



# It's a Small World

*Preparing for a Pandemic Outbreak at and Around  
Disneyland, 2010 and Beyond*

**Robert G. Wallace, Ph.D.**  
Institute for Global Studies  
University of Minnesota, Twin Cities

**Kristofer Hall**  
Division of Epidemiology  
University of Minnesota, Twin Cities

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**Robert G. Wallace and Kristofer Hall**, University of Minnesota, Twin Cities

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## Executive Summary

Swine flu H1N1 (2009) emerged as a pandemic virus in early 2009. After an initial spring surge, the pandemic is now entering a second stage. With the onset of the flu season this autumn, the federal government and the World Health Organization are warning of a possibly more widespread outbreak. While until now most infections have been considered mild, new studies have shown the virus capable of considerably more damage, including to people in their working prime. Scientists, clinicians, and public health officials are maintaining close vigilance on a fluid and potentially dangerous situation.

Along with cautionary warnings to medical practitioners and the public, the federal government has asked employers to prepare their businesses for the consequences of a pandemic, including absenteeism, disruptions in workflow, and the spread of the virus through job sites. However, many businesses nationwide have until now failed to fully comply. Many have also yet to fully inform their employees of the potential dangers of the swine flu pandemic or of company efforts to prepare for and respond to the pandemic.

Disney appears presently one such company. While some of its parks and hotels have taken important steps toward preparing for the pandemic, much work remains. As of this writing the array of recommendations for pandemic preparation offered to businesses by CDC and OSHA, as well as best business practices beyond, remain to be implemented to the fullest extent.

At the request of UNITE HERE Local 11 we have compiled the following report, *It's a Small World: Preparing for a Pandemic Outbreak at and Around Disneyland, 2010 and Beyond*. Our primary objective is to inform employees, management, and the local Anaheim community about major issues surrounding the possible transmission of swine flu H1N1 at and around Disneyland. What is the virus exactly and how is it spread? What roles may Southern California and Disneyland possibly play in the geography of influenza spread? What are the major issues in the occupational epidemiology of influenza and its control? A second aim is to recommend practices that can alleviate the worst of an influenza pandemic this or any following year in a workplace such as Disneyland.

Some of the report's key conclusions include:

- Southern California is one of America's primary ports of entry for



influenzas both seasonal and pandemic. Orange County, where the Disneyland Resort is situated, is tightly integrated into two major metropolitan regions into which new influenza variants have arrived or are expected to arrive first – Los Angeles and San Diego. Regions hit first have the least lead time to prepare, making timely preparation essential.

- Disneyland and its affiliates worldwide draw in millions of visitors from around the world. As a major destination site the resort has the potential to amplify the geographic spread of the virus. Any Disney pandemic plan should account for the possibility the company's parks may contribute to the spread of influenza both locally and abroad.
- A basic difference in influenza exposure distinguishes Disneyland workers and customers. While customers may visit for a few days, workers are present at the crowded Resort day-in and day-out, all year, many for years on end. Efforts to protect employees should be commensurate with their potential exposure.
- Access to quality health care for both employees and their dependents before and during a pandemic can play a critical role in the workplace epidemiology of a virus. Such access has a major impact on the state of pre-existing medical conditions that have been shown to complicate influenza infections.
- Families without comprehensive health care are more likely to use emergency rooms for basic medical attention, degrading the capacities local hospitals have in fielding a surge of infected patients, a key element in controlling local outbreaks. The more Disneyland employees and their families are covered by affordable and fully accessible health insurance, the more comprehensive the epidemiological protection the company and local public health authorities can institute.
- As recommended by a number of U.S. agencies, including the Department of Homeland Security, CDC, and OSHA, Disneyland employees, like employees elsewhere, should be offered flexible sick and family leave during pandemic conditions. Such leave should be paid, so as to encourage sick employees to remain at home until better, minimizing economic impact on both the company and its employees.
- According to the Department of Homeland Security, CDC, and OSHA, the best pandemic preparation is conducted in a collaborative way, with the participation of both managers and line level employees, who have critical knowledge of day-to-day operations.
- With multiple influenza strains newly emergent across the world, the threat of pandemic influenza will remain a public health problem for the foreseeable future, beyond the 2009-2010 flu season. Preparation must be treated as a long-term activity and pursued beyond the present pandemic.



We offer two caveats. First, as the pandemic is an evolving situation, some of the information contained in this report (such as the state of the virus's inherent virulence and the availability of vaccines) must be viewed as provisional and subject to change.

Second, the report compiles information from the scientific and government literatures in an effort to frame some of the issues employees and employers should address together in the course of producing and implementing a pandemic plan for Disneyland for this year and beyond. The report does *not* substitute for the substantive discussions employees and management must undertake in working through the details necessary for protecting Disneyland workers, managers, and customers alike.

## Introduction

Swine-origin influenza H1N1 emerged as a new human influenza in the early months of 2009 (1). At unprecedented speed the virus spread out of Mexico, its country of origin, and across the world. The World Health Organization declared the outbreak a level 6 pandemic two months following the virus's emergence. By the beginning of November WHO (2) reported nearly 500,000 cases of swine flu and over 6000 deaths. Reported case levels are in all likelihood greatly underestimated (3). The Centers for Disease Control and Prevention recently estimated that in reality anywhere from 1.8 million to 5.7 million Americans were infected during the first wave in the spring (4).

The pandemic's initial surge has since abated over much of the world, but public health authorities worldwide have warned that with the autumn's flu season, already underway, the virus will rebound at much greater magnitude in the Northern Hemisphere. The President's Council of Advisors on Science and Technology (5) estimates that in swine flu's second wave as many as half of the American people will be infected by the new influenza variant, 1.8 million hospitalized, and 90,000 will die.

There is a widespread concern among scientists and health officials alike that the rebound will be accompanied by a worsening infection. Swine flu H1N1 (2009) has been widely characterized as 'mild,' but field and lab reports indicate the virus to be more virulent than first characterized (6-8). The World Health Organization (9) reports a severe form of the infection in circulation that targets the lungs, causing severe illness in otherwise healthy adults. Some countries are already reporting as many as 15 percent of hospitalized patients require intensive care.

The pandemic's autumn rebound and any others that follow have profound implications for employers and employees alike, particularly for businesses with high daily customer traffic. How do business practices block or promote the spread of the infection? What is the relationship between employee health and business operations? How can companies and their employees minimize the impact of a pandemic?

Over the past five years, in response to the circulation of avian influenza in Eurasia the U.S. government has issued a number of reports in an effort to prepare American businesses for the eventuality of a pandemic (10). Since the emergence of the new H1N1 virus, government efforts on this front have intensified (11, 12). Many U.S. companies have developed

A plausible scenario, given current data... is that 2009-H1N1 influenza could place enormous stress on U.S. medical and public health systems, as well as on an American economy already under stress. It could cause anywhere from 30,000 to 90,000 deaths in the United States in fall 2009, mainly among younger adults and children (unlike the situation with seasonal influenza, which causes death mainly in the elderly) and those with certain pre-existing conditions.

*Report to the President on U.S. preparations for 2009-H1N1 Influenza, President's Council of Advisors on Science and Technology*



emergency action plans in response. For businesses with such plans already prepared, H1N1's emergence has shifted company efforts away from theoretical discussion and into implementation. At the same time, a substantial number of companies have engaged in no preparation whatsoever, even at this late date (13).

This report was commissioned by UNITE HERE Local 11 in an effort to learn more about the occupational epidemiology of swine flu H1N1 at and around large destination attractions such as the Disneyland Resort in Anaheim, California. Many of the employees the local represents in Anaheim are in daily contact with the public at Disneyland's hotels and restaurants/cafeterias.

Disneyland Resort represents one of the largest destination amusement parks in the world. In 2008, the Resort's Disneyland Park hosted 14.7 million visitors, the second largest attendance worldwide, trailing only Disney's Magic Kingdom in Florida (14). Its California Adventure theme park hosted an additional 5.5 million visitors. On a summer day the Resort attracts as many as 50,000 customers, entertained and assisted by 20,000 direct employees in its parks and hotels (15, 16). The Walt Disney Company's draw extends globally. The company and its affiliates own or operate 10 of the top 25 (and 8 of the top 10) most-attended amusement parks worldwide. Its parks total 118 million visitors a year, three times the next largest chain.

Disney's park draw may have epidemiological implications. Each year millions of visitors from around the world visit Disney parks, some for as long as a week. Given such traffic, a reasonable inference is that at least some of the pathogens that annually emerge elsewhere in the world, influenza included, find their way into Disney venues.

In this report we will review the basics of the epidemiology and clinical course of swine flu H1N1, the apparent importance Southern California's geography plays in the spread of influenza, and the occupational epidemiology of influenza at and around Disneyland.

We will address more specifically

- The effects Disneyland's role as a destination site for travelers from around the world may have on employee exposure and Southern California's regional epidemiology.
- A fundamental difference in disease exposure between Disney workers and customers.
- The role employee access to quality health care and paid sick and family leave appears to play in the epidemiology of the virus at Disneyland and its surrounding community.
- Employee exposure to pandemic influenza off-site.

**Top 10 Worldwide Amusement / Theme Parks (2008)**

- 1) Magic Kingdom at Walt Disney World, Lake Buena Vista, Florida, USA (17,063,000 visitors)
  - 2) Disneyland, Anaheim, California, USA (14,721,000)
  - 3) Tokyo Disneyland, Tokyo, Japan (14,293,000)
  - 4) Disneyland Park at Disneyland Paris, Marne-La-Vallee, France (12,688,000)
  - 5) Tokyo Disney Sea, Tokyo, Japan (12,498,000)
  - 6) Epcot at Walt Disney World, Lake Buena Vista, Florida, USA (10,935,000)
  - 7) Disney's Hollywood Studios at Walt Disney World, Lake Buena Vista, Florida (9,540,000)
  - 8) Disney's Animal Kingdom at Walt Disney World, Lake Buena Vista, Florida (9,540,000)
  - 9) Universal Studios Japan, Osaka, Japan (8,300,000)
  - 10) Everland, Gyeonggi-Do, South Korea (6,600,000)
- 2008 Attraction Attendance Report, TEA/ERA*

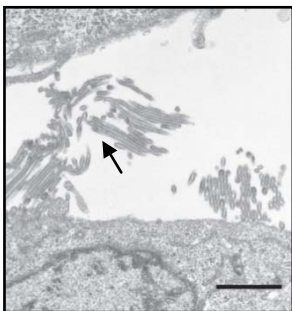
- Recommendations to UNITE HERE, Disney, and the local community for pandemic preparation, actions during the pandemic, and post-pandemic follow-up.

We should emphasize that the conclusions and recommendations presented here are offered with more than swine flu H1N1 (2009) in mind. Over the past decade scientists have tracked an array of new influenzas that appear capable of infecting humans: H5N1, H7N1, H7N3, H7N7, H9N2, in all likelihood H5N2, and perhaps some of the H6 serotypes (17-19). While none of these strains is presently specific to human populations, their emergence and intermittent human infection suggests pandemic influenza will remain a health and safety threat for the foreseeable future.

In preparing for a pandemic today, public and private organizations--employees and management--can better organize their operations to withstand outbreaks and other public health emergencies that may emerge in the near and extended future.

## What is Swine Flu?

Influenza is an infectious disease that affects the respiratory and intestinal tracts of a wide variety of bird and mammalian species. In humans, influenza cases are typically defined by a mix of symptoms that includes coughing, fever, sore throat, malaise and headache. Most patients spontaneously recover. Some patients suffer more serious infections, including lung infection, severe pneumonia, and a rapid progression to acute respiratory distress. The World Health Organization (20) estimates three to five million cases of severe influenza illness occur annually worldwide and 250,000 to 500,000 people die from the disease. The U.S. Center for Disease Control and Prevention (21, 22) estimates 220,000 Americans are annually hospitalized by influenza and 36,000 Americans die from influenza directly or from its complications.



Electron micrograph of swine-origin H1N1 (2009) viral particles emerging from a cell. Scale bar, 1  $\mu$ m. From Neumann *et al.* (2009)

The agent that causes influenza is a RNA virus comprised of eight genetic segments (23). Two of the segments encode for *hemagglutinin* (H) and *neuraminidase* (N). These two proteins act as molecular keys, allowing the virus to enter and exit host cells, respectively. Scientists have identified 16 different hemagglutinin segments (H1-H16) and nine neuraminidase segments (N1-N9) circulating among influenza A viruses in nature. Each strain is identified by its H and N combination. Over the past century human populations have played host to three *seasonal influenza* types: H1N1, H2N2 and H3N2.

From year-to-year the three types compete with each other to infect the

most human hosts (24). Some years H3N2 infects more humans. Other years one of the other two types prevails. Our immune response may explain in part why the dominant influenza type often switches from season-to-season and from place-to-place. When we are confronted by a seasonal variant of the previous year's strain, we can slow down the infection using the antibodies we developed in response to last year's outbreak. Those of us not infected can develop the right antibodies after being vaccinated with a vaccine containing parts of the currently circulating virus.

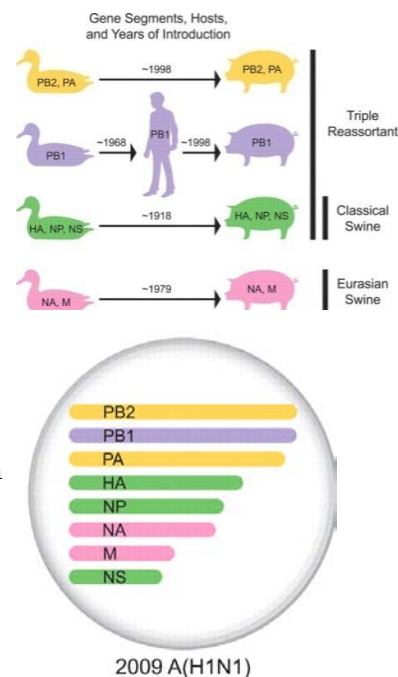
In short, from one year to the next we develop *partial immunity* at the individual level and *herd immunity* at the population level. Our immune histories – whether by natural infection or vaccine – explain in part why seasonal influenza is relatively mild in most people infected and across most populations.

How, then, do seasonal influenzas survive in the face of such an immunity blanket? They do so in two ways. First, each *evolves* in response to our immune attacks. Those strains that have evolved enough difference since the previous influenza season can spread out from under the immunity blanket and invade human populations (25). That is why we need a new anti-influenza vaccine each year, targeted against the latest seed strains. Second, the successful strains of human influenzas infect enough hosts during the summer months, the off-season, to survive until the next influenza season, when more susceptibles are available.

All human influenza types begin their careers as *pandemic infections*. As new infections to which no one has been exposed previously, pandemic infections rapidly spread across the globe, infecting most if not nearly all members of the human race. In other words, no one has had the opportunity to develop at least some immunity to these infections and no vaccine is yet available. We have no partial immunity and no herd immunity. If such a new infection can easily transmit itself from person-to-person, it usually sweeps across the planet. What cannot be slowed down typically arrives earlier (26). When H2N2 and H3N2 emerged as new human infections in 1957 and 1968 pandemics, respectively, the main wave of each pandemic arrived earlier than the typical flu season.

Swine-origin influenza A (H1N1) 2009 is one such new influenza. While the virus expresses the same kind of hemagglutinin and neuraminidase as seasonal influenza H1N1, it is characterized by a different combination of 'internal' genes that encode for other viral proteins. What are this influenza's origins?

Livestock pigs have long hosted their own version of seasonal H1N1, evolutionarily related to our own. From 1930-1998 the pig version evolved only slightly (27, 28). But starting in 1998, the virus was subjected



Host and lineage origins for the gene segments of the swine flu H1N1 (2009) virus. From Garten *et al.* (2009)

### Common Flu Symptoms

- Fever (usually high)
- Headache
- Tiredness (can be extreme)
- Cough
- Sore throat
- Runny or stuffy nose
- Body aches
- Diarrhea and vomiting (more common among children than adults)

<http://www.cdc.gov/FLU/symptoms.htm>

### Seek Hospital Treatment for These Symptoms

#### Adults

- Trouble breathing or shortness of breath
- Pain or pressure in the chest or stomach
- Sudden dizziness
- Confusion
- Severe vomiting that won't stop

#### Children

- Fast breathing or trouble breathing
- Bluish skin color
- Fever with a rash
- Refusal to drink fluids
- Vomiting or diarrhea that won't stop
- Not waking up or not interacting
- Being too irritable to be held
- Having flu symptoms return with fever and worse cough after starting to get better

to a series of *reassortment* events, wherein different genetic segments are traded with those of other influenzas. An aggressive swine H1N1 emerged with internal genes of a human H3N2 virus. That virus subsequently spread across pig populations, with limited transfer to humans, usually to farm workers.

In early 2009 a previously undescribed influenza, what we now know as swine flu H1N1 (2009) or swine-origin H1N1, emerged in humans in central Mexico and spread around the world. Three of the new virus's segments appeared to be from the seasonal swine influenza, three from the North American H1N1-H3N2 swine recombinant described above, and two from a Eurasian swine recombinant (28). In short, every one of the new H1N1's genetic segments is most closely related to those of influenzas circulating among swine.

The virus's novelty to humans accounts in part for the speed with which it has spread throughout the world. It took only two months from its initial outbreak to circumnavigate the globe. According to the World Health Organization (29), swine flu H1N1 (2009) is now the dominant influenza type circulating worldwide. It has outcompeted the three seasonal influenzas and as of September represented 75% of those testing positive for influenza.

Although most cases of this swine-origin H1N1 influenza have so far been 'mild', half of those hospitalized with severe illness have none of the pre-existing conditions that can complicate an influenza infection: asthma, heart disease, hepatitis, immunosuppression, pregnancy, among others (30). Yasushi Itoh and his colleagues (6) recently demonstrated swine-origin H1N1 to be intrinsically more virulent than previously assumed. The infection can express characteristics of some of the more deadly influenzas, including highly pathogenic H5N1, the bird flu virus.

Itoh and colleagues tracked what damage the new H1N1 infection caused to mammalian hosts in comparison to that caused by recent strains of seasonal H1N1. The team discovered,

- Mice suffered greater mortality from swine-origin H1N1 than seasonal H1N1. The dose needed to kill 50% of the mice exposed was significantly less for swine-origin H1N1 than its seasonal counterparts.
- Swine-origin H1N1 replicated more efficiently in mice lungs, causing bronchitis and alveolitis. It also elicited greater production of host immune cells that have been previously associated with the greater damage and death associated with more dangerous influenza infections.
- Macaques infected with swine-origin H1N1 underwent greater increases in temperature than those infected with seasonal H1N1.

- Swine-origin H1N1-infected macaques also suffered a greater tissue range infected and more severe lung damage, including molecular markers characteristic of the deadly bird flu infection.
- Ferrets – a good small-animal model of human influenza infection – showed no difference in changes in temperature and body weight. However, swine-origin H1N1 replicated to greater concentrations in the trachea and lungs. Ferrets infected with swine-origin H1N1 also expressed greater pneumonia and broader viral expression.

Another lab study (7) showed swine flu H1N1 (2009) capable of strongly bonding to cell receptors in both the throat and lungs. Seasonal influenzas typically target the throat region alone. Infection in the lungs, on the other hand, can lead to greater pathology and a worse prognosis for its human hosts, including death.

The virulence of swine flu H1N1 (2009) has also been detected at the population level. Using surveillance data from New Caledonia and Mauritius, Antoine Falhault (31) found lethality due to the new virus to be 1 per 10,000 infections, about 100 times more than regular seasonal influenza.

The virus's novelty, its capacity to infect the lungs, and its ability to set the healthiest immune systems into overdrive may account for an attendant shift in patient demographics. While children under five and the elderly typically suffer the worst effects of seasonal influenza, swine flu H1N1 (2009), like previous pandemic strains, appears to target people in their prime. Gerardo Chowell and his colleagues (32) discovered that between late March and late April 2009, 87% of influenza-related deaths in Mexico and 71% of cases of severe pneumonia involved patients between 5 and 59 years of age, as compared with average rates of 17% and 32%, respectively.

It is impossible at this point to tell how swine influenza H1N1 (2009) will evolve over the course of the pandemic, whether to more or less deadliness. The virus has, however, shown documented capacity for inflicting damage more serious than originally assumed. Scientists and clinicians alike remain on alert for changes in the virus's behavior.

## **It's a Small World: Southern California and the Global Geography of Influenza**

Outbreaks of human influenza sweeping across continents have been recorded since at least the mid-1500s (33). The nature of influenza spread is, however, changing. By economic globalization and global travel and

This H1N1 hasn't been overblown. It's a puppy, it's an infant, and it's growing. This virus has got the whole human population in the world to breed in ... it may become a wimp and disappear, or it may become nasty.

*Dr. Robert Webster, virologist, St. Jude Children's Research Hospital*



transport, the world is becoming more tightly integrated. As a result, influenzas, and other pathogens, are spreading faster.

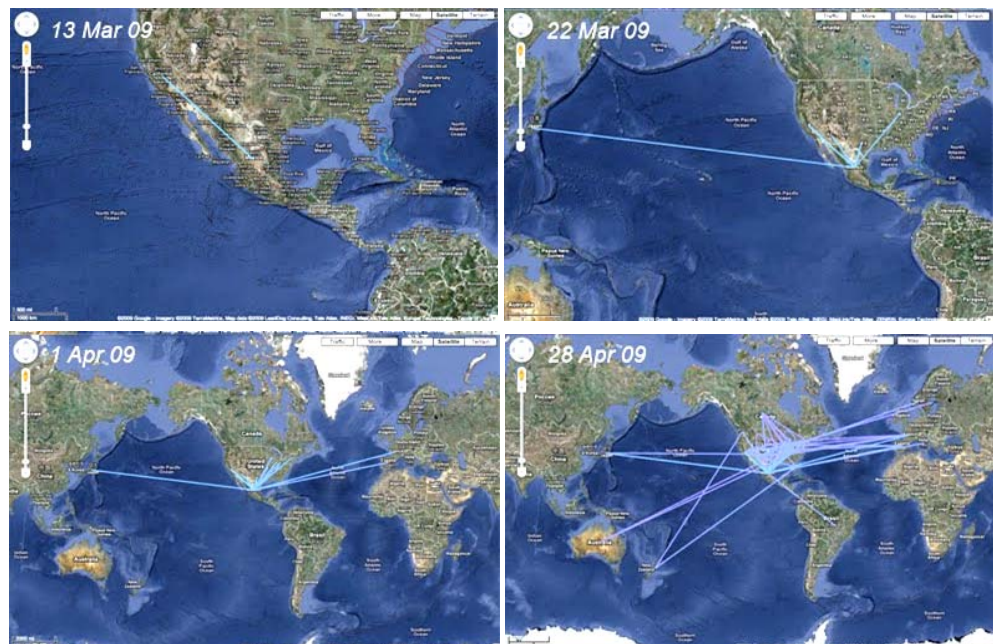
Rebecca Grais and her colleagues (34) modeled the extent to which influenza's diffusion is accelerating. Their model showed a hypothetical outbreak starting in Hong Kong and defined by 2000 airline travel patterns to be somewhat similar to the 1968 H3N2 pandemic in that cities of the Northern Hemisphere are largely the first infected. However, unlike 1968, the delay in the pandemic's switch to the Southern Hemisphere occurs only for cities receiving relatively little air travel. In 1968, Sydney, Australia, for example, was the forty-eighth city to report flu cases. For the 2000 data, Sydney is projected to be one of the first to report cases. Geographic spread across hemispheres now appears concurrent.

Almost all cities in the Grais model reported cases earlier under the 2000 travel patterns than their 1968 counterparts. Outbreaks in Northern Hemisphere cities were forecasted to begin an average 111 days earlier than in 1968. Disease incidences appear greater as well, with peak incidences to be 176% greater than in 1968.

An analysis of the genetics of this year's swine flu H1N1 (2009) pandemic has verified the basic crux of the Grais model. Phillippe Lemey and his coworkers (35) used 240 hemagglutinin and neuraminidase genetic sequences isolated from swine flu patients from 40 localities worldwide to track the spread of the virus. As have other pandemic influenzas, swine flu H1N1 (2009) appears to be making its way across the world by *hierarchical diffusion*. By the world's transportation network it is bouncing down a hierarchy of cities defined by their size and economic power and

Hierarchical diffusion of swine flu H1N1 (2009) out of Mexico mid-March, first into Southern California, then into other parts of the United States, Asia and Europe, and by the end of April into Australia and South America.

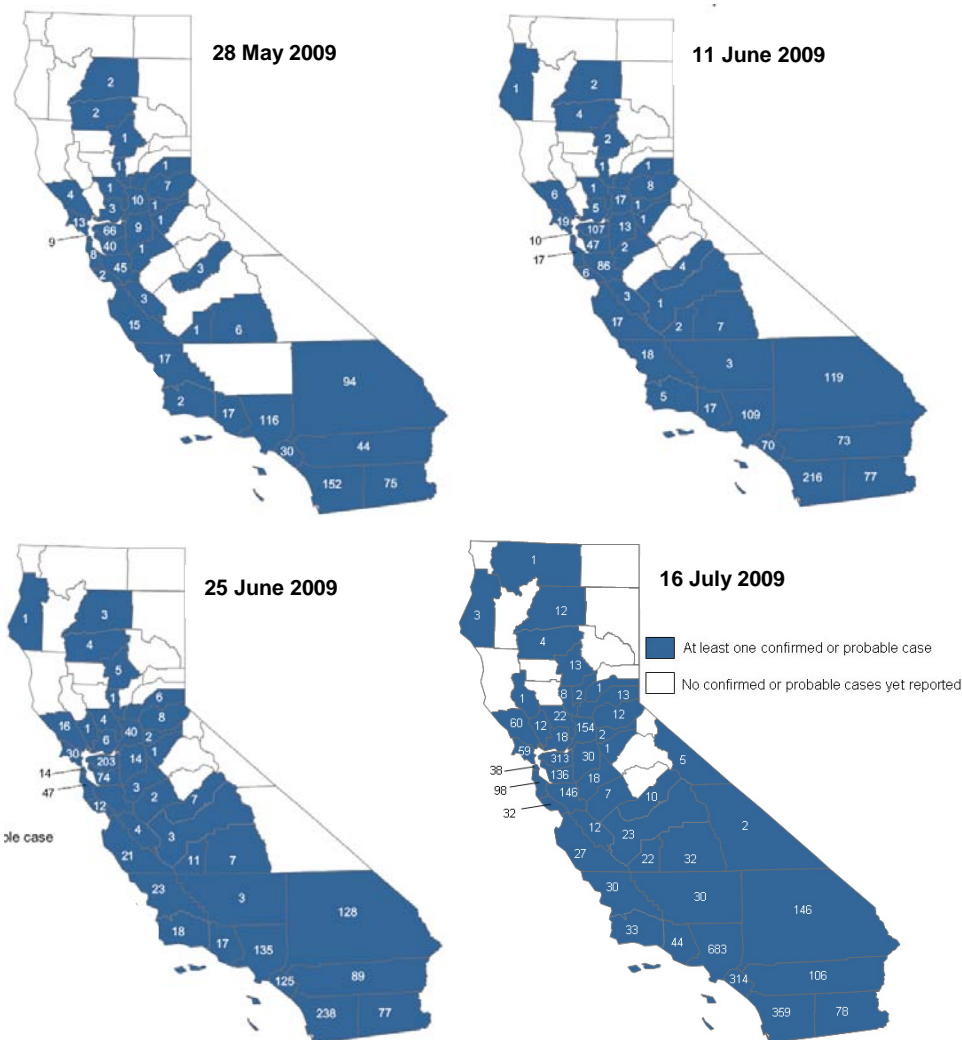
Lemey et al. (2009)



their interconnectedness to Mexico City, the international city closest to the initial outbreak. It is not surprising, then, that San Diego and New York were among the first cities hit.

As expected under the Grais model, swine flu H1N1 (2009) entered the Southern Hemisphere only weeks after first emerging in Mexico. At the same time, the Grais model proved something of an underestimation. While Grais and her colleagues predicted an influenza pandemic to cross the Pacific into California in 120 days following a pandemic's emergence in Hong Kong, swine flu H1N1 (2009) crossed it in the other direction in only nine days. The extent to which the world is epidemiologically integrated may be much more than thought even only a few years ago.

Southern California has long served as the first U.S. region hit for influenza strains emerging out of Asia. San Diego was the first U.S. city invaded by the 1968 Hong Kong flu and the Southern California region was more heavily hit than Northern California (36). Under their model simulating an influenza pandemic that emerged first in Hong Kong



Contagious diffusion across California late May through mid-July. Southern California, the state's initial epicenter, supported more cases than Northern California. Orange County caseload tracked that of the state's heaviest hit counties, San Diego and Los Angeles. By mid-July Orange County supported the state's third largest accumulative caseload.

*California Department of Public Health, Novel Influenza A (H1N1) Virus - Case Maps Archives*

under 2000 air travel patterns, Grais *et al.* (34) showed Los Angeles likely the second continental U.S. city invaded, only after San Francisco. The pattern is a regular one: Using genetic sequences, Colin Russell and coworkers (37) showed strains of H3N2 seasonal influenza annually emerge out of East and Southeast Asia before seeding Oceania, North America, Europe, and later South America.

In short, as the results reviewed above indicate, the San Diego-Los Angeles coastal corridor, including Orange County, where Disneyland is located, serves as a major global crossroads for human influenza. The region has also acted as an American port of entry for influenzas emerging out of both Asia and Latin America.

At a finer geographic scale, influenza also engages in *contagious diffusion*, spreading out within each new area hit. Orange County, just north of San Diego, the first U.S. city hit, hosted some of the country's first swine flu cases. Areas hit first typically host more cases than those only beginning their outbreaks. In Orange County alone there were 127 intensive care hospitalizations and 32 deaths as of early November (38).

The global geography of influenza is an important part of understanding influenza at and around Disneyland. That geography shows us the extent to which influenzas are able to move into the region, including the geographic pathways and rates at which they immigrate. The implications for pandemic planning are fundamental. As one of the first areas in the U.S. hit by new influenza infections, Southern California is privy to less warning than other U.S. regions. A lesser lead time means less time to plan and implement interventions responsible for the public's health. This places pressure on regional institutions. The basics of influenza control in both the workplace and the greater community should be worked out in Southern California long in advance of any new influenza's invasion.

History shows the benefits such preparation offers. In reviewing the scientific literature about previous influenza pandemics, Marta Balinska and Caterina Rizzo (39) found that the greatest reductions in mortality rates occurred in localities that engaged in the earliest and longest implementation of non-pharmaceutical interventions. That conclusion implies that if preparation occurs only once a pandemic is underway, or not at all, the consequences could be deadlier than they need be. More cases otherwise accumulate and more deaths accrue.

All Californians must be partners in our effort to prepare for a widespread outbreak—parents must plan to care for their ill children at home and for potential school closures; health care providers must be prepared with necessary supplies and staffing plans; businesses must prepare for the possibility that large numbers of employees could be sick at the same time.

Mark B. Horton,  
Director, California  
Department of Public  
Health



## The Occupational Epidemiology of Influenza

It is difficult to know precisely how influenza spreads between adults in the workplace because seasonal influenza typically coincides with a number of other seasonal respiratory illnesses, such as the common cold (40). This leads to a difficulty in conducting scientific observational studies that would better pinpoint influenza's workplace epidemiology. Many seasonal infections present similar symptoms and there is little reason for health care providers to type the specific pathogen due to the cost of running such tests. Most people without underlying health issues tend to recover from the seasonal illnesses within a few days.

What is known is that respiratory secretions of influenza infected individuals may contain up to 100,000 virus particles per milliliter (41). The spread of influenza occurs mainly person-to-person via large respiratory droplets from sneezing, coughing, and talking. These large droplets do not remain suspended in the air, and do not typically travel beyond about three feet of the individual who produces them. People who are in close proximity to sick individuals may become exposed to influenza virus via large respiratory droplets if these droplets come into contact with the eyes, mouth or nose. If the droplets settle on surfaces, others may become exposed to influenza if they touch a contaminated surface and then touch their eyes, mouth or nose. Smaller aerosol droplets that can remain suspended in air beyond about three feet do not typically contain large amounts of virus, but they can contribute to the spread of influenza (42).

*Pandemic influenza* differs from *seasonal influenza* in a number of ways. *Seasonal influenzas* are those that have been circulating in the human population over many years, even decades, and typically occur in pockets of outbreaks throughout the fall and winter flu season. Some people have natural immunity to the flu if they have recently been exposed to and infected by a recent flu, or because they have received a seasonal flu shot. The presence of some natural immunity in the population acts as a firebreak, preventing widespread geographic spread of the disease. Children typically play a major role in seasonal epidemics because they have naïve immune systems and may not have previously been exposed to circulating seasonal influenzas (41). Adults, however, particularly in the workplace, also play key roles in the regional dissemination of infection (43).

Occupational epidemiology involves the application of epidemiologic methods to populations of workers. Occupational epidemiologic studies may involve looking at workers exposed to a variety of chemical, biological or physical (e.g., noise, heat, radiation) agents to determine if the exposures result in the risk of adverse health outcomes. Alternatively, epidemiologic studies may involve the evaluation of workers with a common adverse health outcome to determine if an agent or set of agents may explain their disease.

*Safety and Health Topics, Occupational Epidemiology, OSHA*

*Pandemic influenzas* on the other hand are novel viruses to which neither children nor adults have natural immunity. This lack of immunity allows the virus to spread rapidly throughout the world and infect large numbers of people. The current pandemic swine flu H1N1 (2009) strain has exhibited classical pandemic behavior, but it is impossible to know at this time whether the virus will remain relatively mild like a bad seasonal influenza or become more severe as it rapidly spreads throughout the world.

The Occupational Safety and Health Administration utilizes a four-level system to describe the risk of contracting pandemic influenza in different workplace settings (42, 44). The levels are: *very high*, *high*, *medium*, and *low*. Very high and high risk categories are reserved for health care employees. *Very high* exposure risk occupations include health care employees performing aerosol-generating procedures on known or suspected pandemic patients. *High* exposure risk occupations include health care or laboratory personnel collecting or handling specimens for known or suspected pandemic patients.

*Medium* exposure risk occupations include employees with high-frequency contact with the general population (such as schools, high population density work environments, and some high volume retail). These medium exposure risk occupations are “those jobs that require frequent, close contact (within 6 feet) exposures to known or suspected sources of pandemic influenza such as coworkers, the general public, outpatients, school children or other individuals.”

*Low* exposure risk occupations include employees who have minimal occupational contact with the general public and other coworkers. The low exposure risk occupations are “those that do not require contact with people known to be infected with the pandemic virus, nor frequent close contact (within 6 feet) with the public.”

Businesses and employers, in general, play a key role in protecting employees' health and safety, as well as in limiting the negative impact of influenza outbreaks on the individual, the community, and the nation's economy.

*CDC Guidance for Businesses and Employers to Plan and Respond to the 2009-2010 Influenza Season, Center for Disease Control and Prevention*

Depending on the specific job descriptions of employees, occupations at destination attractions such as Disneyland, including cleaning and food preparation, are on their face most closely fall in the medium or low risk categories. Under such occupational settings, employers are still expected to devise a complete pandemic influenza plan and to clearly communicate it to employees. Meanwhile, there may be characteristics specific to the Resort that may make it a place where influenza transmission could be potentially amplified.

Many employees at the Disneyland Resort come in close contact with hundreds (in some cases, thousands) of guests on a given day. Guests include visitors from around the United States and from throughout the world. Disneyland Park attracted 14.7 million visitors in 2008 (14). The Resort's California Adventure theme park attracted 5.5 million visitors.

Tens of thousands of park visitors annually stay at Resort hotels. If one person, whether a customer or employee, becomes infected, there is a real potential that he or she could spread it to others, given the large number of people with whom he or she might come in contact. Sick employees who come to work, even without discernable symptoms, may infect other workers and may also infect visitors who may become infectious during their travels home or upon their return.

Customer behavior may augment risk (45). Guests may not realize that they are ill until they have already traveled a long distance to visit Disneyland. Many may be unwilling to stay out of public after they have already paid for their vacations. This places employees at such sites in a position where they may be exposed to visitors who are ill with influenza, even as the level of influenza infection in the surrounding community may be comparatively low.

At the same time, some employees, particularly those working at hotels, must interact with guests who are conscientious enough to remain in their rooms convalescing during their stay. Concomitantly, company efforts to control the spread of pandemic virus may include asking employees to repeatedly expose themselves in the course of their duties. For instance, the American Hospitality and Lodging Association (AHLA) (46) offers a sample employee communication that, along with a number of sensible directives (*e.g.*, washing hands, avoiding direct contact with ill persons, using gloves while disposing guest trash and towels), includes the following:

- Room attendants should continue to sanitize door knobs, TV remote controls, sink basin knobs, light switches, and countertops with the proper disinfectant
- Used towels and bed linen should be removed and washed each day
- Avoid rooms where you hear sneezing or coughing and allow an hour after the guest leaves before entering the room.

The latter hour delay *may* permit employees to avoid some of the aerosols from an ill guest, but the influenza virus can remain viable on surfaces for up to several days.

In effect, hotel workers are being asked to act as public health workers, commensurate with medium-risk exposure. Should the pandemic turn severe they could be asked to expose themselves still further. If public health authorities were to quarantine a hotel with severely sick guests, a scenario for which the AHLA asks its members to prepare, the hotel's employees, preparing and attending an isolation ward for guests and coworkers, could be shifted into high-risk exposure commensurate with hospital professionals.

A third means by which the risk of influenza spread could be raised for employees is rooted in an attraction's draw. The draw may produce a

Guests who visit the Walt Disney World resort come into frequent contact with other guests and surfaces that tens of thousands of guests touch each day. The moment a guest enters a Disney theme park, the guest is asked to place his or her index finger on a touch pad to verify that the park ticket belongs to him or her. The touch pads are not cleaned after each use, and Disney does not provide hand sanitizer. There are no sinks in the immediate vicinity of the touch pads.

The Disney parks would decrease the potential spread of swine flu and other diseases by installing hand sanitizer stations at the entrance to the parks. Hand sanitizer should also be made available near the attractions, so guests can clean their hands after touching safety bars and other ride surfaces.

*Peggy Macdonald,  
Walt Disney World  
Recreation Examiner,  
16 July 2009*

funnel-like effect, in which sick individuals from numerous geographically diffuse locations are brought to a specific location, in this case a resort at which thousands of employees work. If employees become infected, they may in turn spread the illness to other employees, their families, and the local community. Sick employees who are at work, even without discernable symptoms, may infect other workers, but also visitors who may become infectious during their travels home or upon their return. This could help spread influenza to other parts of the world, whether or not other areas are experiencing high caseloads at the time.

SARS was carried out of Guangdong on February 21, 2003, when an infected physician spent a single night on the 9th floor of a Hong Kong hotel (Hotel M)... By the end of February, guests and visitors to the hotel's 9th floor had seeded outbreaks in the hospital systems of Hong Kong, Vietnam, and Singapore. Simultaneously, the disease began spreading around the world along air travel routes as guests at the hotel flew home to Toronto and other cities around the world...

SARS, the first severe infectious disease to emerge in the twenty-first century, had taken advantage of opportunities for rapid international spread made possible by the unprecedented volume and speed of international travel...

With modern fast air transport, global spread of infectious agents becomes much easier.

*Ruan et al. (2006), Mathematical Biosciences and Engineering*

There is precedence for the spread of infection by travelers (47). In 2003, the SARS outbreak emerged out of southern China and was spread into Hong Kong and Singapore and further afield to Toronto by long-range destination travelers. Long-distance travel also offers a primary mechanism by which newly evolved variants of a pandemic strain, characterized by shifts in inherent virulence, can geographically spread (48). Maria Koliou and her colleagues (49) reported some of the first H1N1 cases in Cyprus were in younger people who had visited tourist resorts. Similarly many of the first cases in the United States were reported among young adults returning from their spring break vacations in Mexico.

Indeed, there is anecdotal evidence from media reports that Disney parks and hotels, including at Disneyland, have already served as hubs through which swine flu H1N1 (2009) has been both brought in from abroad and transmitted locally (50-52). In mid-May three Melbourne siblings tested positive for swine flu on their return from a family holiday to Disneyland. Victorian health authorities subsequently quarantined and administered anti-viral medication to their classmates. In mid-July a group of Mississippi tourists who had stayed at Disney's Pop Century Hotel were treated at a Celebration, Florida hospital for flulike symptoms thought to be caused by H1N1.

A fourth way risk exposure may be amplified for employees arises from an apparent difference in the epidemiological exposure faced by customers and employees at large destination attractions. The difference is accumulative. Customers may be exposed to infections from around the world during the few days that they are at the destination site, however low the risks. Employees, on the other hand, are continuously exposed year-round, year after year. This raises the possibility of an occupational hazard specific to particularly large public venues. Employees may be exposed to influenza and other transmissible respiratory infections more often than customers and the general public.

Few specific studies have been conducted on this last possibility. Martine Valette and coworkers (53) reported no difference in peak periods of seasonal influenza and the strains circulating at ski resorts in the French

Alps and the surrounding communities. The population densities and the geographic scope of their clientele's places of origin are, however, dwarfed by those of Disney parks.

A new set of recommendations recently offered by CDC researchers is based on the premise that destination sites do indeed act as influenza amplifiers. Ebrahim *et al.* (54) review the epidemiological implications of the annual Hajj, when two and a half million Muslim pilgrims converge on Mecca, Saudi Arabia from around the world. According to Ebrahim *et al.*,

Hajj-related exportation of H1N1 virus by returning pilgrims could potentially initiate waves of outbreaks worldwide...[P]ilgrims originating from North America (more than 15,000) and Europe (more than 45,000) pass through major airline hubs of the world on their journey, which increases the risk of international spread of the virus.

Although more research remains to be done to better tease out influenza's epidemiology, the CDC has offered recommendations for the Hajj and other arenas under the principle that those administering mass gatherings should act in as cautious a way as possible in case such places or the events they host are in fact instrumental in the virus's spread. In short, it is better to be safe than sorry.

How exactly will these scenarios as they relate to swine flu H1N1 play out at Disneyland and other theme parks? Given the literature reviewed in this report, the course of a pandemic at such places will likely depend on the virus's intrinsic virulence and transmissibility, the level of close contact between employees and visitors, whether employees continue to work when ill, and the interventions Disneyland and other parks undertake.

## Employee Access to Health Care and Paid Sick Time

Seasonal influenza epidemics have average attack rates of 10 to 20 percent in the general U.S. population, meaning that between one-tenth and one-fifth of the population are infected annually. Seasonal flu attack rates are typically higher in children and the elderly (41). It is estimated that seasonal influenza results in about 3.1 million hospitalized days and 31.4 million outpatient visits each year (55).

The disease burden results in great human suffering. It also comes at a large economic cost. It is estimated that the total annual economic burden in the U.S. is around \$87.1 billion, with \$16.3 billion in lost earnings due to illness and loss of life, and \$10.4 billion in direct medical costs (55). In 1995, it was estimated that seasonal influenza resulted in 75 million lost workdays, and more than 200 million days of restricted activity among

Sick leave and other policies should promote and create incentives for workers to stay home if they or a household member becomes sick during a severe pandemic or if well, to report to work.

*Dr. Robert J. Blendon, Harvard School of Public Health*



employed adults in the United States (56). While these figures are large, under the worst scenarios for pandemic influenza they may pale in comparison, particularly if pandemic influenza continues to attack young adults.

The Congressional Budget Office estimates that a severe influenza pandemic could reduce the U.S. Gross Domestic Product (GDP) by 5%, at a total of about \$675 billion in lost work productivity and reduced consumer spending (57). These figures show how an influenza pandemic could significantly impact the U.S.'s financial position. However, they do not offer any indication how a pandemic might affect different segments of the U.S. population.

People without health insurance may face the health and financial insecurities associated with an influenza pandemic, suffer an exacerbating of any pre-existing medical conditions that might lead to influenza complications, and may find themselves at greater risk of influenza exposure. Uninsured persons often seek medical care at hospital emergency rooms, even for minor medical issues, placing them at localities of the greatest risk of exposure.

**Populations At Higher Risk Of Seasonal Flu Complications**

- Children less than 5 years old.
- Persons aged 65 years or older.
- Children and adolescents under the age of 18 who are receiving long-term aspirin therapy.
- Pregnant women.
- Adults and children who have chronic pulmonary, cardiovascular, hepatic, hematological, neurologic, neuromuscular, or metabolic disorders.
- Adults and children who have immunosuppression (by medications or by HIV).
- Residents of nursing homes and other chronic-care facilities.

*Center for Disease Control and Prevention*

The Institute of Medicine (IOM) (58) reports that there are about 46 million uninsured citizens in the United States. Those without health insurance significantly differ from individuals with health insurance in terms of socioeconomic status, education, and other characteristics (59). The financial challenges are difficult for individuals and families who are offered no or insufficient health insurance by their employers or cannot afford to pay the premiums associated with many insurance plans. The IOM notes, "health care costs and insurance premiums are growing substantially faster than the economy and family incomes" (58).

Studies have shown that uninsured adults have less access to health care and poorer health outcomes than insured adults (60). Compared with insured adults, uninsured adults are less likely to seek preventive medical services that can protect against underlying illness; more likely to be diagnosed with later stages of cancer; more likely to die from trauma or other serious acute conditions like heart attack and stroke; more likely to forgo or delay effective treatments for chronic health conditions; and more likely to have poorer health outcomes, poorer quality of life, and premature death (59). Most of the uninsured do not have access to regular medical care, resulting in about 20% of the uninsured (compared with 3% of the insured population) utilizing emergency rooms as their usual source of basic health care (61).

During an influenza pandemic, emergency rooms could be inundated with sick patients, making it more difficult for the uninsured to receive basic health care. A pandemic will likely place uninsured persons at

increased risk of being exposed to influenza in emergency rooms while seeking basic medical care. Alternately, those who heed public health warnings to stay away from hospitals during a pandemic unless infected and refrain from their sole source of medical care may suffer the health consequences of their conscientiousness.

A lack of insurance does not appear to affect only the uninsured. There is evidence that higher levels of community uninsurance result in *spillover effects* for those in the community who are privately insured, in terms of both access to and satisfaction with health care (60). The more uninsured in an area, the fewer quality sources of health care are available across the community, including for the insured. An influenza pandemic could potentially result in greater risk of complications for the uninsured because of their poorer baseline health, but it could lead to greater community-wide effects as well.

Differences in socioeconomic indicators, levels of employment and access to health care may structure the epidemiology of an influenza outbreak in other ways. A severe influenza pandemic may require public health authorities to implement community-wide mitigation measures to try to reduce the effects of the flu. These mitigation measures may include school and childcare closings, isolation and treatment of individuals with confirmed or probable influenza, voluntary quarantine of individuals living in households with confirmed or probable influenza, and social distancing strategies for adults in both the community and workplace (62). Such measures would likely only be implemented in the case of a severe influenza pandemic, but planning for the worst is an essential part of pandemic preparation.

A Harvard survey conducted in 2006 polled almost 1,700 adults from around the United States (62). The survey polled respondents on a number of issues related to their willingness and ability to respond to an influenza pandemic.

- 94% stated that they would be willing to stay home from work for 7-10 days if infected with pandemic influenza, and 85% said they would be able to take care of sick family members for that long.
- Among employed respondents, 22% were concerned that their employer would make them go to work while sick, and 35% would report to work if told to do so by their employer, even if public health officials stated that people should stay home from work.
- 74% of the employed respondents felt they would be able to miss 7-10 days of work without facing serious financial problems, but only 57% thought they could miss a full month without serious financial problems. 35% believed that their employer would pay them if they had to stay home from work, but 42% knew they

Most workers have not had any direction from their employers about the upcoming flu season, according to a national survey released today by Mansfield Communications Inc...

84% of employees feel pressure to show up for work when sick due to the current economy...

69% of employees say they have received no communication about policies in the workplace pertaining to H1N1 - not even information related to hand washing or sick leave.

*Business Wire, September 21, 2009*

would not get paid.

- Only 19% of working persons were aware of any workplace plan to respond to a severe outbreak of pandemic influenza.

These survey results indicate the extent to which employer responses to pandemic conditions can limit certain employee options. However, they do not tell the whole story. On several responses, significantly more low-income respondents (those with a household income of less than \$25,000 per year) than high-income respondents (household income over \$50,000 per year) felt they would have difficulty responding to public health recommendations. In other words, lower-income employees are more likely to place themselves in a position of greater exposure during a pandemic.

The survey also found that higher proportions of African Americans and Hispanics than whites, and people who described their health status as “fair/poor”, rather than “excellent/good”, would experience greater difficulties in the face of an influenza pandemic. The Harvard survey points out that the segments of society with the poorest health and greatest financial strains may have the greatest difficulty in protecting themselves and responding to public health recommendations in the face of a severe influenza pandemic.

#### **What is resilience?**

Resilience is the capacity of an ecosystem to tolerate disturbance without collapsing into a qualitatively different state that is controlled by a different set of processes. A resilient ecosystem can withstand shocks and rebuild itself when necessary.

Resilience in social systems has the added capacity of humans to anticipate and plan for the future. Humans are part of the natural world. We depend on ecological systems for our survival and we continuously impact the ecosystems in which we live from the local to global scale.

*Resilience Alliance*

Access to quality and affordable health care for Disneyland employees and their dependents is a key factor in the epidemiology of an influenza pandemic in Orange County. At present, however, some groups of Disney employees receive no paid sick leave whatsoever. In the context of ongoing contract negotiations, the employees also face the prospect of losing affordable dependent health care coverage.

#### **When Workers Go Home: Neighborhood Resilience**

Disneyland employees live lives beyond the Resort’s perimeter. At the end of each day they return home. Some return to the neighborhoods that border the Resort. Others commute further across the Greater Los Angeles area and points beyond. The commute has implications for the epidemiology of a pandemic outbreak.

Daily commutes have been shown to be an important mechanism by which human pathogens diffuse across U.S. metropolitan regions. The number of AIDS cases in counties surrounding New York City has been correlated with the number of commuters each county sent out each day beyond its borders (primarily, in this case, into the city) (63). Similarly, given the geographic extent across which Disney employees as a group travel every day, any influenza strain that moves into Southern California



is likely to find its way to the Resort in short order. Alternately, any strain that is brought into the Resort can be broadcast to the greater region by the commute. Workplace and community epidemiologies are tightly integrated (64).

The neighborhoods in which Disneyland employees live are more than mere destinations at the end of the day. They also offer the means by which community-wide shocks, including pandemics, can be mitigated (or acerbated).

Neighborhoods are thought to “possess physical characteristics, social and economic resources (or lack of), and an element of social interaction (positive, negative, or neutral) between residents” (65). They link individuals and families to the larger social resources of the larger region, such as schools and other community organizations (66). Well-functioning neighborhoods are considered to be “resilient” if they can deal with negative impacts, such as natural disasters, without fundamentally changing their structure.

Resilient neighborhoods consist of many weak ties between individuals, community organizations, and community resources. In the event of a negative impact to a neighborhood, others are willing and able to help out, lend a hand, and share resources to preserve the integrity of the neighborhood as a whole. People can rely on one another and seek out community support when dealing with hardships. There is a sense of trust between people. There is a collective effort to help each other out, a sense of community, and an interest in improving the lives of all.

Neighborhoods that lack resilience have fewer weak ties between individuals in the community. They offer fewer community resources for people to tap into in the event of a disaster or some other negative event. People in these neighborhoods tend to rely more on themselves and their immediate social ties. However, as described by Wallace and Wallace (66), “a neighborhood with a high prevalence of small, tight, isolated social ties is brittle. Not only are the resources within each little group thin in the event of need, but the isolation renders each group prone to behaviors that are not welcome in the larger society.” There are not enough resources to spread around in the event of an emergency, and neighborhoods that lack resilience will have difficulty coping with the stress of a disaster. Neighborhoods lacking resilience may break down in the event of a disaster, and fundamentally change their structure.

While it is hard to quantify resilience, there are several signs that some cities and neighborhoods in Orange County, including those bordering Disneyland, can be characterized with lesser resilience. Orange County has undergone several historical transitions since around 1960, and many of these transitions appear to have contributed to an increase in income

### **Recommendations for Increasing Urban Resilience**

1. Apply techniques to multiply [social] ties; e.g., form alliances of houses of worship of all faiths for neighborhood projects;
2. Encourage the ethnic and economic integration of neighborhoods; e.g., deliberately construct new housing and refurbish old housing for an economic mix of families and individuals;
3. Provide adequate municipal and private services to prevent contagious urban processes; e.g., allocate housing preservation services that fit the heaviest demand of each neighborhood, as defined by ecological analyses;
4. Plan for the pandemic by providing for adequate municipal and private services, even in the event of the illness of large proportions of the workforce; e.g., plan the supply of equipment and workforce in a manner similar to that prescribed by the Kerner Commission for a massive riot,

*Continued next page*

inequality and a decrease in social cohesion.

John Hipp (67) finds many troubling trends associated with the transitions faced by Orange County, including racial/ethnic segregation, low-paying jobs without benefits, a high cost of living and housing, and increased levels of poverty. These factors likely serve to undermine social cohesion. Hipp found that the cost of living in Orange County is 53.2% higher than the average U.S. metro region, but that about 25% of individuals living in Orange County are earning below 200% of the Federal Poverty Level (FPL). The high cost of living contrasts with the low-wage service sector economy now prevalent in Orange County. Within Orange County, Anaheim, where Disneyland is located, and Fullerton have the highest income inequalities.

*Continued from previous page*

including stocking up on extra fire hose, fire trucks, ambulances, and police vehicles, as well as developing a method to call in off-duty personnel and a special reserve of duty personnel and a special reserve of personnel from other areas;

5. Ensure adequate services, especially in poor neighborhoods, which are the keystone populations of metropolitan regions; e.g., establish standards for housing unit loss per unit population per year, monitor neighborhoods for housing loss and intervene promptly in neighborhoods when the loss exceeds the standard after ascertaining the causes of the loss and the particular services that need changing.

*Deborah Wallace and Rodrick Wallace, Urban Systems During Disasters: Factors for Resilience*

People living below the poverty level in Orange County are typically employed, although the unemployment rate is about average for the United States. Hipp found that 44.7% of adults living below FPL were working full- or part-time, and that 20% of all workers over the age of 16 earned less than \$25,000 per year. As of 2007, the FPL for a family of four with two children was \$21,027. Even people who are working very hard may be unable to surpass the FPL threshold, as jobs with the most employment openings in Orange County often pay less than \$10 per hour. The average income required for a household of four with two children to be self-sufficient was estimated to be \$17.48 per hour when both parents work, and \$24.47 per hour when only one parent works. Low wages, coupled with the high cost of housing in Orange County, frequently lead to living conditions that are overcrowded or to homelessness.

There are specific racial/ethnic disparities that must be considered as well. Hipp notes that while there has been a growing mix of races and ethnicities represented within Orange County as a whole, there is often segregation of these racial/ethnic groups into separate neighborhoods.

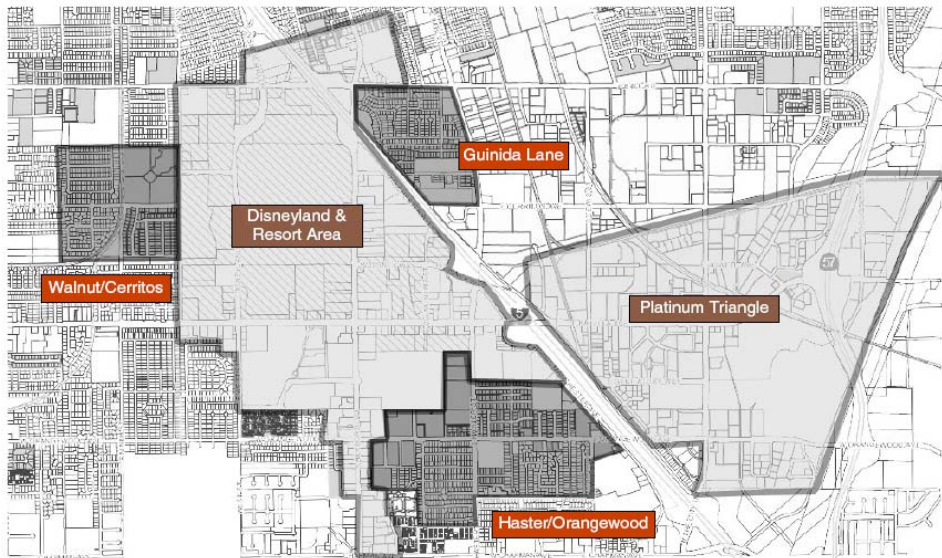
Examples are readily provided in a study by the Orange County Communities Organized for Responsible Development (OCCORD) (68). OCCORD conducted a survey of 524 families in three neighborhoods adjacent to the Resort District, which includes Disneyland and the Platinum Triangle in Anaheim. The three neighborhoods in the survey area were Haster/Orangewood, Guinida Lane, and Walnut/Cerritos (see OCCORD map next page). The OCCORD study found both racial/ethnic and income disparities between the survey area, Anaheim, and Orange County as a whole. According to the 2000 census, the survey area consisted of a total population of 37,660, 22% of which were white and 65% Latino. The median household income was \$40,506. This contrasts with Orange County as a whole, with a total population approaching three million, consisting of 51% white and 31% Latino residents. The

median household income for Orange County was \$58,820.

Further figures from the OCCORD study suggest that these neighborhoods may lack resilience. In the survey area, 40.2% of families live on a household income of less than \$25,000 per year, and 58.6% of families live below 200% of the FPL, earning less than \$42,000 per year. Individuals in the survey area are worried about gangs and unattended children, which may signal that parents are working and unable to provide parental supervision. Gangs may undermine social trust and a sense of security and safety necessary for resilience. People living in these neighborhoods often work for low wages and do not receive benefits from their employers. In Orange County as a whole, 11.8% of residents do not have health insurance, compared with 40% in the OCCORD survey area. Only 20% of respondents in the survey area had health insurance through their employer. A lack of health insurance is correlated with poorer health and a sense of insecurity.

Both John Hipp and OCCORD highlight some of the problems that face many residents living in Orange County. These problems may make it difficult for residents in certain neighborhoods, including those bordering Disneyland, to respond to an influenza pandemic. A lack of social cohesion may prevent public health measures from being successfully implemented. Low-wage jobs and the high costs of rent and living expenses may make it difficult for many working people to miss work, even when sick with influenza, unless they receive paid sick time. Many may not have access to preventive care, such as flu shots, which can help prevent influenza infection. A depreciation in social support for children and the elderly may result in, under the worse pandemic conditions, their neglect or abandonment.

Disneyland is part of a greater ecology. Its employees are part of



Based on analysis and projections from the Center for Demographic Research at California State University, Fullerton, we can expect the proliferation of low-wage, no-benefit jobs to continue in Anaheim:

Employment [in the Anaheim Regional Statistical Area] will continue to be concentrated in existing employment areas, including the central business districts of Anaheim and Garden Grove, and in the vicinity of Disneyland, the Anaheim Convention Center and the Platinum Triangle.

*In the Shadows of a New City: How Low-Wage Jobs and High-Cost Housing Undermine Community Health in Anaheim, Orange County Communities Organized for Responsible Development*

**Avian influenzas that have crossed into humans, 1996-2007**

- H7N7**, United Kingdom, 1996.
- H5N1**, Hong Kong, 1997.
- H9N2**, China and Hong Kong, 1999. Several additional human H9N2 virus infections were reported from China in 1998-99.
- H7N2**, Virginia, 2002.
- H5N1**, China and Hong Kong, 2003:
- H7N7**, Netherlands.
- H9N2**, Hong Kong, 2003
- H7N2**, New York, 2003.
- H7N3**, Canada, 2004.
- H5N1**, China, Thailand and Vietnam, 2003-2004.
- H5N1**, Cambodia, China, Indonesia, Thailand, Vietnam, 2005.
- H5N1**, Azerbaijan, Cambodia, China, Djibouti, Egypt, Indonesia, Iraq, Thailand, Turkey, 2006.
- H5N1**, Cambodia, China, Egypt, Indonesia, Laos, Myanmar, Nigeria, Pakistan, Vietnam, 2007.
- H7N2**, United Kingdom, 2007.
- H9N2**, Hong Kong, 2007.

*Avian Influenza A Virus Infections of Humans, Center for Disease Control and Prevention*

neighborhoods both bordering the Resort and farther afield across Southern California. Some neighborhoods with large numbers of employees may be in such a state that they are less able to organize the social resources needed to introduce community-wide disease interventions. These areas, then, may face the worse consequences of a pandemic. Even if medical prophylaxes are freely available at local clinics, neighborhoods without the capacity to alert their residents in a timely fashion or to transport the most vulnerable to local hospitals can suffer undue harm. In short, the exposure to which the Disneyland Resort may be subjected during a pandemic may depend in part on the conditions of the neighborhoods in which its employees live.

## Recommendations

### *Think Hurricanes: Preparing for the Long Term*

Previous pandemics teach us that preparing for the worst is the prudent option. The costs of what in statistics is known as a Type II error, thinking no pandemic possible when one is imminent, is catastrophically greater than that of the Type I alternative, thinking a pandemic imminent with none in the offering. No or little preparation for a bad pandemic could result in thousands dead in a local community. Good preparation for a pandemic that turns out to be low-impact kills no one.

A second mistake to avoid is accepting any ‘all-clear’ at face value. Swine flu H1N1 (2009) may be for most of those infected a relatively mild influenza now, but no authority is in a position to declare whether the virus will change or, if it does, how. The virus is evolving as it spreads and may recombine enough with other strains to produce an influenza both infectious *and* deadly. In other words, whether the new H1N1 continues to mimic the effects of seasonal influenza as it diffuses remains very much an open question.

History offers a warning written in bloody spittle. The 1918 pandemic proved mild in its spring incarnation and apocalyptic the following fall (69). But even then there remained great variation in the pathogen’s effects across the population: some people were exposed but not infected, some were infected but suffered only a seasonal-like flu, and then, of course, there were those whose innards bled from the inside out. A case fatality proportion clocking in at 2-3% still killed 50-100 million people worldwide. In other words, a small mortality rate for a large number of infected still produces a large number of deaths.

We are far from the clear for another reason, one finely stitched into the fabric of modern life. There now circulates a veritable zoo of influenza



subtypes that have proven themselves capable of infecting humans: H5N1, H7N2, H7N3, H7N7, H9N2, in all likelihood H5N2, and perhaps some of the H6 series (17-19). It may be best to think of influenzas along the lines of hurricanes. We may dodge swine flu H1N1 here and yet even now another influenza may be gathering itself together in the epidemiological queue.

The implications for pandemic planning are far-reaching. Efforts to prepare for influenza pandemics by employees and employers alike must be pursued over the long term.

### ***Preparing the Workplace: Best Practices***

A severe influenza pandemic could have serious consequences for the economy, including travel, trade, tourism, and food (12). Therefore, it is necessary for companies to prepare for the 2009 H1N1 pandemic in order to minimize the disruption of business activities, protect employee health and safety, and limit the negative impact to the community, economy and society.

The CDC and OSHA have each offered recommendations to businesses for developing a plan and preparing the workplace for pandemic influenza. These recommendations take two forms: the first is for a pandemic in which the severity is not much greater than that of typical seasonal influenzas (as is currently the case), and the second is under circumstances of increased influenza severity. As the current pandemic is a fluid and evolving ordeal, it is important for companies to be prepared to deal with both scenarios in order to protect employees and company assets. Companies engaged in administering mass gatherings should attempt to institute interventions beyond what CDC and OSHA recommend, in order to protect employees and customers from the additional risks of influenza specific to their industries.

A recently released Harvard School of Public Health poll of U.S. businesses demonstrates, however, that adequate preparation is largely lacking (13). Only 27% of large businesses believed they could avoid severe operational problems for two weeks if half of their employees were absent from work because of H1N1 illness. Only 18% of the large businesses that were polled felt they could do so for one month. The majority of polled businesses are interested in learning more about keeping employees safe, coping with a reduced workforce, and dealing with supply interruptions. While that interest is encouraging, with the second wave of the pandemic already underway, any businesses that have not done enough to prepare for the pandemic must act now.

Pandemic planning has the potential to reduce the impact on company

Be sure to involve your co-workers in your preparedness planning. One of the best methods of assuring your company's recovery is to provide for your co-workers' well-being. Communicate regularly with employees before, during, and after an incident.

1. Involve co-workers from all levels in emergency planning.
2. Use newsletters, intranets, staff meetings, and other internal communications tools to communicate emergency plans and procedures.
3. Set up procedures to warn employees. Plan how you will communicate with people who are hearing-impaired or have other disabilities or who do not speak English.
4. Set up a telephone call tree, password-protected page on the company website, email alert, or call-in voice recording to communicate with employees in an emergency.

*Continued next page*

operations, employees, customers, and the general public (42). As the severity of illness during the 2009-2010 flu season cannot be predicted with any certainty, employers need to plan to respond to influenza outbreaks in a flexible manner based on different levels of severity. It may be necessary to revise and refine pandemic influenza response plans if the severity of outbreaks increases. Employers should continue to monitor the situation throughout the fall and winter and base strategic decisions on information from local and state public health authorities about local influenza outbreaks.

Reviewing or establishing a pandemic influenza plan is recommended by the CDC as an important first step in preparing for the 2009 H1N1 pandemic. Employers should involve employees in developing and revising the plan in order to prepare for this season's pandemic threat. Focused discussions between employers and employees and practice running through the plan may identify gaps and allow for fine-tuning. Employers should provide pandemic-specific information to employees regarding human resource policies, workplace and leave flexibility, and available pay and benefits to employees. The plans should also include allowing sick workers to remain at home long enough to recover from their illness without fear of losing their jobs or of major economic hardship.

*Continued from previous page*

5. Designate an out-of-town phone number where employees can leave an "I'm OK" message in a catastrophic disaster.

6. Encourage employees to have alternate means and routes for getting to and from work.

7. Keep a record of employee emergency contact information with other important documents in your emergency kit and at an off-site location.

8. If you rent, lease, or share space with other businesses, it is important to communicate, share, and coordinate evacuation procedures and other emergency plans.

*Pandemic Influenza Preparedness, Response and Recovery Guide for Critical Infrastructure and Key Resources, Department of Homeland Security*

A pandemic influenza plan should include several measures to protect employee health. Identifying possible work-related exposures and health risks to employees will aid in developing procedures to mitigate the risk. Human resource policies should be consistent with public health recommendations and must to be in compliance with both state and federal workplace laws. Employers should also review seasonal absentee rates and continually monitor absentee rates to look for increases that may signal an influenza outbreak.

The CDC advises businesses to share their best business practices with other businesses in the community, the chamber of commerce, and other associations in order to improve the community's response effort. Companies can also add CDC "widgets" to their web sites or those of their employees to help keep employees informed with the latest influenza information. These widgets can be found at: [www.cdc.gov/widgets](http://www.cdc.gov/widgets).

OSHA (42, 44) discusses four types of occupational safety and health controls that can be implemented to reduce workplace exposure to pandemic influenza. These are referred to as the "hierarchy of controls," and are listed here from most to least effective:

1. **Engineering controls.** These are control measures that involve permanent physical changes to the workplace. These measures

aim to reduce work-related hazards without having to change employee or customer behavior. The installation of clear plastic sneeze guards at locations involving the customer/employee interface is one example of an engineering control measure. Remodeling waiting areas for park rides is another example.

2. **Administrative controls.** These are control measures that help to modify employee tasks and work schedules to minimize workplace exposure to hazards. One example of an administrative control measure is developing methods to minimize face-to-face contact between workers. Another example is to encourage workers to stay home without punishment.
3. **Work practices.** These are procedural methods for working in a safe and proper manner in order reduce the duration and the frequency of exposure to hazards. Examples include providing resources to promote personal hygiene (tissues, no-touch trash cans, hand soap, hand sanitizers, and disinfectants and disposable towels to clean work surfaces), encouraging employees to get seasonal and pandemic flu vaccines (or providing those), providing up-to-date training on risk factors and protective behaviors, and developing protocols to minimize the contact between workers and customers.
4. **Personal protective equipment (PPE).** These are protective gear used to protect workers while they do their job: N95 respirators, face shields, and disposable gloves. The CDC has recently issued recommendations for facemask and respirator use during the pandemic (70). The new recommendations offer special considerations for facemask use in the workplace, for employees with and without underlying medical conditions, when dealing with guests or staff who exhibit influenza-like illness during a pandemic.

It is important to note that employees should still practice good hygiene while wearing such disposable masks and gloves. They should avoid touching their faces with gloved hands, as gloves contaminated with influenza will spread the infection just the same as bare hands. Workers should also wash their hands after they doff gloves to avoid any contamination.

Employers should implement the controls listed above, and others, in each of these areas to provide maximum protection against transmission of pandemic influenza.

Review your current pandemic flu plan or develop a new plan. Involve your employees in development and review of the plan. Share the plan and policies with your employees...

Consider ways to allow sick employees to stay home without fear of losing their jobs.

Develop flexible leave policies to allow employees to stay home to care for sick family members or for children, if schools dismiss students or childcare programs close.

*Preparing for the Flu (Including 2009 H1N1 Flu): A Communication Toolkit for Businesses and Employers, Department of Health and Human Services, CDC, Department of Homeland Security*

### **Preparing for the 2009-2010 Flu Season**

The CDC has made specific recommendations to employers regarding the 2009-2010 flu season (12). The first series of recommendations are to be implemented under levels of influenza severity similar to those observed in the spring and summer of 2009. These recommendations should be implemented at this time in preparation for the present flu season, and should be described in a company's influenza pandemic preparedness plan. This plan should be developed with employee input and workers should be made aware of the details in the plan.

The CDC expects that even under conditions similar to those observed earlier this year, some increase in employee absenteeism from 2009 H1N1 is likely to occur over the fall and winter. If there are local outbreaks, large numbers of people will be infected. With little immunity to the new influenza across populations, more people are likely to become seriously ill and possibly hospitalized. The CDC recommends the following actions for the workplace under spring-like influenza conditions:

- 1. Sick employees should stay home until they are well.** Those infected can remain contagious even once they begin to feel better. Infected workers should monitor their health before reporting to work each day, and stay home if they are experiencing fever or other signs of influenza-like illness. Workers should remain home for at least 24 hours after they are free of fever (100°F/37.8°C), or of signs of fever, without the use of fever-reducing medications (*e.g.*, acetaminophen or ibuprofen). This typically means that an employee will need to be absent for about 3 to 5 days, even when antiviral medications are utilized.
- 2. Employers should offer employees flexible sick leave policies that are in line with public health guidelines.** They should allow employees to stay home to take care of sick family members. It is recommended that employers refrain from requiring a physician's note for employees to prove their illness or to prove that they are better.
- 3. Employees who are sick at work should be asked to go home.** If an employee becomes sick at work with influenza-like illness, they should be separated from other workers and asked to go home. When tolerable, they should wear a surgical mask before they go home.

One of the best ways to reduce the spread of influenza is to keep sick people away from well people... Regardless of the size of the business or the function or services that you provide, all employers should plan now to allow and encourage sick workers to stay home without fear of losing their jobs. CDC recommends this strategy for all levels of severity.

*CDC Guidance for Businesses and Employers to Plan and Respond to the 2009–2010 Influenza Season, Center for Disease Control and Prevention*

Workers should remain home until at least 24 hours after they are free of fever or signs of fever without the use of fever-reducing medications.



If an employee becomes ill at work, fellow employees should be informed of their possible exposure to influenza-like illness in the workplace. Workers with possible exposure to influenza should closely monitor their health for signs of influenza-like illness.

- 4. Cover coughs and sneezes.** Stress the importance of covering coughs and sneezes with facial tissues or a shirt sleeve if a tissue is not available. Influenza is thought to spread mainly through respiratory droplets produced during sneezing and coughing. Posters that encourage good cough and sneeze etiquette may be placed in the workplace as a continual reminder. Employers should provide facial tissues and no-touch disposable trashcans.
- 5. Improve workplace hand hygiene.** As influenza can spread via contaminated hands, employees should be encouraged to wash their hands often. Soap and water or an alcohol-based hand sanitizer should be used, especially after coughing or sneezing. Posters in the workplace may provide reminders about appropriate hand hygiene. Hands should be washed with soap and water for at least 20 seconds.

Surfaces and items that are frequently touched by peoples' hands should be cleaned frequently, as should surfaces such as workstations, countertops, and doorknobs.

A hand-washing program implemented at a Navy training center for recruits found that the program resulted in a 45% reduction in outpatient visits for respiratory illness, and that frequent hand washers had fewer respiratory illnesses (71).

- 6. Encourage and facilitate employee flu vaccinations.** The seasonal flu vaccine is available now. The 2009 H1N1 vaccine should be broadly available later this flu season. People at highest risk of being exposed to the flu and those at risk for influenza-related complications will be the first to be offered the 2009 H1N1 vaccine when it becomes available.

We will add that it is preferable for employers to offer worksite flu vaccinations and to pay the cost of such vaccinations.

Alternatively, employees should be granted time off to get the flu vaccines elsewhere. In addition to paying the cost of the vaccination, employees should be paid for time spent getting vaccinated on- or off-site, as a way of encouraging vaccination.

- 7. Employ measures that protect employees who are at high risk for influenza-related complications.** Some people at higher risk of complications include: pregnant women, children under the age

Vaccination should initially focus on 5 target groups whose members are at higher risk for influenza..., are likely to come into contact with influenza viruses as part of their occupation..., or are in close contact with infants younger than 6 months of age

**The 5 target groups**

1. Pregnant women
2. Persons who live with or provide care for infants younger than 6 months of age (e.g. - parents, siblings, and daycare providers)
3. Health care and emergency services personnel
4. Persons aged 6 months to 24 years
5. Persons aged 25-64 years who have medical condition [that could complicate influenza infection]

**Subset under limited vaccination**

1. Pregnant women
2. Persons who live with or provide care for infants...
3. Health care personnel... who have direct contact with patients or infectious materials
4. Children aged 6 months to 4 years
5. Children and adolescents aged 5-18 years who have medical conditions [that could complicate infection]...

*National Center for Immunization and Respiratory Diseases, CDC*

of five, adults over the age of 65, and adults and children with chronic lung disease, heart disease, diabetes, immune deficiency, and other chronic medical conditions.

Businesses should let employees know that some people are at higher risk for complications. Employees who are at higher risk should check with their health care provider if they become ill. Antiviral treatment (*e.g.*, Tamiflu and Relenza) early in the course of disease can prevent hospitalization and death in the worse cases.

Again, encourage employees to get the seasonal influenza vaccine and the 2009 H1N1 vaccine, especially if they are at higher risk of complications.

**8. Businesses should prepare for increased employee absenteeism.**

Employees may be unable to show up to work because of illness or in order to take care of family members. Businesses should monitor and respond to absenteeism in the workplace by implementing plans to maintain essential business functions.

In coordination with employee bargaining representatives businesses might consider cross-training employees to perform essential job functions, in case of high levels of employee absenteeism. If such cross-training is agreed upon, employees and employers may need to negotiate the time length over which such training will be implemented during a pandemic or other serious emergency.

Be prepared to change business practices to maintain critical operations.

**9. Be prepared for possible closings at local schools and daycares.**

School closings are not likely during a less severe pandemic, but they may still occur. If schools and/or daycares are closed, workers should be allowed to be absent from work to take care of their children. Employee leave policies should be flexible and non-punitive. Parents should not bring their children to work with them.

***Preparing for a More Severe Influenza***

If the severity of 2009 H1N1 increases over the course of the flu season, it is expected that levels of worker absenteeism will be much greater than if the flu remains relatively mild. An increase in virulence may require implementing additional measures to protect employees and slow the spread of influenza.

Hong Kong Disneyland was criticized by the city's government for offering a special discount to children after primary schools were shut for two weeks following a swine flu outbreak.

The theme park, which is 57 percent owned by the city government, is offering primary school children in Hong Kong unlimited visits for HK\$250 (\$32) during the school suspension. Hong Kong Disneyland should not "use this moment to promote business" and children should stay at home as much as possible, Secretary for Food and Health York Chow said yesterday.

Andrea Wong,  
Bloomberg.com,  
12 June 2009

Businesses should maintain communication with local health departments to remain apprised of the details of the ongoing pandemic. Local health departments can inform employees and employers alike about the local severity of disease and offer recommendations about what protective measures to implement.

The following CDC recommendations should be considered, in addition to the measures listed above, if swine flu H1N1 (2009) becomes more severe:

1. **Actively screen employees before they begin work.** Ask about symptoms such as fever or chills and cough or sore throat. Under more severe pandemic conditions, it is recommended that sick individuals remain home for at least seven days, regardless of when symptoms resolve. If they are still sick after seven days, they should remain home until at least 24 hours after the resolution of symptoms. The recommendations hold regardless of whether or not anti-viral medications have been used.

We will add that employees, their representatives, and employers may need to come to an agreement on the pandemic status and the period over which such screening would be implemented.

2. **Find alternative work environments,** if possible, for employees at high risk for complications from the flu when there is an increased level of influenza illness in the community. This may be more difficult in the hospitality industry than in other sectors.
3. **Increase social distancing.** If recommended by local public health officials, employers may need to consider ways to increase the distance between people at the workplace, employees and management alike. The goal would be for people to maintain a distance between one another of at least six feet at most times.

Well-designed social distancing practices can help turn medium-risk work environments into functionally lower-risk environments. Such practices seem particularly important as implemented at public venues such as Disneyland, with its queues, massing, hugging of characters, and hands on rides, among other crowd behaviors.

4. **Be prepared for closure of schools and daycares.** Under U.S. Pandemic Severity Index stages 4 and 5, the federal government may recommend closing schools for as long as 12 weeks if the case fatality rate reaches 1% or more (64).

[We review] the relevant scientific literature for the 1918-1920, 1957-1958, 1969-1969 influenza epidemics and the 2003 SARS outbreak. Although the evidence base of most non pharmaceutical interventions (NPIs) and personal protection measures is debated, it appears on the basis of past experience that NPIs implemented the most systematically, the earliest, and for the longest time could reduce overall mortality rates and spread out epidemic peaks. Adequate, transparent, and targeted communication on the part of public health authorities would be also of crucial importance in the event of a serious influenza pandemic.

*Marta Balinska and Caterina Rizzo, Istituto Superiore di Sanità, Italy*

In the event that one of your guests or employees shows sign of H1N1 infection, you will also need a plan for cleaning and handling guest and public rooms, restaurants, and other areas in the hotel...

Linens and bedding should not be sorted in the guest rooms. Before handling, employees should check the bedding and linens for sharp objects, blood, or bodily fluids before handling. The linen should be handled with protective gloves and placed into red plastic BIOHAZARD bags. If the linen is to be washed at the hotel, only trained employees should handle the contaminated laundry. Linen should be transferred directly from the plastic bag into the washing machine without contact. The BIOHAZARD bag should not be reused, but discarded as hazardous waste. Linens and bedding should be washed with an approved disinfectant. Any material that cannot be cleaned should be disposed of as hazardous waste.

*H1N1 Influenza Management in Hotels, Fall 2009, American Hospitality and Lodging Association*

In such circumstances, employees may need to stay home to care for their children. Employees with children who perform essential tasks may consider contingency plans so that they can remain at work even during school or daycare closures. If agreed upon by employees and employers, cross-train employees to perform essential tasks during the pandemic period. Offer flexible, non-punitive leave policies should employees have to miss work for an extended time because of school dismissal.

### ***Recommendations Specific to Disneyland and the Surrounding Community***

Based on best practices recommended by CDC and OSHA and the nature of Disneyland as both workplace and global destination site, we offer these additional recommendations for pandemic preparation at Disneyland and the surrounding community, beyond those listed above.

- 1. Engage in collaborative pandemic planning.** Disneyland management and employees should immediately collaborate on pandemic planning. The planning should be undertaken on equal terms. That planning should involve representatives of all bargaining units at Disneyland, including members of Disneyland's labor/management health and safety committee. The effort should involve getting Disneyland's pandemic preparation up and running quickly with adequate participation from employees in all departments and bargaining units. Such committees oftentimes hire consultants, make inspections, collect and analyze data on injuries and illnesses, create safety policies and oversee their implementation, and conduct health and safety education.

A health and safety committee pandemic plan should include identifying and instituting engineering controls, administrative controls, and access to workplace-specific personal protection equipment. The plan should include easily accessible on-site decontamination areas. The plan should include provisions for informational workshops for employees to be attended by representatives of employee bargaining units and management. Walk-throughs of the pandemic plan should be conducted across employee titles. The overall plan, or sub-plans worked out with specific employee organizations, can also include items such as pandemic-period non-punitive attendance policies and sick time arrangements and flexible personal leave for caring for sick and out-of-school family members, among others.

The American Hospitality and Lodging Association (46)

recommends hotel-specific collaborative planning relevant to an operation like Disneyland. Steps to take include designating a pandemic coordinator for the property, and establishing a pandemic committee including department heads from housekeeping, maintenance and engineering, security, food services, administration, front desk and bell services, and other appropriate individuals. As per federal recommendations, such a committee should include significant employee representation.

2. **Detail your pandemic planning.** The AHLA document also covers some of the eventualities large public venues, including hotels, must prepare for in the face of the severest of pandemics. For instance, if public health authorities designate a hotel a quarantine zone, planning should include considerations of protocols the hotel institutes under those circumstances. For example, these relate to whether an “isolation ward” should be established to house employees and guests who are waiting for transportation to a medical facility or onsite treatment. What steps can be taken to ensure that air from that ward is isolated? How will the isolation ward be staffed? How can bodies be safely stored onsite or removed to a morgue in the event of death? Such details are horrible indeed, but must be addressed in as great of detail as possible.
3. **Immediate implementation of all appropriate CDC recommendations.** We recommend that CDC’s recommendations for the 2009-2010 flu season be implemented immediately once specific rules for implementation are agreed upon by the company and employee bargaining units. CDC recommendations should, however, be treated as a starting point, not as the end of preparations.
4. **Off-site employee response team.** We recommend Disneyland provide support for setting up pandemic period phone trees and outfitting local off-site response teams for Disneyland employees who may need assistance in obtaining household basics, including medicines, during a severe pandemic or transportation to a hospital for ill family members.
5. **Health care.** We recommend Disneyland secure access to free seasonal and pandemic vaccines for all employees regardless of health insurance status. We recommend that all employees and their dependents be provided quality affordable health insurance coverage to mitigate pre-existing health conditions that can complicate influenza infections.
6. **Regional planning.** We recommend Disneyland and employee bargaining units regularly review pandemic conditions and

Social distancing measures for adults include provisions for both workplaces and the community and may play an important role in slowing or limiting community transmission pressure. The goals of workplace measures are to reduce transmission within the workplace and thus into the community at large, to ensure a safe working environment and promote confidence in the workplace, and to maintain business continuity, especially for critical infrastructure... Modifications to work schedules, such as staggered shifts, may...reduce transmission risk.

Within the community, the goals of these interventions are to reduce community transmission pressures and thus slow or limit transmission. Cancellation or postponement of large gatherings, such as concerts or theatre showings, may reduce transmission risk.

*Community Strategy for Pandemic Influenza Mitigation, CDC*



update pandemic planning in conjunction with Anaheim and Orange County public health officials.

- 7. Prepare for Resort closure if necessary.** If the present pandemic should turn severe, the government – federal, state and/or local – may suggest, request, or even require that large public venues be closed. The CDC currently recommends closing public venues if a pandemic’s case fatality rate reaches over 1% (64). Enforcing such community-wide social distancing proved to be one of the only mechanisms by which the worst of the 1918 pandemic was avoided. U.S. cities that enforced such measures suffered lesser case incidence and mortality than cities that did not (72). Disneyland must prepare for such an eventuality, including creating a ‘rainy day’ reserve that will permit the company to pay employees during closure.

Any employee-company pandemic planning committee should be charged with developing a protocol for closure. The AHLA document (46) lists a series of questions that together indicate the scope of planning requires closure under the most severe pandemic conditions, including shutting down or downgrading energy, water and HVAC systems and securing the property. The steps involved in such a complicated operation are numerous and require the expertise of the staff.

## Conclusion

In bringing over 15 million people through its park gates and thousands into its hotels each year, the Disneyland Resort takes on enormous responsibilities. These obligations, however, extend beyond the health and safety of its employees and customers day-to-day and on to acting responsibly under even the worst of community and public health threats. The company is not indemnified by the severity of an emergency. As one of Southern California’s largest employers, Disneyland can and should act to assure its employees and their families are protected to the fullest extent possible. By doing so, the company will also help protect its customers from near and far, as well as the surrounding community.

In openly adhering to best practices as recommended by the federal government and the State of California, Disneyland can meet its obligations during an influenza pandemic. First and foremost, both immediate and long-term planning in preparation for the present swine flu H1N1 (2009) pandemic and those that may follow is essential. The Department of Homeland Security, CDC, and OSHA have all recommend that such planning is best conducted in conjunction with employees and

Fear, that was [thought] the enemy. Yes, fear. And the more officials tried to control it with half-truths and outright lies, the more the terror spread.

The Los Angeles public health director said, “If ordinary precautions are observed there is no cause for alarm.” Forty-eight hours later he [was forced to close] all places of public gatherings, including schools, churches, and theaters.

*John Barry on the 1918 pandemic*

local community representatives. In instituting an array of interventions – engineering and administrative controls, changes in work practices, personal protective equipment – Disneyland can minimize influenza transmission in the workplace. Because of the scale of Disney’s operations, such interventions will in all likelihood contribute to mitigating infection out beyond in the greater community.

In acting to secure and maintain quality healthcare for its employees and their dependents across employee titles, and in offering paid flexible emergency sick and family leave, Disneyland can protect its capacity to conduct business in both the short and long term. The Resort’s ability to operate largely uninterrupted during a severe pandemic depends to a significant measure on the health and security of its greatest resource, its personnel.

## About the Authors

**Robert G. Wallace** is a public health phylogeographer. He has published on the evolution and spread of pathogens, including influenza, in the *Proceedings of the National Academy of Sciences*, *Social Science and Medicine*, *PLoS One*, *Microbes and Infection*, the *Journal of Theoretical Biology*, and *Intervirology*. Dr. Wallace is also co-author of *Farming Pathogens: Ecological Resilience and the Evolutionary Process*. He is currently a visiting scholar at the Institute for Global Studies at the University of Minnesota and a consultant on influenza for the Food and Agriculture Organization of the United Nations.

**Kristofer Hall** is completing a Masters of Public Health degree in Epidemiology at the University of Minnesota. He has studied the ecological resilience of avian influenza H5N1 and the genetic components of insulin resistance.

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**It's a Small World**

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Robert G. Wallace, Ph.D., Institute for Global Studies, University of Minnesota,  
214 Social Sciences Building, 267 19th Avenue South, Minneapolis, MN 55455, U.S.A.  
walla353@umn.edu

Kristofer Hall, Division of Epidemiology, University of Minnesota.

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