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## The Pandemic Experience

*“The point isn’t the exact number. The point is: imagine a lot of people ill in a very short space of time. More than you’ve ever seen. And whether it’s 7 million or 70 million who die, that’s not going to be the entire experience of the next pandemic flu. There’ll be sick people. There’ll be people requiring medical care. There’ll be people requiring hospital beds.”*  
 – Martin Metzger, CDC Disease Surveillance Center



## Introduction

For several years public health officials have been sounding the alarm that the world is on the brink of an influenza pandemic. Global flu pandemics typically occur every 20 to 30 years, when a flu virus naturally mutates into a more virulent form. As of 2005, the world is several years overdue. According to Klaus Stohr of the World Health Organization’s Global Influenza program: “There is no doubt there will be another pandemic. Even with the best-case scenario, the most optimistic scenario, the pandemic will cause a public health emergency which will put the range of [global] deaths in the range of two and seven million.”<sup>1</sup> Even at the low end of that spectrum, such a pandemic would affect consumer life everywhere. At the high end it could cause severe economic and social disruption.

## The Looming Threat

Despite recent medical advances, flu viruses remain a challenge for the healthcare system. Vaccines are the best defense against a new virus, but they can only be developed once a strain has emerged. New vaccines can take months to develop, and global vaccine production capacity is limited. Additionally, rapidly growing air travel provides new a new way for flu viruses to quickly spread around the world.

### Past Pandemics

Prior pandemics have varied in their impact. The last two global flu pandemics—occurring in 1968–69 and 1957– 58—were relatively mild. The 1968 pandemic killed nearly 1 million people globally, including 40,000 in the United States. These are close to the numbers of a typical flu

season.<sup>2</sup> In contrast, the “Spanish flu” pandemic of 1917–19 had a much more severe global impact.<sup>3</sup> It carried a death rate as high as 2.5%, 25 times higher than the typical flu death rate of approximately 0.1%.<sup>4</sup> This led to an estimated 500,000 deaths in the United States and 20– 50 million deaths worldwide.<sup>5</sup> In an unusual pattern for a flu, 20- to 40-year-olds died at the highest rates, and the virus could kill within hours of the first symptoms.<sup>6</sup>

### **The Next Threat**

Public health officials are concerned that an Asian strain of avian flu (H5N1) is on the threshold of evolving into the next pandemic flu strain.<sup>7</sup> By March 2005, avian flu had killed dozens of people in Southeast Asia and triggered the preventive destruction of poultry flocks in China, Vietnam, and Thailand. This avian flu has several characteristics that make it particularly worrying to public health officials:

- **Lethality**—The cases of avian flu that have emerged to date have been surprisingly deadly. Initial deaths led to a calculated death rate as high as 75%. However, as more cases—and more survivors—have been identified, death rate estimates have been dropping, though they remain far higher than those for the Spanish flu.<sup>8</sup>
- **Human-to-human transmission**—To date, known avian flu victims contracted the disease through close proximity to diseased poultry. While there is no confirmed evidence that the disease can spread from person to person, health officials are concerned that that it could evolve in that direction.<sup>9</sup> Even if this particular strain of avian flu does not cross species lines to humans, it is highly likely that some other dangerous strain eventually will.

### **Pandemic responses**

Warnings from the global public health establishment have led to preparations in anticipation of a pandemic flu:

- Fifty countries have developed national plans for dealing with a flu pandemic, although these vary widely in detail and quality.<sup>11</sup>
- Countries are accumulating expensive antiviral medicines such as TamiFlu, which can reduce symptoms and act as a prophylactic against the known strains of avian flu. However, there is no guarantee that Tamiflu would be effective against a new strain of the avian flu virus.<sup>12</sup> Antivirals are not vaccines, but can help boost immune system response to fight viruses.

- An experimental vaccine for avian flu is currently undergoing clinical trials, but it is not known how much protection the vaccine will provide.<sup>13</sup> Despite this uncertainty, the United States has already contracted for the manufacture of 2 million doses.<sup>14</sup>
- Twelve companies have announced to the World Health Organization (WHO) their interest in producing a pandemic flu vaccine.<sup>15</sup> However, global vaccine production capacity currently stands at 300 million doses per year, with an additional surge capacity of 200 million doses.<sup>16</sup> This level of production might be adequate for meeting demand during the annual flu season, but would fall far short during a flu pandemic. In addition, development of a vaccine to target the specific flu strain causing the pandemic would take months, and full global vaccine immunization would take years.

## Potential Pandemic Scenarios

The lethality and transmissibility of a pandemic flu virus—and the inevitable constraints on resources to respond to a threat—play important roles in defining how a future pandemic could unfold. While it is impossible to forecast exactly when the next pandemic will occur, or the extent of its impact, it is possible to outline alternative courses. The two hypothetical scenarios that follow depict a relatively mild pandemic and a moderately severe pandemic, and their impacts on consumers.

### Scenario 1: The next “mild” pandemic

In the wake of the Indian Ocean tsunami of December 2004, public health resources in Thailand were stretched to capacity and most of the budget was spent dealing with the aftermath of the disaster. Focus was diverted towards more immediate problems, diminishing the capacity for longer-range programs like flu surveillance. When the first case of an easily transmissible avian flu aroused suspicion in a Bangkok clinic, flu outbreaks were already occurring in other quarters of the city. By the time the disease was identified, cases were cropping up in Europe and Japan, and spreading in Laos. The good news was that the flu virus was only a little more lethal than those in a routine severe-flu season, and not the deadlier version that had been feared. Still, as the avian flu spread through East and South Asia, then globally, suffering was heavy as hundreds of millions of people became ill.

#### Coordinated responses

Vaccine production and dissemination plans went into effect worldwide, with World 1 countries pledging contributions of vaccine doses to threatened World 2 and 3 countries. One fortuitous circumstance was the timing of the pandemic—by hitting later in the winter, it gave many

countries months to prepare vaccine supplies before the next winter's flu season. Nevertheless, by the time the pandemic had run its course its impact was nearly twice as severe as a typical flu season. About 15% of the world's population became infected, with a global death toll estimated at 2 million. The United States saw 89,000 deaths, 314,000 hospitalizations, and 18 million inpatient visits.<sup>18</sup>

### **Consumer impacts**

- **Reduced tourism**—Despite the relatively low degree of severity, lingering public apprehension about high infection rates caused tourism to World 2 to decline. Tourism declines were most pronounced in Asian countries.
- **E-commerce surge**—E-commerce companies got a surge of business as some consumers sought to avoid exposure. During the Christmas season, many people chose to shop online, leading to dismal holiday sales figures for traditional brick-and-mortar retailers.
- **Restaurants and other public spaces lose business**—A variety of public places including restaurants, bars, movie theaters, and health clubs saw reduced usage during the height of the pandemic. More meals were consumed in the home. Fast-food establishments saw a shift in business from dine-in to drive-through eating.
- **Workplaces largely unaffected**—The relative mildness of the flu pandemic led to minor impacts on work and commuting patterns. People carried on with earning their paychecks, getting done what needed to be done. Telecommuting did increase in World 1. But it was mostly in their personal time that people modified their behavior.
- **Medical system stress**—Despite the relatively mild pandemic, health systems were stretched to the maximum as patients filled the limited numbers of empty beds. The pandemic led to 18 million inpatient visits in the United States alone. Elective medical procedures were curbed to free up more health resources for flu treatment and prevention.
- **Preventive health focus**—Some consumer health products enjoyed a surge of interest. These included nutritional supplements to enhance the immune system, nutraceuticals, and antibacterial products.
- **Academic disruptions**—Many schools and colleges were hit hard by the flu. The close quarters of the school environment facilitated spread of the disease. A handful of colleges closed early

for the year, after a significant portion of students fell ill. However, most schools were able to carry on with only minor disruptions.

- Economic costs—Global economic costs of the pandemic reached hundreds of billions of dollars. In the United States, direct and indirect economic costs reached \$72 billion.

## **Scenario 2: A moderately severe pandemic**

The first outbreak of pandemic avian flu occurred in Vietnam, although that would not be known to health authorities until weeks later. By the time the new strain of avian flu had been identified by local doctors and the WHO was informed, the disease had spread to Hong Kong and southern China. Once in Hong Kong, the disease spread rapidly via air travelers, showing up in Paris, Tokyo, London, Sydney, Los Angeles, and Toronto within days. This mutation of the avian flu had a lethality rate of only 0.5%, about five times that of a standard flu, but it turned out to be highly transmissible. Flu victims could begin infecting others within two days of exposure, and the flu was difficult to identify as it often exhibited symptoms similar to those of the common cold or standard flu. As a result, disease surveillance was hindered, and the virus was able to spread rapidly.

### **Rationing resources**

The experimental avian flu vaccine turned out to be ineffective against this new virus, increasing the risks to medical personnel. Strategies for deploying limited stocks of Tamiflu varied among countries. Some countries chose to focus on targeting geographical areas to contain outbreaks, while others chose to target healthcare staff and other critical workers such as air traffic controllers. These health rationing decisions led to public fear and outrage, since they left the majority of people with no immediate form of protection.

The pandemic tore through entire counties, infecting up to 35% percent of the population.<sup>21</sup> This infection rate was even higher than that for the Spanish flu of 1917–19, but the death rate was lower, resulting in fewer casualties. It would take months for a working avian flu vaccine to be developed, and years to fully inoculate the public. People reacted by attempting to minimize contact with others; in some areas this was encouraged by public authorities through bans on travel and assembly.

Relations between World 1 and World 2 nations were strained, with World 1 countries allocating most of their national vaccine production to protecting their own populations. Health systems overwhelmed National health systems were overloaded by the massive number of

patients needing medical care. The United States alone saw 750,000 hospitalizations and 200,000 deaths.<sup>22</sup> When hospitals in World 1 hit capacity, physicians resorted to using temporary clinics in gymnasiums and other public buildings, tending to patients as they lay ill on cots. In World 2, harsher triage measures were put in place, with many of the ill forced to rely on minimal medical treatment plus familial care. In World 3, the disease preyed on the malnourished and infirm and care delivery was limited mostly to elites. With global health resources stretched to capacity, little surplus was available for alleviating the problems of poorer countries. By the end of the pandemic the global death toll stood at 15 million.

### **Consumer impacts**

- **Panic buying**—Consumers engaged in hoarding and panic buying once the threat of the pandemic became clear. This led to many localized and temporary shortages of food, fuel, and other necessities. Consumers were increasingly likely to shop for several weeks' worth of food in one trip.
- **Economic disruption**—Public fear led to widespread economic disruptions. Worker absenteeism became chronic, with workers staying home because of illness, the need to care for family, or fear of exposure. Personnel shortages forced many companies to operate with skeleton staffs, cut back on hours, or in some cases impose temporary layoffs.
- **Cocooning**—Consumers walled themselves off at home and were less willing to shop and travel for fun. This increased interest in TV, DVDs, online games, and virtual environments as forms of entertainment. While virtual entertainments thrived, other sectors of the entertainment industry suffered. In some areas, sporting events, concerts, and movies were temporarily canceled by local health authorities to help control the spread of the disease.
- **Deep tourism decline**—Leisure travel was dramatically reduced by the pandemic. World 1 travelers were unwilling to travel abroad, where they might risk infection and exposure to substandard care. Many destinations and hotels teetered on the edge of bankruptcy until flu vaccine stocks began to be distributed, and the inoculated could travel safely. Las Vegas' gambling industry lobbied to expand its online presence to make up for severe losses.
- **Business travel decline**—Business travelers also cut back on travel where possible. Attendance at business conferences declined dramatically. Many salesmen relied on phone contact instead of face-to-face meetings. Videoconferencing for meetings surged in popularity, and companies pushed their business activities towards greater virtualization.

- New delivery options—Fear of exposure while shopping increased consumer demand for delivery services. E-commerce vendors' business surged, and they established relationships with many new customers. Supermarkets and retailers increasingly offered premium home delivery services. Many restaurants, suffering from a sharp decline in business, ramped up delivery options.
- Telecommuting—Many companies were forced to adopt more flexible telecommuting policies, due to anxious staff and the very real need of workers staying home to take care of sick family members. Broadband Internet usage and interest in Web collaboration tools surged and many organizations reorganized operations for a distributed virtual workforce.

## Business Implications

- A pandemic is almost inevitable, but there is no way for anyone to know whether it will have a dramatic global impact or be more in line with recent levels. Companies would be well-served to formulate contingency plans for operating in potential pandemic environments like those described above, identifying their critical decision points to allow continuity of internal operations and customer service/ interaction.
- Companies that could be impacted by panic buying should closely monitor potential development of a flu pandemic. Public fear may strike in the early stages of a pandemic, before the facts about its true threat become clear. Early warning of a developing flu pandemic could give companies sufficient lead time to boost inventories in stores and warehouses.
- Companies that provide critical services during crises (e.g., food, healthcare, transportation, energy) should prepare plans for operation during a pandemic. These should include options for new business patterns to meet the needs of consumers during a pandemic. Home delivery services, extended hours, and ecommerce options could all help maintain customer service. Retailers with convenience options such as drive-through may already have viable alternative systems in place.
- Manufacturers of healthcare products would see a surge in demand during a pandemic. Latex gloves, masks, disinfectants, and HEPA air filters would all see a buying spike. Companies in this sector should consider developing contingency plans for such a surge, working with suppliers to coordinate a possible ramp up in production. To a lesser extent, the manufacturers of nutraceuticals, herbal medicines, and nutritional supplements could also see heightened consumer interest.

- Pharmaceutical companies would have a golden opportunity to build consumer goodwill through their manufacture of a lifesaving protective vaccine. Pharma companies may wish to consider industry and government partnerships to better work with health officials towards an efficient and equitable process for vaccine dissemination.

## What's Next?

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**US: +1 303 709 3157**

**RoW: +44 1904 435190**

[info@cognisgroup.com](mailto:info@cognisgroup.com)

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