

# Influenza Pandemic Simulation

Implications for the Public and Private Sectors

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**A simulation developed in collaboration with The World Economic Forum and Booz Allen Hamilton**

More than 30 CEOs and senior executives from leading corporations, private and public sector institutions, and governments gathered on January 26, 2006, at The World Economic Forum Annual Meeting to explore the implications of an influenza pandemic on global business. Given the numerous incidences of avian influenza infections today, there is growing consensus among health experts that the global community is increasingly at risk of a deadly influenza pandemic.

Faced with the full brunt of a pandemic, participants worked to overcome the challenges of workforce shortages, supply-chain disruptions, panic in the populace, and other critical issues. Key insights expressed by the simulation participants include:

- The world will shift from one “of equals” to “not all equal”
- Prioritization of essential services and employees will be required...
- ... accompanied by the orderly shutdown of nonessential services
- Telecommunications will likely be overwhelmed early in the pandemic
- Population will be directed to stay in their homes, but ...

- Governments will need to assume responsibility for the “last mile” in delivery of food and other supplies
- Governments will need to establish healthcare guidelines
- The recovered will need to fill the vacant essential jobs
- The media can play an important role in communicating actionable steps

### The Simulation

Booz Allen Hamilton partnered with the World Economic Forum to develop and conduct this strategic event with the following objectives:

- To understand the implications of pandemic influenza on businesses
- To create resource-allocation strategies
- To identify means to improve stakeholder communication and collaboration
- To develop next steps that organizations can take to improve their preparedness for—and response to—pandemic influenza

The simulation was designed to provide an opportunity for senior executives from leading private and public sector institutions to explore the implications of an influenza pandemic on the European continent. The participants—including CEOs, government ministers, and senior officials of the United Nations—were grouped in four teams representing key stakeholder

groups. The simulation was set in the midst of the pandemic, so the participants focused not on *if* it could happen, but *how they would deal with it* as it happened.

*The Scenario.* The simulation began on Day 28 of an influenza pandemic in Germany after first appearing in Eastern Europe 12 days before. The pandemic is now rapidly spreading across the region, and Germany, along with much of the Continent, has seen an almost complete halt in everyday life. Hospitals are inundated with the sick, the very sick, and the “worried well.” Businesses are reporting significant absentee rates, while school systems have been shut across the country for almost three weeks. Supply chains have been interrupted as truck drivers fell sick or refused to deliver their goods, afraid of putting themselves at risk. Food stores across the region have closed, unable to restock shelves. Hospitals are running out of basic medical supplies. States are bargaining for more anti-viral medicines with current inventories adequate for only a small percentage of the population—but the medicines are not working on everyone.

*The Simulation Structure.* Teams of participants representing Government, Healthcare, Businesses, and International Organizations were tasked to identify their priorities and address the pandemic in an interactive dialogue of two moves, each simulating several weeks into the future. In breakouts, teams took actions, questioned and collaborated with each other, and then in a plenary session, shared their strategies with all the participants. Each move was followed by feedback from United Nations pandemic experts and a Media representative to probe unresolved or unaddressed issues.

### The Response in the Simulation

Participants recognized that their world had changed—it was not business as usual, and the decisions they faced were both complex and morally difficult. Their key actions—and recommendations—follow.

The **Government** Team’s first priority was to keep the public calm while limiting travel to contain the disease. But the Government Team did not shut down airports or borders, unlike in most recent pandemic exercises, when the natural reaction was to close borders or quarantine. The Government believed that continuity

of transportation and logistics were critical to maintain essential operations. Next, given the shortages across the board in healthcare, the team faced tough choices to make in the allocation of treatment (anti-virals, hospital beds, respirators), and decided to assign first priority to health workers and security forces. As the pandemic progressed, the Government instituted martial law, allowed conscription of “recovered” (and other) individuals to augment healthcare and security workforces, and nationalized critical food and water supplies. The participants stated that proactive communications and information-sharing from the start would be essential to facilitate a successful response (with an implied need to protect and operate the communication infrastructure).

In reaction to these actions, the Media expressed several concerns to the Government Team:

- How would martial law affect general society? What ends would it achieve? How long would it go on?
- If the government directs everyone to stay at home, how do people get food? Other supplies?
- Given food shortages, will there be looting? How should the police react?
- What are you going to do about the vigilantes that might pop up? What about the black marketers?
- When will schools reopen?

Like Government, the **Healthcare** Team communicated guidance to the public and established priorities for treatment and medicine. Individuals with flu who were otherwise healthy were directed to stay home—while those with complications or serious preexisting conditions (e.g., diabetes) were directed to go to a hospital. In addition to the very sick, priorities for prevention and treatment were established for healthcare workers, medical supply/pharmaceutical manufacturer workers, and security forces (including police and firefighters). The lack of a rapid, accurate influenza diagnostics was a problem—though participants recognized that not everyone could be tested. Also, the shortage of healthcare facilities resulted in the designation of alternative treatment facilities at sites such as churches and schools. Like Government, Healthcare advocated doing whatever it

takes to deliver essential care as the pandemic runs its course, including: using “recovered” individuals (who have been in effect “vaccinated”) to backfill essential jobs; keeping the pressure on maximizing social distancing for containment; and (eventually) communicating declining influenza rates to bolster public confidence.

For the Healthcare Team, Media had these concerns:

- If you expect everyone to stay at home, how do they get healthcare such as anti-virals?
- What happens when counterfeit Tamiflu and masks hit the black market?
- Who is paying for all the extra healthcare? For first responders?
- What will happen to my pets? Will they be affected? How can I protect them?

The **Business** Team declared their first priority to be the protection of their employees and families with an acknowledgment that businesses would likely need to step up and provide essential employees with food and care. Their next challenge was to maintain essential business operations (e.g., provision with critical supplies and services). The flip side of this challenge was to decide what nonessential operations to shut down for the duration of the pandemic (i.e., “hibernate”), while at the same time securing their company’s critical data and files, and taking steps to protect their assets by making alternate safe investments (participants suggested gold). While Business did make plans for the eventual restart of their nonessential operations, they stated that they would wait for the OK from Government. Participants recognized that businesses in general lacked the means to deliver a common message to the public, as well as a clear coordination mechanism with Government. The Business Team defined the following as essential industries:

- defense industries
- entire food chain, from farm to fork
- entire medical supply and pharmaceutical chain
- telecommunications and communications
- transportation and logistics

Again, Media expressed some concerns—for the Business Team, these focused on:

- If borders are closed (or supply chains otherwise disrupted for months), how will you run your business?

And from an individual’s viewpoint:

- Will my employer pay me when the company shuts down its facilities during the pandemic?
- Can I take my money out of the bank? (If the stock market is going to crash/close for months, I want to have my money.)
- Will my life insurance costs cover my death? Will I be able to be buried properly? Or will this be considered “an act of God”?

The **International Organizations** Team stated that their primary goal in the pandemic will be to collect information, coordinate and prioritize the response, and harmonize communication—working directly *only* with the governments. Initially in the simulation, the International Organizations assumed that a country such as Germany would be “doing well” in dealing with the pandemic, that systems would not be collapsing. As a consequence, these Organizations reserved the bulk of their resources for (developing) countries that would likely be in greater need of the support. But as the pandemic progressed, the International Organizations—led by the World Health Organization, the United Nations, and the European Union—put a priority on securing and distributing food and medical supplies in Germany. These organizations then worked to secure humanitarian workers inside and outside the affected countries, and to enlist foreign militaries (if available) to support the response. In addition, the International Organizations would help in securing additional healthcare facilities and airlifts to bring in critical medical supplies.

### Insights Gained

In the simulation, participants faced difficult and complex choices as well as ethical dilemmas. They recognized—some for the first time—that in the midst of a pandemic “it’s a pretty bad picture,” as one participant remarked. Workforce shortages, supply-chain disruptions, and panic may overwhelm

both the private and public sectors if comprehensive contingency plans are not in place. Communications between sectors, as well as to the public, and leveraging the media will be critical to sustaining operations and maintaining any semblance of normalcy.

*Key insights expressed by the simulation participants, which need to be considered as government and business organizations work to improve their preparedness for a potential pandemic, include:*

Due to the extended nature of the pandemic and the resulting shortages, **the world may shift for its citizens from one “of equals” to “not all equal.”**

Prioritization of essential services and employees will be required (this prioritization scheme should be developed now). The **response must focus on maintaining the continuity of these essential services and individuals**. To do so, one must also identify and protect/provision the critical support functions for each essential service. Select protection of essential employees early on needs to be considered, a difficult situation compounded by the fact that not everyone can be protected.

Prioritization must be **accompanied by the orderly shutdown** (or “hibernation”) **of nonessential services**.

The telecommunication infrastructure will be severely strained and likely overwhelmed early in the pandemic (some experts opined that the Internet would shut down within two to four days of the outbreak). This implies that **government and businesses must coordinate and plan for the use of alternative communications channels**—telecommuting will not be a viable option. A prioritization scheme for the Internet will need to be put in place so that key organizations and individuals can access information and communicate actionable steps.

The government will likely direct the general population to stay in their homes, and to **minimize social contact**. However, when this is combined with the shutdown of nonessential services and widespread shortages, there is an implication that the **government may need to assume responsibility for the “last mile”** in delivery of food and other critical supplies to its populace (i.e., most felt it is unrealistic to tell the public to “just

stay home”). In addition, the government may need to assume **national control**, as in wartime, of critical infrastructure and resources including food, fuel, and healthcare.

The **government, as the trusted source, will need to establish and communicate guidelines** to the public for seeking healthcare—as well as priorities for application of **prevention and treatment** by the healthcare sector. Rules will need to be made for the consideration of the critically ill versus the less sick, as well as to resolve the tension between detection and triage. It will be imperative that these messages are communicated as one voice from government, business, and healthcare. Alternate facilities, such as schools and churches, will need to become hospitals. Prioritization of essential services and employees will need to be taken to the next level to ensure that doctors and nurses can function (i.e., how to get healthcare workers to keep working?).

**Conscription of the “recovered”** (now in effect “vaccinated”) will likely be necessary to fill vacant essential jobs. These individuals will probably require a minimal level of training to perform the critical functions.

Given the complex, difficult choices, the **government will need to drive the national-response strategy and engage all sectors early**—and ensure that the government and key agencies do not become incapacitated. Businesses in general do not know what to do—and the essential infrastructure and personnel are largely not yet defined. When considering actions, the government will need to ensure that the steps do not induce panic that will overwhelm the benefits to be gained. To these ends, participants recommended that a joint business-government task force should be established today to help businesses plan for and respond to a pandemic.

International organizations, as trusted sources of information and expertise, can “export” information from affected regions to the global community—and support message harmonization. Their expertise will be needed to deliver critical resources and infrastructure to supplement weakened/disabled functions, and balance the needs of countries like Germany versus the less prepared.

### “Ten Things I Learned”

At the conclusion of the simulation, Dr. David Nabarro, U.N. System Coordinator for Avian and Human Influenza, stated, “Here are ten things that I learned.”

1. The response needs to be both strategic and opportunistic.
2. Emphasis has to be as much on the people as on the virus.
3. Quite likely by Day 28 all systems will have fallen apart—we need a plan to improve infrastructure to support the response.
4. Engaging business from the start is not a luxury—it is essential and perhaps the most important factor of all.
5. Media is an essential part of the response and you need to learn to work with them.
6. Encourage joint work by government, business, and community organizations at all levels.
7. Martial law is not an end but a means, and you need to understand the end state you are working toward when using it—people are precious—martial law should be used to protect the people.
8. We need to define a pandemic state and how business and government will work in that state—must do this now.
9. “Flu-casters”—need a dashboard to track flu statistics and progress around the world.
10. Military must be involved in the response to help keep the peace and deliver essential goods and services.

The **media can play an important role in communicating actionable steps** from the government and businesses to the public and employees. People will want to know what is happening—and “flu-casters” (a term coined by Dr. David Nabarro to denote media broadcasters that would continuously update the public on the pandemic and response) can help calm and assure the public that progress is being made. Government and business need to work with the media in advance of the crisis, and help **prepare the media to make them part of the solution** in communicating actionable steps to the public as well as managing concerns and mitigating panic.

### Final Thoughts

This Influenza Pandemic Simulation was staged—with the fervent hope that an influenza pandemic will never

occur—to raise the level of awareness across all participants so that all sectors will be more prepared to respond should a real pandemic occur.

The economic, health, and social consequences of an influenza pandemic could be devastating if effective and coordinated preparedness activities and timely response actions are not undertaken. Governments and businesses will face tough, practical, moral, and ethical decisions as they enter a world where not all sections of society are equal, where infrastructure is debilitated, and where irresponsible behavior may emerge as a consequence.

Participants urged all sectors to develop contingency plans today that go beyond the typical disaster response to focus on how to respond when the entire fabric of society and the economy falls apart.

## Influenza Pandemic

Originating in birds, the H5N1 virus has been targeted by health experts as the most likely influenza strain to trigger a new pandemic. A pandemic can occur when a new subtype of influenza, previously circulated only among animals, is introduced to humans. In the case of H5N1, the virus would first have to mutate to allow human-to-human transference. The H5N1 strain of avian influenza has caused the largest and most severe outbreaks in poultry on record. International health organizations have been monitoring the strain for the past eight years.

Pandemics are a recurring event, with three in the past century. The 1957 and 1968 pandemics killed two million and one million people respectively. The most severe pandemic was in 1918, which killed 50 to 100 million worldwide, nearly half of whom were between 20 and 40 years old.

When an avian influenza virus has mutated to allow human-to-human transmission, the virus would spread like a “normal” flu, through infected persons coughing or sneezing around uninfected persons. Symptoms follow normal flu as well (fever, sore throat, muscle aches) with the additional increasing likelihood of breathing problems and pneumonia. Seasonal flu tends to affect older people and young children; a pandemic flu historically impacts healthy adults more. Incubation period is unclear, but victims would likely be contagious for a day before and up to five days after presenting symptoms.

There is currently no vaccine for the human flu that could develop from H5N1; a vaccine cannot be developed for a new human-to-human flu strain until it exists. Vaccine development would take three to six months. Production facilities do not have the ability to produce enough vaccine for the world’s population. Current treatment methods have used some of the anti-viral medications already on the market to some degree of success.

Source: World Health Organization, Centers for Disease Control

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