**Session No. 544**

# Business Continuity: Minimizing the Risks from a Pandemic

**Deborah R. Roy, MPH, RN, COHN-S, CET, CSP**
**Director of Health, Safety and Wellness**
**L.L.Bean, Inc.**
**Freeport, ME**

## Introduction

In March of 2009, Mexican authorities begin to realize an increase in "influenza-like-illness." On April 12, a 39-year old woman suffering from an acute respiratory illness dies after five days of hospital treatment, and another death occurs at the same hospital a few days later. On April 23, U.S. public health officials announce that seven people in California and Texas have been diagnosed with, and are recovering from, a flu virus known as H1N1. At this point, it is unclear whether the U.S. and Mexican cases are related.

On Sunday, April 26, the U.S. declares a health emergency after the confirmation of 20 cases, including eight students in New York who had traveled to Mexico. Alerts are sent by the National Safety Council (NSC) and the U.S. Centers for Disease Control and Prevention (CDC) to the smart phones of any employer representative in their networks. The next day, the World Health Organization (WHO) raises the pandemic alert level from 3 to 4 on a scale of 6 (see Appendix A), meaning verified human-to-human spread of a virus that is able to cause "community-level-outbreaks." Phase 4 signals a "significant increase in risk of a pandemic". Many U.S.-based corporations start reviewing their written business continuity plans. Most of these plans were written or revised a few years before, based on the threat of Avian Influenza in Asia or threat of a terrorism event such as Anthrax after 9/11, not Influenza A virus, then called Swine Flu.

By April 29, the first confirmed H1N1 death in the U.S. is a 23-month old Mexican toddler in Texas. The virus has spread to five continents in the world, including a case in Spain of a person who had not been to Mexico. WHO declares Phase 5, which means that person-to-person spread is into at least two countries in one WHO region. This is a signal that a pandemic is

imminent, and time to finalize plans is short. U.S.-based companies start to restrict travel to Mexico, and put other procedures in place to protect their employees.

On May 1, the WHO announces it has "no doubt" that a successful vaccine against the swine flu virus could be developed within the next six months. Most of the sustained spread of H1N1 is in North America at this point. Two days later, on May 3, WHO decides to deploy stockpiles of the anti-viral drug Oseltamivir (TAMIFLU) to 72 of the least developed countries. The swine flu virus, now known as novel H1N1, continues to spread throughout the world with more than 40 countries reporting cases and some deaths. On June 11, the WHO declares Phase 6, "the start of the 2009 influenza pandemic" (WHO Chronology of Influenza A (H1N1). A disease epidemic occurs when there are more cases of that disease than normal. A pandemic is a worldwide epidemic of a disease.

The purpose of this paper is to provide safety and health professionals with an overview of the course of the virus so far, and practical lessons learned from the trenches of the pandemic response team. Details will include a framework for updating business continuity plans to include a more realistic pandemic response, and strategies for minimizing the risk of pandemic in the workplace. These strategies comprise the use of vaccines and anti-viral medications, personal hygiene, and social distancing.

## Course of the Virus

We are now well into 2010 and remain at pandemic Phase 6. In the U.S., the typical bell curve of winter flu cases has occurred since the early fall of 2009. In most states, only small numbers of H1N1 cases are still occurring, if any. Deaths did occur, but not the number expected, based on the Spanish flu pandemic that, during 1918-1919, caused an estimated 40 to 50 million deaths worldwide.

As of March 7, 2010, WHO says that worldwide, more than 213 countries and overseas territories or communities have reported laboratory-confirmed cases of pandemic influenza H1N1 2009, including at least 16,713 deaths. H1N1 has led to nearly 260,000 hospitalizations and approximately 12,000 deaths in the United States (February 22, 2010 Flu.gov). The most active areas of pandemic influenza transmission are currently in Southeast Asia; however, lower levels of pandemic virus circulation persist in other parts of Asia and in Eastern and Southeastern Europe. In West Africa, limited data suggests that pandemic influenza virus transmission may be increasing in region. Seasonal influenza B viruses have been increasingly detected in Asia and now appear to be spreading westward (WHO Update 91, March 12, 2010).

H1N1 is expected to continue to circulate in some form for many years to come. The illness has not been as severe as expected but has impacted more children, young adults, and pregnant women than a typical seasonal flu. The characteristic symptoms are: fever, cough, sore throat, runny or stuffy nose, body aches, headaches, and chills. The normal course of the disease is three to seven days, with individuals who have underlying medical conditions, such as asthma,

being ill much longer. Seventy percent of those hospitalized have one or more underlying conditions, such as pregnancy, diabetes, heart disease, asthma, and kidney disease.

Most people recovered at home with the use of fever-reducing medication and rest. The U.S. CDC recommends prompt treatment (within 48 hours) for persons with suspected or confirmed H1N1 influenza, if they meet the following criteria:

1. Illness requiring hospitalization;
2. Progressive, severe, or complicated illness, regardless of previous health status; and/or
3. Patients at risk for severe disease.

Oseltamivir (TAMIFLU) and Zanamivir (RELENZA) have shown to be effective in treating the 2009 H1N1 flu. In addition, PERAMIVIR IV, has been authorized under an Emergency Use Authorization (EUA) in the U.S. to treat certain patients with suspected or confirmed 2009 H1N1 influenza virus infection. Although some small clusters of hospitalized patients have been found to have H1N1 virus that is resistant to Oseltamivir (TAMIFLU), the U.S. CDC does not believe that a drug-resistant form of the flu is circulating in the population. This means that treatment with anti-virals is still a good idea to limit the duration and severity of the illness. Anti-virals should not routinely be used for prevention, since the protection is only afforded while taking the medication.

Vaccines are considered the best option for prevention but they take time to produce and distribute. Although vaccines did start to be distributed by the U.S. government in October of 2009 (within the WHO-predicted timeframe), the quantity of vaccine doses was much smaller than expected, due to manufacturing and logistic challenges. Doses for high-risk individuals were allocated and distributed to U.S. states on a population basis, not based on the number of high-risk population or the course of the H1N1 spread. This was further complicated by the need for children under 10 to receive two doses, one month apart. Consequently, the H1N1 flu activity was peaking in much of the U.S. in late October, just as the vaccine was becoming available for the high-risk population (U.S. CDC Flu Estimates). Flu activity peaked later in November for many of the northern U.S. states, and the vaccine was becoming more available to the high-risk population by then. Vaccine was not available to the general public in most states until December of 2009. By that point, many people either had had the virus or chose not to be vaccinated. H1N1 vaccine is now readily available throughout the U.S. The U.S. CDC conducted the National 2009 H1N1 Flu Survey during December 6-12, 2009. Results of the survey showed that an estimated 46 million people (15.3% of the population) had been vaccinated against 2009 H1N1 flu. This represents 28 million adults (13%) and 18 million children (24%) who had received the vaccine. The amount of vaccine that had been shipped to providers at the time the survey was conducted was enough to vaccinate about 21% of the U.S. population. Therefore, almost 3 out of 4 shipped doses had been administered (U.S. CDC December 22, 2009).

On February 22, 2010, the U.S. Food and Drug Administration announced that the 2009 H1N1 strain will be included in the seasonal flu vaccine for 2010-2011. The WHO made the

same recommendation. So, seasonal flu vaccine will have two strains of Influenza A (H1N1 and H3N2) and one of Influenza B. On February 24, 2010, the U.S. CDC announced an expansion of the recommendation for annual influenza vaccination to include all people aged 6 months and older. Historically, uptake of seasonal influenza vaccine has been less than half of the number of persons with a specific recommendation for vaccination. It remains to be seen if the broad recommendation of seasonal flu vaccine for all will translate into higher uptake of vaccine during the 2010-2011 flu season.

## Updating Business Continuity Plans

Many companies found when they reviewed their business continuity plans in the spring of 2009 (even if they did include pandemic response), they were facing a different scenario. Pandemic planning in the U.S. had been focused for the last several years on the threat of Avian influenza (H5N1) arriving from Asia. Planning and response strategies were elevated according to the WHO's six pandemic phases. This means that U.S. companies without global operations typically focused on how to obtain product from other regions of the world who were not affected by Avian influenza, minimize or eliminate employee travel to impacted regions, and keep vendors from visiting the U.S. operations. Those with global operations may also have stockpiled anti-virals in likely threat areas, and developed plans to divert production to different regions of the world. These concepts remain sound, but some flaws began to be detected when we faced a different virus, with a lesser severity, that began in North America.

First, the WHO Phases are intended to allow for preparededness and response to a potential pandemic. Phases 1-3 involve capacity development and response planning activities. Phases 4-6 signal the need for response and mitigation efforts. The original phase information from WHO and guidance from the U.S. CDC always assumed a high level of severity and human-to-human transmission. So, business response plans often assumed a high degree of containment was needed, resulting in more extreme social distancing, such as shutting down operations to keep sick people from transmitting the virus to critical staff, and minimizing all expenses to preserve cash in case of an interruption to the revenue stream.

Second, the H1N1 outbreak began in North America. By the time Phase 4 was announced by WHO on April 27, 2009, the U.S. already had at least 20 cases of swine flu, including vacationers to Mexico who had started to transmit the virus to other people in several states. Two days later on April 29, WHO declared Phase 5, and started to refer to the disease as New Influenza A (H1N1), but by now there were cases on five of the continents in the world. The plan to limit employee travel may be appropriate very early in an outbreak, but limiting business travel even to Mexico in the case of H1N1 was not effective after a week or so. Containment in Mexico itself was too late to protect the rest of the world. The eventual shutdown of schools, universities, theatres, and museums in Mexico City did serve to reduce the transmission of the disease to some extent. It also created the awareness of the need isolate those who were sick.

Lastly, the 2009 H1N1 virus typically impacted only about 10% of a given workplace over the course of the wave, in addition to children of employees and family members. Many of those

impacted were younger employees. Most of the deaths were in 18- to 64-year-olds. CDC estimates only 12,000 deaths occurred out of 59 million H1N1 cases in the U.S. Quarantine of entire households turned out not to be necessary since parents of a sick child often did not become ill themselves. Personal hygiene messages and sending employees home as soon as they became ill became the norm. Early on, it was unclear how long sick employees needed to stay home. The CDC guidance was initially at least seven days, and then it later reduced to 24 hours after being fever free without fever-reducing medication. Some workplaces did not have soap and water readily available to all employees. Alcohol-based hand sanitizer was difficult to purchase early on due to high demand. The U.S. CDC provided regular information to employers on mass conference calls and on their website. Vaccine eventually became available but not until the peak flu activity was over in many parts of the U.S.

The purpose of a pandemic plan is to: (a) reduce transmission among staff, (b) protect people who are at higher risk for complications from getting infected with flu, (c) maintain business operations, and (d) minimize adverse effects on other entities in their supply chains. These purposes have not changed. What has been learned by the H1N1 pandemic is that employers should expect to see a wide range of disease patterns across the country and the world. Business strategies and response to flu outbreaks should be based on local information from local and state public health authorities. Some of the key indicators that should be used when making decisions on appropriate responses are:

- Disease severity (i.e., hospitalization and death rates) in the community where business is located;
- Extent of disease (number of people who are sick) in the community;
- Impact of disease on workforce populations that are vulnerable and at higher risk for flu complications (e.g., pregnant women, and employees with certain chronic medical conditions that put them at increased risk for complications of flu); and
- Other factors that may affect employees' ability to get to work, such as school dismissals or early childhood program closures due to high levels of absenteeism or illness.

Employers with more than one business location are encouraged to provide local managers with the authority to take appropriate actions outlined in their business pandemic plan based on the condition in each locality. See "Guidance for Businesses and Employers To Plan and Respond to the 2009 – 2010 Influenza Season" from U.S. CDC. An excerpt from that document "Important Components of a Flu Pandemic Plan" is reproduced in Appendix B.

## Strategies for Minimizing the Risk of Pandemic in the Workplace

The most important single strategy during the 2009 H1N1 pandemic was enhanced personal hygiene. The emphasis on respiratory etiquette and hand hygiene by both people who are well and those who have any symptoms of flu will minimize the spread. Hygiene communications can include posters, memos or intranet stories. Have soap and water readily available or alcohol-based sanitizer in areas without running water. Tissues and no-touch trash receptacles need to be

available for use by employees and visitors. Additional environmental cleaning of high-touch areas, such as doorknobs, keyboards, desks, railings, and so on, should occur but no disinfection is needed. Establish a process to communicate information to employees and business partners on your 2009 H1N1 flu pandemic plans and latest 2009 H1N1 flu information. This may be accomplished through a widget or button on the company home page. Anticipate employee fear, anxiety, rumors, and misinformation, and plan communications accordingly.

## Social Distancing

Another lesson learned is that the most important social distancing strategy is to keep sick people out of the workplace until they are well and less likely to spread the virus. In order to carry this out, employees need to know what symptoms constitute the flu, and supervisors/managers need to send people home who show up at work sick. Employers need to allow sick employees to stay home without fear of losing their jobs; develop other flexible leave policies to allow employees to stay home to care for sick family members or for children if schools dismiss students or early childhood programs close; and share the company flu pandemic plan with employees, and explain what human resources policies, workplace and leave flexibilities, and pay and benefits will be available to them. Keep in mind that it will be important to know what the normal absentee rates are, and be able to compare absenteeism due to pandemic flu. This may require a system that does not already exist at your company.

Social distancing, as defined in most pandemic plans, should be implemented only if flu severity increases, and local public health officials recommend that employers implement measures to increase the physical distance between people in the workplace to reduce the spread of flu. The goal in that case should be for at least six feet of distance between people at most times. This is not a simple or easy strategy and would typically require considerable flexibility. These measures may include avoiding crowded work settings, canceling business-related, face-to-face meetings, spacing employees farther apart, canceling non-essential travel, increasing use of teleworking, and using staggered shifts to allow fewer employees to be in the workplace at the same time. If appropriate and feasible for your type of business, review or develop policies for teleworking, including an assessment of the capabilities and gaps of your current computer systems and availability of technical support. Take remedial steps if needed, and test your system in advance to assure it can handle an increase in remote users.

## Vaccines

The number one employer strategy recommended by the CDC now is to encourage vaccination against the flu. The CDC message is: “The best way to protect against the flu–seasonal or 2009 H1N1–is to get vaccinated.” Since the seasonal flu vaccine in 2010-2011 will include protection against the 2009 H1N1virus, encourage your employees to get vaccinated for seasonal flu. Offer opportunities at your worksite for flu vaccination. Employer-paid flu vaccine clinics offered at the worksite result in much higher levels of vaccination due the increase in convenience (even if immunizations at a healthcare provider are covered at 100% by the health plan). Workplaces with occupational health nurses can often provide vaccine in a cost-effective way. Consider

granting employees time off from work to get vaccinated if not offered at the worksite. Review the health benefits you offer employees and work with insurers to explore if they can cover the costs of flu vaccination.

## Anti-virals

The stockpiling of anti-viral medications was considered a major pandemic strategy for many employers and public health agencies in response to Avian Influenza. Drug companies and others even offered to provide storage services for a fee. Although this remains a U.S. CDC and WHO strategy, and it may be an appropriate prevention strategy for critical infrastructure employers, it was not of value to the average employer in the case of H1N1. Most people recovered from H1N1 in a week without treatment with anti-virals. Since household spread was not severe, most family members of those who were sick did not need to take anti-virals as a preventive measure, unless they were in a high-risk group.

Some community-based pharmacies did run out of anti-virals early on in the H1N1 outbreak, but hospitals typically had access to the U.S. CDC stockpile through a state or local public health agency. Anti-virals are effective as treatment if received quickly after symptoms occur. This will remain a pandemic treatment strategy as long as a virus does not mutate and become resistant to the drugs.

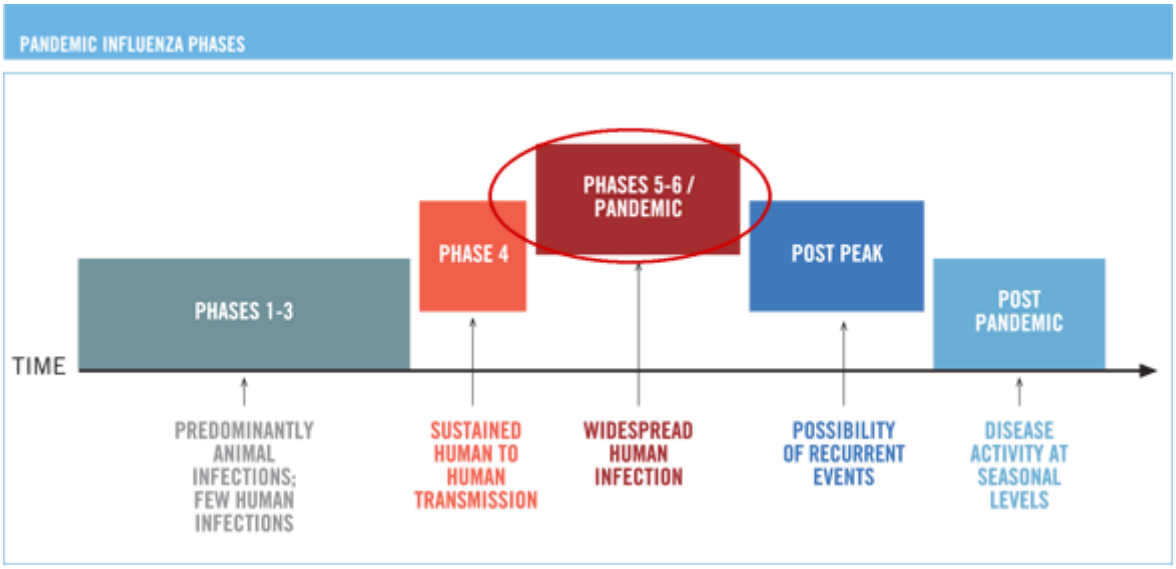
## Conclusion

The 2009 H1N1 pandemic has allowed employers to exercise their pandemic plans. This exercise has elucidated some flaws in those plans, since they were typically based on an outbreak of Avian Influenza that would originate in Asia and have a high fatality rate. Now is the opportunity to modify the plan to be more flexible and focused on the local public health situation, as opposed to a company-wide rigid approach.

We now know how quickly a virus outbreak can spread around the world, and we know that containment is not as likely as once thought. The good news is that communication is also rapid. The WHO and the U.S. CDC can provide accurate information for employers and updates whenever needed by using the internet, e-mail alerts or social media. Employers can use the same technologies to keep their employees informed throughout the world.

Hopefully, in future pandemics, the speed of vaccine development will be faster due to better technology to manufacture vaccine. In the event of any new virus outbreak in the short term, the other strategies discussed here are the best course for an employer to follow until vaccine becomes available.

# Appendix A: Phases of a Pandemic




In nature, influenza viruses circulate continuously among animals, especially birds. Even though such viruses might theoretically develop into pandemic viruses, in *Phase 1*, no viruses circulating among animals have been reported to cause infections in humans.

In *Phase 2*, an animal influenza virus circulating among domesticated or wild animals is known to have caused infection in humans, and is therefore considered a potential pandemic threat.

In *Phase 3*, an animal or human-animal influenza reassortant virus has caused sporadic cases or small clusters of disease in people, but has not resulted in human-to-human transmission sufficient to sustain community-level outbreaks. Limited human-to-human transmission may occur under some circumstances; for example, when there is close contact between an infected person and an unprotected caregiver. However, limited transmission under such restricted circumstances does not indicate that the virus has gained the level of transmissibility among humans necessary to cause a pandemic.

*Phase 4* is characterized by verified human-to-human transmission of an animal or human-animal influenza reassortant virus able to cause "community-level outbreaks." The ability to cause sustained disease outbreaks in a community marks a significant upwards shift in the risk for a pandemic. Any country that suspects or has verified such an event should urgently consult with WHO so that the situation can be jointly assessed and a decision made by the affected country if implementation of a rapid pandemic containment operation is warranted. Phase 4 indicates a significant increase in risk of a pandemic but does not necessarily mean that a pandemic is a forgone conclusion.

*Phase 5* is characterized by human-to-human spread of the virus into at least two countries in one WHO region. While most countries will not be affected at this stage, the declaration of *Phase 5* is

a strong signal that a pandemic is imminent and that the time to finalize the organization, communication, and implementation of the planned mitigation measures is short.

*Phase 6*, the pandemic phase, is characterized by community- level outbreaks in at least one other country in a different WHO region in addition to the criteria defined in *Phase 5*. Designation of this phase will indicate that a global pandemic is under way.

During the *post-peak period*, pandemic disease levels in most countries with adequate surveillance will have dropped below peak observed levels. The post-peak period signifies that pandemic activity appears to be decreasing; however, it is uncertain if additional waves will occur and countries will need to be prepared for a second wave.

Previous pandemics have been characterized by waves of activity spread over months. Once the level of disease activity drops, a critical communications task will be to balance this information with the possibility of another wave. Pandemic waves can be separated by months, and an immediate "at-ease" signal may be premature.

In the *post-pandemic period*, influenza disease activity will have returned to levels normally seen for seasonal influenza. It is expected that the pandemic virus will behave as a seasonal influenza A virus. At this stage, it is important to maintain surveillance and update pandemic preparedness and response plans accordingly. An intensive phase of recovery and evaluation may be required.

# Appendix B

**Excerpt from: "**Guidance for Businesses and Employers to Plan and Respond to the 2009—2010 Influenza Season" (Source: Centers for Disease Control)

**Important Components of a Flu Pandemic Plan:**

- Be prepared to implement multiple measures to protect employees and ensure business continuity. A layered approach will likely work better than using just one measure.
- Identify possible work-related exposure and health risks to your employees. The Occupational Safety and Health Administration (OSHA) has developed tools to determine if your employees are at risk of work-related exposures and, if so, how to respond (see www.osha.gov/dsg/topics/pandemicflu/index.html).
- Review human resources policies to make sure that policies and practices are consistent with public health recommendations and are consistent with existing state and federal workplace laws (for more information on employer responsibilities, employers should visit the Department of Labor's and the Equal Employment Opportunity Commission's websites at www.dol.gov and www.eeoc.gov).
- Allow employees to stay home if they are sick, have to care for sick family members, or must watch their children if schools or early childhood programs close.

- Explore whether you can establish policies and practices, such as flexible worksites (e.g., telecommuting) and flexible work hours (e.g., staggered shifts), when possible, to increased the physical distance among employees and between employees and others if local public health authorities recommend the use of social distancing strategies. Ensure that you have the information technology and infrastructure needed to support multiple employees who may be able to work from home.
- Identify essential business functions, essential jobs or roles, and critical elements within your supply chains (e.g., raw materials, suppliers, subcontractor services/products, and logistics) required to maintain business operations. Plan for how your business will operate if there is increasing absenteeism or these supply chains are interrupted.
- Set up authorities, triggers, and procedures for activating and terminating the company's flu pandemic plan, altering business operations (e.g., possibly changing or closing operations in affected areas), and transferring business knowledge to key employees. Work closely with your local health officials to identify these triggers.
- Plan to minimize exposure to fellow employees or the public if public health officials call for social distancing.
- Establish a process to communicate information to employees and business partners on your 2009 H1N1 flu pandemic plans and latest 2009 H1N1 flu information. Anticipate employee fear, anxiety, rumors, and misinformation, and plan communications accordingly.

Over the past several years, HHS, CDC, DHS, OSHA, EEOC, and other federal partners have developed guidelines, including checklists, to assist businesses, industries, and other employers in planning for a pandemic. Review these resources to assist in your planning efforts: www.flu.gov/plan/workplaceplanning/index.html.

## Bibliography


Center for Disease Control & Prevention (U.S. CDC). December 22, 2009. *2009 H1N1 Influenza Vaccination Coverage* (retrieved March 14, 2010) (http://www.cdc.gov/h1n1flu/in_the_news/influenza_vaccination.htm).

Center for Disease Control & Prevention (U.S. CDC). *Flu Estimates* (retrieved March 14, 2010) (http://www.cdc.gov/h1n1flu/estimates_2009_h1n1.htm).

Center for Disease Control & Prevention (U.S. CDC). *Guidance for Businesses and Employers To Plan and Respond to the 2009 – 2010 Influenza Season* (retrieved March 14, 2010) (http://www.cdc.gov/h1n1flu/business/guidance/).

Center for Disease Control & Prevention (U.S. CDC). *H1N1 Flu Resources for Businesses and Employers* (retrieved March 14, 2010) (http://www.cdc.gov/h1n1flu/business/).

World Health Organization (WHO). *Chronology of Influenza A (H1N1)* (retrieved March 13, 2010)

(http://www.searo.who.int/LinkFiles/Influenza_A(H1N1)_Chronology_of_Influenza_A(H1N1).pdf).

World Health Organization (WHO). *Pandemic Phases* (retrieved March 12, 2010) (http://www.who.int/csr/disease/avian_influenza/phase/en/).