

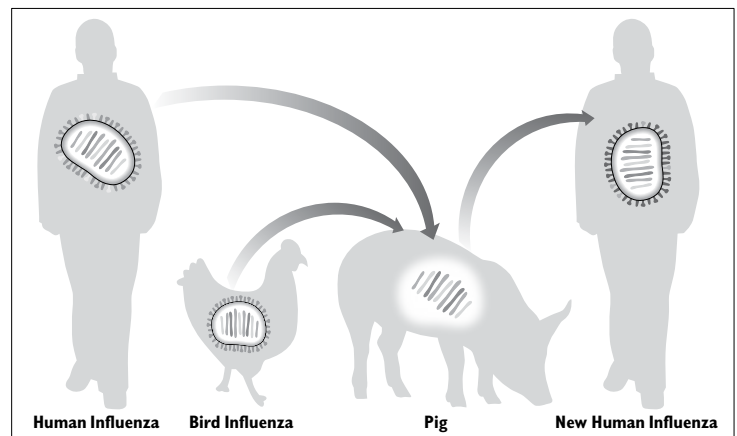
Understanding Novel H1N1 Influenza Virus

Charles Gerba, Ph.D.

What is Novel H1N1 Influenza Virus?

H1N1 virus is a single-stranded, enveloped RNA virus that is responsible for the current influenza pandemic. For daily reporting, please check with the CDC. The virus is made up of genetic elements from two different types of human influenza virus, as well as swine and bird influenza strains.

The novel H1N1 flu strain causes a greater disease burden for people younger than 25 years of age than it does for older people. People 65 years and older are much less likely to become ill with novel H1N1, but are more likely to require hospitalization. Pregnancy and other previously recognized high risk medical conditions for seasonal influenza also appear to be associated with increased risk of complications from novel H1N1. These underlying conditions include asthma, diabetes, suppressed immune systems, heart disease and kidney disease.



The CDC confirms that people cannot become infected with novel H1N1 virus from eating pork or pork products.

Symptoms and Treatment

The symptoms are similar to those caused by the seasonal flu virus and include fever, cough, sore throat, runny or stuffy nose, body aches, headache, chills and fatigue. Also, a significant number of persons who have been infected with the H1N1 virus have reported diarrhea and vomiting. As with seasonal flu, severe illness and death have occurred.

What should you do if you have the above symptoms?

If you have these influenza-like symptoms, you should try to stay home and avoid contact with other people. This means avoiding all normal activities, including work, school, travel, shopping, social events, and public gatherings.

If you have severe illness or you are at a high risk for flu complications, contact your health-care provider or seek immediate medical care.

Treatment: Severe Symptoms

In children, emergency warning signs that need urgent medical attention include:

- Fast breathing or trouble breathing
- Bluish or gray skin color
- Not drinking enough fluids
- Severe or persistent vomiting
- Not waking up right or not interacting
- Being so irritable that the child does not want to be held
- Symptoms improve but then return with fever
- Symptoms improve but then return with fever and worse cough

In adults, warning signs that need urgent medical attention include:

- Difficulty breathing/ shortness of breath
- Pain or pressure in the chest or abdomen
- Sudden dizziness
- Confusion
- Severe or persistent vomiting
- Symptoms improve but then return with fever and a worse cough
- Bluish or gray skin color
- Not drinking enough fluids
- Severe or persistent vomiting
- Not waking up or not interacting

Antiviral Treatment of Novel H1N1 Infection

The CDC recommends the use of oseltamivir or zanamivir for the treatment and/or prevention of infection with the novel H1N1 flu virus. Antiviral drugs are prescription medicines (pills, liquid or an inhaled powder) that fight against the flu by keeping flu viruses from reproducing in your body.

If you become ill, antiviral drugs can make your illness milder and make you feel better faster. They may also prevent serious flu complications. During the current outbreak, the priority use for influenza antiviral drugs is to treat severe influenza illness.

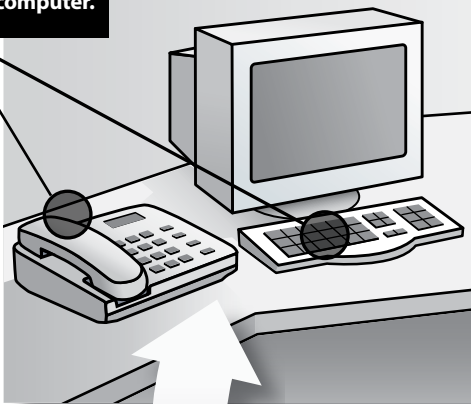
Other Ways to Help Prevent the Spread of the 2009 H1N1 Flu Virus

Take everyday actions to stay healthy:

- Cover your nose and mouth with a tissue when you cough or sneeze. Throw the tissue in the trash after you use it.
- Wash your hands often with soap and water, especially after you cough or sneeze.
- Alcohol-based hand sanitizers are also effective.
- Avoid touching your eyes, nose or mouth. Germs spread that way.
- Try to avoid contact with sick people.
- Stay home if you get sick. The CDC recommends that you stay home from work or school and limit contact with others to keep from infecting them.
- Follow public health advice regarding school closure, avoiding crowds and other social distancing measures.

Transmission of H1N1 Virus

Virus lands on surfaces, e.g., phone, computer.



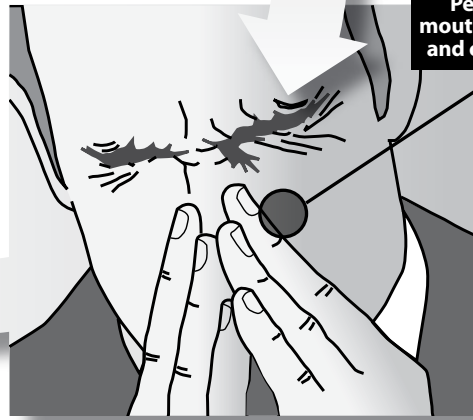
Person can pick up virus through contaminated surfaces.



Sick person sneezes or coughs and pathogens fall on fomite or get aerosolized.



Person touches eyes, mouth or nose with fingers and can become infected.



Humans acutely infected with influenza virus have high numbers of the virus in their respiratory secretions and often contaminate the environment by coughing and sneezing.

Flu virus may survive for up to 24 hours in aerosols and for up to 48 hours on environmental surfaces. Flu virus may be transmitted from surfaces to hands in high enough numbers to cause disease.

When influenza cases are detected among staff and students, schools should continue to clean

and disinfect the school buildings according to the regularly followed schedule.

Many commonly used EPA-registered disinfectants, when used according to label instructions, are effective in inactivating the virus.

For more information on novel H1N1 flu, visit the Department of Public Health's Web site at <http://www.ct.gov/ctfluwatch>.

Decontamination of Environmental Surfaces

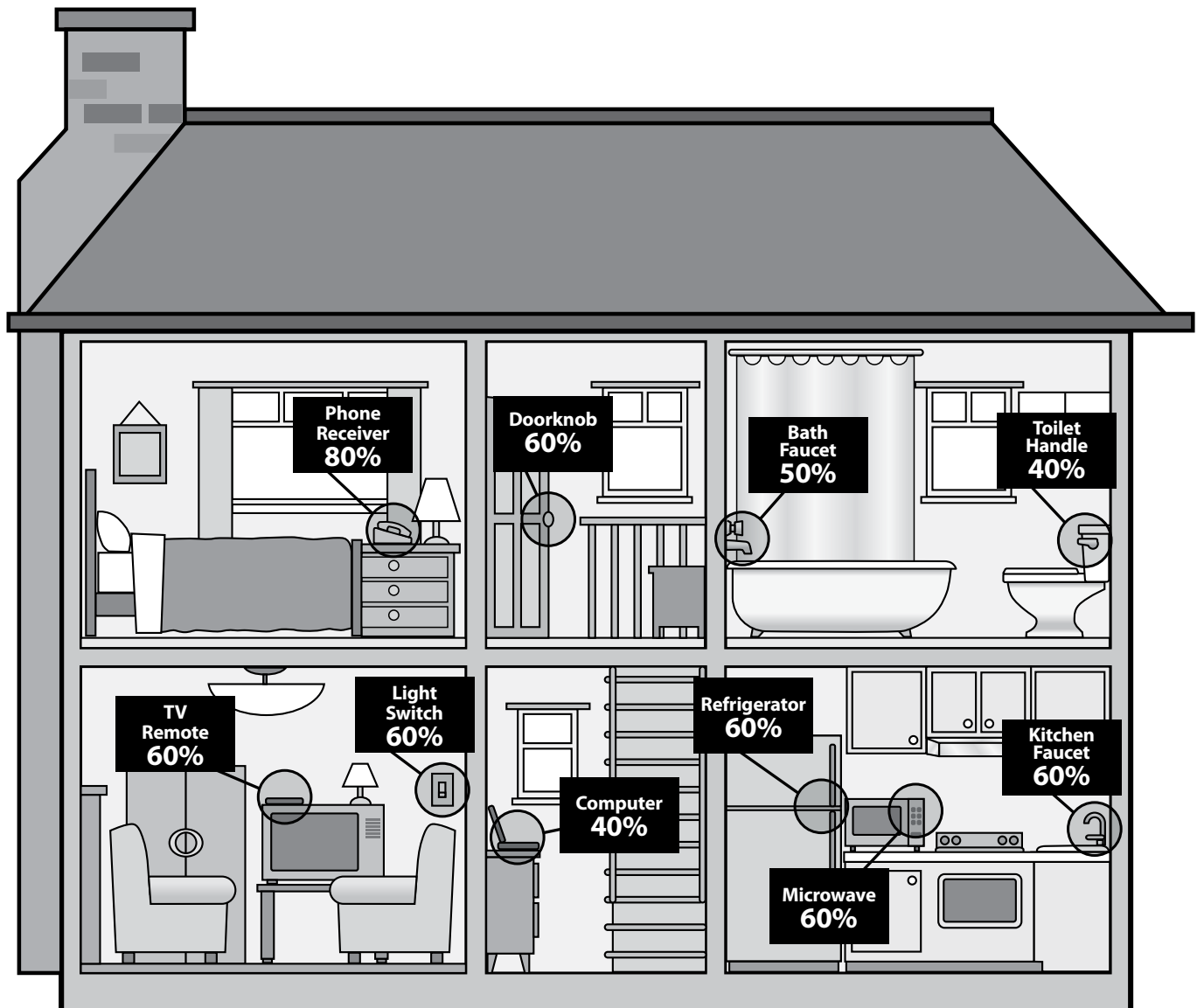
Studies in households with ill children have shown that commonly touched surfaces become contaminated with influenza virus.

- These surfaces include phones, TV remotes, nightstands, toys, etc. These surfaces should be disinfected on a daily basis with a disinfectant. Care should be taken when cleaning, as cleaning tools such as cloths and sponges can actually spread viruses to other locations in the

household. It is best to use a disinfecting cleaner or a disinfecting wipe when cleaning, or a paper towel, which can be discarded after use.

- Most disinfectants are effective against influenza virus, but it is important that the product label has the word disinfectant on it to ensure its effectiveness.

Influenza Virus Infection Rates of Everyday Objects in the Home During Flu Season



Source: "The Occurrence of Influenza A Virus on Household and Day Care Center Fomites," Stephanie A. Boone, Charles P. Gerba, *Journal of Infection*, 2005 (51).

Lessons Learned from the Pandemic

A novel virus strain that originates in one part of the world can rapidly spread worldwide, despite public health measures.

It is often difficult to ascertain the severity of a new flu strain and is therefore necessary to take adequate steps to disinfect potentially

contaminated surfaces and to limit your exposure to infected individuals.

Accuracy in illness reporting is often inadequate, particularly in areas outside the U.S. This may lead to an improper response or the lack of a response to an outbreak.

Vaccination Against Novel H1N1 Influenza

The regular seasonal flu vaccine is unlikely to provide adequate protection against novel H1N1 influenza.

A novel H1N1 vaccine should be available in the fall to be administered alongside the seasonal flu vaccine.

The following people are advised to obtain this additional vaccine:

- Pregnant women
- Caregivers of children under 6 months of age
- People aged 6 months to 24 years
- People aged 25 to 64 years old with underlying health conditions that put them at higher risk for severe illness

BIO

Charles P. Gerba, Ph.D., is a professor of Environmental Microbiology at University of Arizona and an internationally recognized expert on germs. He has authored more than 400 articles and several textbooks on environmental microbiology and waterborne pathogens. He is a Fellow of the American Academy for the Advancement of Science (AAAS) and is also a member of the American Academy of Microbiology.

Dr. Gerba actively conducts research on the development of new disinfectants and drinking water treatment processes, new methods for the detection of pathogens, and microbial risk assessment. He was a member of the EPA's Science Advisory Board Committees on Drinking Water and Research Strategies.

Dr. Gerba is best known for his tireless efforts to promote awareness about germs and the importance of personal and environmental hygiene. Gerba has brought the field of microbiology to center stage, fulfilling requests to discuss his research on "Dateline," "48 Hours," "Today," "20/20" and "Good Morning America." Widely known as Dr. Germ, Dr. Gerba has become the nation's expert on domestic and public hygiene.

Charles P. Gerba, Ph.D.
Department of Soil, Water and Environmental Science
University of Arizona
Tucson, AZ 85721