

## **Pandemic Influenza: Science, Economics, and Foreign Policy**

Symposium Rapporteur Report

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8:00 a.m. to 1:30 p.m.

Hosted by the Council on Foreign Relations and *Science Magazine*

As the H1N1 “swine flu” pandemic peaks in North America, having circulated widely in the southern hemisphere for several months, influenza is bringing frailties in the global health system and confusions in basic science and public health into sharp relief. In a half-day joint Council on Foreign Relations and *Science Magazine* symposium, “Pandemic Influenza: Science, Economics, and Foreign Policy,” experts found that profound uncertainty surrounds the biological and medical details of this novel virus. As a result, a consensus has yet to be reached regarding the best protocols for pandemic preparedness and response, both domestically and abroad. There is significant disagreement within the science community on the novelty and potential of the virus. There are also questions in the business sector over the pandemic’s effects on the workforce, supply chains, and trade, and possible mitigating measures to limit delays in globalized chains of production and distribution. These economic and scientific uncertainties in turn influence foreign policy decisions concerning vaccine purchase, distribution and access, forcing the United States to carefully consider the global signal it sends through its response to the pandemic.

**Laurie Garrett**, senior fellow for global health at the Council on Foreign Relations, said at the October 16, 2009 New York symposium that amid the array of unknowns surrounding the H1N1 virus, one certainty is that “this is a worldwide event and it is occurring in the dawn of our age of globalization.” Garrett added, “It’s a darn good thing we are dealing with a relatively mild flu this time, because clearly we are ill-prepared at this moment for a more virulent or more dangerous virus, either if this one takes on a more dangerous form...or if a second totally different virus does emerge.” **Helen Branswell** of the Toronto-based *Canadian Press* agreed: “We thought we were preparing for a more serious [bird flu H5N1] issue, but we are in fact not prepared for a mild one.”

It was the overarching consensus of the symposium, first forwarded in the gathering by *Financial Times* correspondent **Andrew Jack** of London, that the current pandemic must serve as “a teachable moment,” focusing expert attention on the inherent contradictions in global governance of health issues, inequities in world access to vaccines and medical

supplies, weaknesses in planning and management of epidemics with worldwide risks for economics and politics, and the public's respect for science and public health.

In August 2009, the White House issued its analysis of the pandemic, and cautions for preparedness, authored by the President's Council of Advisors on Science and Technology (PCAST), suggesting that the H1N1 virus return to North America in September. In a scenario offered by the PCAST as an illustrative example, not a firm prediction, the White House report suggested that the second wave of H1N1 should reach its peak in the United States during the second week in October, at roughly the same time as the Council symposium convened. Indeed, according to the U.S. Centers for Disease Control (CDC), by October 10, 2009 the H1N1 pandemic was causing illness and deaths in the United States at rates and in forms that are unprecedented for seasonal influenza. A CDC survey of 122 U.S. cities found that doctor visits were about six times the norm for mid-October; pneumonia deaths reached epidemic levels; the virus has killed eighty-six children (under eighteen years of age) and for the first time in recent American history there have been a significant number of hospitalizations and deaths among teenaged flu victims. Overall, the U.S. experienced about twice as many deaths due to H1N1 during the first two weeks of October as have occurred in previous seasonal influenza years. Though the PCAST scenario was not intended as a forecast of H1N1 activity, it did appear, as the symposium opened on October 16, 2009, that the White House science advisors had accurately assessed the arrival of the H1N1 second wave.

### **Session One: Science**

In order to better understand how the virus should be viewed by policymakers and the media, **Jon Cohen**, senior correspondent for *Science Magazine*, convened a panel of leading influenza scientific experts, questioning them about the scientific novelty of H1N1. While **Arnold S. Monto**, of the University of Michigan, saw the high and selective attack rates and mortality among children and teens as an indicator of the virus' unique character, **Peter Palese**, Chair of Microbiology at Mount Sinai, disagreed. H1N1 is not a virus to be feared, but rather, simply a fourth regular season influenza that has evolved from older strains, he contended. This evolutionary history of the virus explains the relative immunity of older populations, yet Palese insisted that a necessary shift in the research agenda must focus on why certain populations are more susceptible to not only transmission, but severe outbreaks. Palese, well known among his virology colleagues as an influenza skeptic, told the symposium that a finite number of flu viruses are in circulation, none of them having potential to become virulent pandemic threats, a view that is not unanimously shared among influenza virologists.

The reassortment of viral DNA and the genesis of a more severely pathogenic virus is a threatening possibility that has long been a concern among public health experts, particularly the possible combination of the highly virulent H5N1 ("bird flu") and H1N1. Monto, Palese and research professor at George Washington University, **Lone Simonsen**, all dismissed this extreme scenario, with Monto insisting that such speculation "really diverts us from what we should really be worrying about," that is, new resistance to drugs and inadequate infrastructure for vaccine distribution.

Because H1N1 is attacking young adults and children, often with puzzling ferocity, the PCAST warned that intensive care units (ICUs) nationwide would be overwhelmed this year, and indeed, that appears to be occurring, according to Dr. **Michael Osterholm**, director of the Center for Infectious Disease Research and Policy at the University of Minnesota: “In the state of Minnesota, for example, the average Minnesota hospital has about thirty-four days of money on-hand. . . . They don’t invest in anything right now that doesn’t have a payout in those first thirty days. We’ve stockpiled virtually nothing. We don’t have supplies out here that we could use in light of a surge need, and that’s a serious problem.”

Simonsen also questioned the administration’s surveillance capacity of a virus that affects a younger demographic given its bias towards monitoring influenza effects in elderly populations: “We don’t have a good picture of this specific phenomenon, that you have a clogging of the ICUs, that you have really a drain on the hospital system. None of the systems [are] capturing that right now and the CDC is building that right now.”

The panel discussed an alarming recent series of reports from Australia and New Zealand that detail the heroic measures used in those countries to save the lives of young adults and children (mean age, thirty-four years) suffering from severe H1N1 pneumonia, including Extra-Corporeal Membrane Oxygenation (ECMO), an expensive technology rarely used in the U.S. that acts as an artificial lung. Few U.S. hospitals have ECMO; no hospitals in developing countries, and few in emerging market nations possess such advanced technology.

Without a doubt, the best tool for saving lives and limiting spread of H1N1, the panel members agreed, is vaccination. But the bulk of H1N1 vaccines are only now reaching the states, and mass immunization is likely to unfold after the peak of the North American H1N1 epidemic has passed. Slow vaccine development, due to little investment in the vaccine growth process over the past fifty years, has been compounded by stifled distribution from weakened federal support for state public health systems. The result is a delayed response that begs for new technologies and strengthened systems if vaccines are to be effective and timely.

John Moore of Cornell-Weill Medical Center asked why scientists and public health leaders are finding it so difficult to counter the anti-vaccine movement, now promoted widely on the internet and by conservative radio talk show hosts like Rush Limbaugh. “After all,” Moore said, “there is less mercury in a flu shot than in a tuna sandwich,” though anti-vaccine activists claim that mercury-containing chemicals in vaccines cause a host of diseases, including autism.

## **Session Two: The Economics**

The effects of the pandemic on the global economy will play out in two major areas: the increased demand for pharmaceuticals and other services, and the “secondary exaggerated human effects” of absenteeism and missing links in the labor force, said **Yanzhong Huang**, director of the Center for Global Health Studies at Seton Hall University. Especially in an already fragile world economy, any minor disruption in the supply chains that produce medical materials and drugs, largely based in developing countries such as India and China, could have cascading effects on the economic response of the United States.

In a market economy, with limited supply but increasing demand for anti-viral medication, latex gloves, and masks, supplies are inevitably allocated to those who can pay for them, most often, the developed countries, leaving developing countries on their own, explained the panel's presider, **Robert Rubin**, former U.S. Secretary of the Treasury and Co-Chair of the Council on Foreign Relations. Rationing materials in an optimized way, in addition to its inherent risks, is further complicated by emotion and public perception, explained University of Minnesota's Dr. Osterholm, who warns that models will ultimately be meaningless if they do not consider the effects of media representation on consumer reaction: "What kills us, versus what really hurts us, versus what worries us, versus what panics us; they all seem really different here."

Rubin noted that the increased global interdependency of the current economy has changed the game for pandemic responses in the United States, leaving only one option: "If the United States, and the world global economy, is going to be moderately well-prepared for this, there has to be an enormous amount of planning and agreed-upon processes and regimen decisions *before* the [pandemic] hits."

Overall, the panel felt that U.S. preparedness for business and economic fallout—both domestically and internationally—was inadequate, and perhaps not best overseen by the Department of Homeland Security. Placing management directly within the White House would provide superior coordination and prioritization, Rubin insisted.

### **Session Three: Foreign Policy**

The fundamental foreign policy challenge posed by the H1N1 pandemic—and all infectious disease epidemics—is inequitable globalization, Moderator Garrett said: "We have globalized risk and threat today, but not globalized benefits. So the whole world shares the risk of pandemic influenza, but only a small percentage share vaccines, medicines and treatments."

In face of profound scientific and economic insecurities, important foreign policy decisions must be made by the United States to address the globalization of pandemic *protection* and benefits, as well as threat. Ambassador **John E. Lange**, of the Bill and Melinda Gates Foundation and former Special Representative on Avian and Pandemic Influenza for the State Department, said international coordination in response to the H5N1 pandemic of the 1990s paved the way for today's response to H1N1. Nevertheless, Lange said, little has been done to move towards a more institutionalized global response, due as much to a lack of political will as to strained resources, in spite of high expectations.

*Canadian Press'* Branswell doubted how feasible it will be for countries such as the United States and Canada to deliver on these expectations. At the heart of the debate is the issue of sovereignty, which may prevent states from carrying through with their agreements in the face of pandemic pressure, instead choosing to nationalize local supplies of vaccines, masks, protective gear and other medical supplies. Conversely, sovereignty has been invoked as the basis for refusing to share samples of dangerous flu viruses with WHO and international scientists, and for declining outside inspections of local outbreaks.

While recently the Obama administration brokered a deal among eleven wealthy nations to donate 10 percent of their vaccine supply of H1N1 to WHO for use in developing countries, Canada has not signed on, in an uncharacteristic decision that puzzled even Branswell. On the other hand, the Obama administration has refused the use of adjuvants, which are used in Europe, Canada and Japan to stretch out the antigen supply for wider global use, causing Lange to question the role of the United States as a true “global player.” Adjuvants help trigger the immune response, allowing dilution of precious flu antigens so that upwards of ten times as many people can be immunized with the same antigen supply. If the U.S. were using adjuvant in its H1N1 vaccines, the country could be in a position to offer sufficient surplus product to WHO to bring the agency’s supply for poor countries up by hundreds of millions of doses.

The public perception of swine flu has further complicated the issue, causing both public doubt and panic at the same time. Branswell fears that “the WHO has lost control of the message,” allowing misinformed threats, such as the current anti-vaccine hype, to resonate around the world as the scientific community races to catch up with the facts.

The last great flu pandemic of 1968 occurred in a deeply divided world, where entire regions of the planet were no-travel zones for billions of people. It was an era of telephones and posted mail, evening newscasts, and morning newspapers. Both viruses and information spread comparatively slowly.

Though today the vaccine methods of production and distribution mirror those practiced a half-century ago, the age of globalization has ushered in rapid human and animal travel, leading to worldwide spread of viruses. The internet has similarly opened the door to viral spread of disease truths, half-truths and outright lies. Thankfully, the mild H1N1 has offered the world community an opportunity to see these 21<sup>st</sup> Century challenges without simultaneously experiencing worst-case outcomes. It is a teachable moment, but it remains to be seen whether—on both global and local scales—governments, companies and individuals are learning.