastrophe on the scale of 1918? The flu is a yearly event, and many experts believe that an outbreak far deadlier than this flu season is a distinct possibility in the years to come.

What progress has been made in developing a universal flu vaccine? Is the US health system prepared to handle a pandemic? Is the federal government investing the billions needed to develop the vaccine and antivirals, and to promote flu shots? A glimpse at the state of this year's flu season gives an indication of the scandalous lack of preparedness, financing and coordination in battling the outbreak.

The CDC reports “widespread” flu activity in the entire continental US, and officials warn that the infection rate may not have peaked. About three-quarters of this year's cases involve the H3N2 virus, a particularly virulent strain that evolves more rapidly, requiring more changes to the vaccine formulation.

States are only required to report pediatric deaths to the CDC, and many states do not require localities to report deaths of those over the age of 65, which form the large majority of deaths due to flu-related illnesses. This year's latest CDC figures show that 37 children have died so far, while reports from around the country paint a grim picture.

Texas's Department of State Health Services announced that more than 2,300 Texans have died of the flu since the beginning of the flu season in October. In Dallas, 52 people have died of flu-related symptoms so far, more than triple last season's totals, according to the *Dallas Morning News*.

California health officials reported that 23 people died of flu-related cases in the state in the last week, bringing the total official death count among people under the age of 65 to 97. Among all age brackets, the flu has killed 174 in San Diego County, according to the latest public health report. Orange County, which only counts deaths of those under 65, has reported only 7 flu-related deaths since July 2017. Los Angeles County, which reports all deaths, reports 96 for the season.

Hospitals throughout the state have been inundated with patients reporting flu-like symptoms. Loma Linda University Medical Center has set up a giant “surge tent” to triage patients. Doctors and pharmacists have reported

shortages of flu shots, Tamiflu (an antiviral drug), and flu-testing kits.

Michigan has reported 535 flu-related hospitalizations this flu season, including 30 children. The Henry Ford hospital system in metro Detroit has announced restrictions on visitors for patients and barred all children under the age of 12 in the intensive care unit for newborns, the *Detroit Free Press* reports. No deaths have yet been officially reported.

Georgia has seen 25 deaths, according to the latest government figures. The first pediatric death from flu-related illnesses in the state was announced yesterday, a 15-year-old girl from Coweta County. She had been tested only six days before for the flu and was sent home after the test came back negative.

Kentucky officials reported 65 total deaths as of last week. Seven percent of these deaths occurred in healthy individuals with no previously reported risk factors for severe illness, according to the *Lexington Herald Leader*.

The number of confirmed flu cases in Massachusetts is more than double the levels from this time last year, according to the local WWLP TV station. Eighteen people had already died in the state by January 9, with the northeastern portion of the state the hardest hit.

Even as the US confronts the most severe flu epidemic in years, hospitals and health providers around the country have faced severe shortages of IV bags and the antiviral drug Tamiflu because of the destruction wrought last year by Hurricane Maria on Puerto Rico, which is a major center of pharmaceutical manufacturing.

“The problem is when you get a surge like this due to the number of flu cases and pneumonia, an increase in patient population, that’s where you got to watch because your allocation [in medical supplies] per month is higher this time of year due to the influx of patients with flu and pneumonia,” a hospital administrator told the *Newark Advocate*.

The shortage of badly needed supplies has forced hospitals to improvise. “We’re having to get more innovative in the way we deliver care as opposed to automatically doing the same things we always did every day,” one official told the *Canton Repository*.

One of the challenges in limiting flu outbreaks is the need to create new vaccines every year to combat the specific strains of the virus that are expected to be the most prevalent. The development of a vaccination against all strains of the flu, a so-called universal flu vaccine, would render this complicated process obsolete. While there are significant scientific challenges behind this project, it has been hampered by chronic government underfunding.

The federal National Institutes of Health (NIH) only committed \$30 million in funding out of an already

inadequate budget of \$230 million overall for the flu for the development of a universal vaccine last year. “Our budget has been relatively flat,” Anthony Fauci of the National Institute of Allergy and Infectious Diseases (NIAID) told CNBC, “and when we’ve gotten new money, it’s been earmarked for popular things, like the Cancer Moonshot, the BRAIN Initiative and Alzheimer’s disease. So, to get new money for universal flu vaccine, I’m probably going to have to shift priorities and take money away from other things.”

Fauci estimated the cost of developing such a vaccine, which could save tens of thousands of lives, to be hundreds of millions of dollars. This would be roughly on par with what the government spends on a single F-22 fighter jet.

The lack of government funding has placed the project at the mercy of both the private pharmaceutical industries and venture capitalists. “When we look at the vaccine area, this is not an area of high profits,” a researcher told PBS last year. “The industry has no appetite for that right now, unless there’s assurances of support throughout the process and there’s a market at the end of it.”

Stories today of healthy people dying quickly from the flu are eerily similar to those from the 1918 pandemic. Tandy Harmon, a 36-year-old mother of two, was put on life support within hours of being initially diagnosed with the flu and died within two days, in a case profiled by Fox News.

The possibility of many more such tragic deaths from a flu pandemic is a very real threat. As the *New Scientist* reports, researchers warn that just a few mutations in certain existing strains of influenza, such as bird flu, could create a “completely novel” pandemic virus to which most people have no immunity. “Virologists consider flu pandemics inevitable,” the magazine states.

One hundred years later, the US is not prepared for a flu pandemic on the scale of 1918. There are no coordinated government campaigns for the research and development of new flu vaccines. Vital medical supplies are produced by for-profit private entities. Researchers are handicapped by lack of government funding and the subordination of the entire health care system to private profit.

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