Swine Flu and You

The 2009 Class of Experimental Microbiology (Bio331)*
Department of Biological Sciences, Lehman College, CUNY

History of H1N1 flu epidemic
--Matthew Martinez and Natali Rodriguez

1918 – 1918 "Spanish Flu" outbreak: The H1N1 flu pandemic of 1918 was of avian influenza which killed about 100 million people worldwide

1977 – 1977 Russian Flu: prior exposure to H1N1 prevented it from turning into a true pandemic

March 2009 – H1N1 first detected in Veracruz, Mexico

June 2009 – Classified as a pandemic on June 11, 2009 by the World Health Organization.

Today (Dec. 2009) – Countries around the world are aggressively fighting the pandemic by educating and providing vaccine to the public

What causes the H1N1 flu?
--Josselyn Andramuno and Stephy Poon

The H1N1 virus, known as the swine flu virus, is a virus subtype responsible for influenza. This new strain is more complex than other strains. It is derived from four previous influenza strains—the North American swine influenza strain, the North American avian influenza strain, the human influenza strain, and the Asian-European swine influenza strain. Despite its complexity, it infects humans in the same manner as regular influenza strains.

H1N1 flu is a respiratory disease caused by the H1N1 flu virus. The disease first appeared among pigs in Mexico in the spring of 2009. The swine flu virus does not typically pass from pigs to humans, thereby making human infection rare. However, the H1N1 virus has mutated as mentioned above enabling it to spread to humans in the present outbreak from March 2009.

http://www.cdc.gov/h1n1flu/qa.htm

What areas of the world are being hit the most?
--David Espinal

Reported by the *Pan American Health Organization* (*PAHO*), on November 30, 2009:
The region of Americas: 5,360 cases of death
African region: 15,887 laboratory-approved cases and 108 deaths
Eastern Mediterranean region: 40,359 laboratory-approved cases and 392 deaths.

Why is H1N1 spreading so fast?
H1N1 spreads fast because it is a relatively new influenza virus with a very different appearance at molecular level. Human population has not yet developed immunity against this virus. H1N1 virus is transmitted easily through droplets from sneezing or coughing by infected persons.

http://www.who.int/csr/disease/swineflu/frequently_asked_questions/about_disease/en/

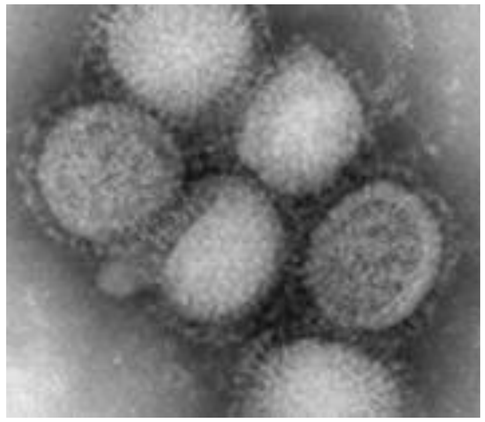
Who is most at risk?
--Michael Tavarez

Children younger than 2 years old*
Adults 65 years and older
Pregnant women and women up to 2 weeks from end of pregnancy
People with certain chronic medical conditions (such as asthma, heart failure, chronic lung disease) and people with a weak immune system (such as diabetes, HIV)
People younger than 19 years of age who are receiving long-term aspirin therapy
Please learn more at the following web site:

http://www.cdc.gov/H1N1flu/antivirals/geninfo.htm#box

*Contact Prof. Haiping Cheng for additional information (haiping.cheng@lehman.cuny.edu, 718-960-7190)

H1N1 virus



http://www.cdc.gov/h1n1flu/qa.htm

Image of H1N1 flu viruses generated using a transmission electron microscope.

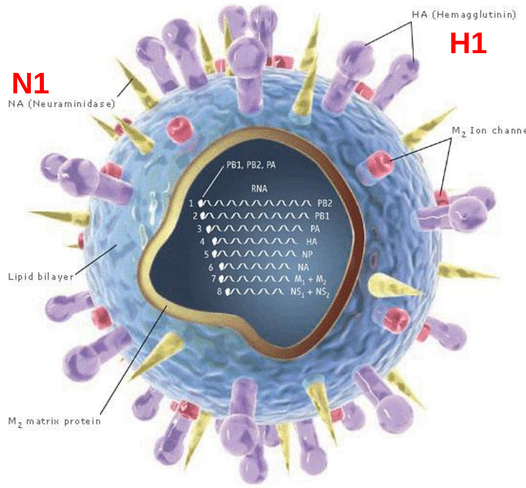


Illustration: Chris Bickel/Science. Reprinted with permission from Science Vol. 312, page 380 (21 April 2006) © 2006 by AAAS

Diagram of a flu virus showing H1(Hemagglutinin) and N1(Neuraminidase) surface proteins and RNA genome.

What do we know about the H1N1 flu virus
--Peter Suckoo and Sheldon Edwards

According to the CDC, most influenza viruses including the H1N1 virus remain viable on surfaces (where they are deposited by patients' touch, sneeze or cough) for 2-8 hours. In addition, moist, wet and cool surfaces prolong the viability of the swine flu virus and increase the chances of transmission.

H1N1 flu is spread in a manner similar to that of the seasonal flu. A single cough or sneeze results in droplets being transferred to others or by coming in contact with infected surfaces.

A person can infect others with H1N1 flu virus 1 day before showing symptoms and up to 5 to 7 days afterwards. This duration may be longer in children and those with low immunity. Affected persons should remain at home until after 1-2 days of the fever subsiding.

http://www.cdc.gov/H1N1FLU/
http://en.wikipedia.org/wiki/Influenza
http://www.health.state.ny.us/diseases/communicable/influenza/h1n1/index.htm

Are there enough vaccines for everyone?
--Andrew Morales

The CDC has indicated that larger quantities of vaccine will be allocated to states in December, which will allow many more New Yorkers to have access to the vaccine. Demand for the H1N1 vaccine remains high in New York, and county health departments and other health care providers are trying to meet that demand by scheduling H1N1 flu vaccination clinics as vaccine becomes available to them.

What are the side effects of the vaccine?
The H1N1 influenza vaccine has a similar safety profile as seasonal flu vaccines, which have very good safety track records. Over the years, hundreds of millions of Americans have received seasonal flu vaccines. The most common side effects following flu vaccinations are mild; such as soreness, redness, tenderness or swelling where the shot was given. CDC expects that any side effects following vaccination with the 2009 H1N1 influenza vaccine would be rare. If side effects occur, they will likely be similar to those experienced following seasonal influenza vaccine. If any unusual condition occurs following vaccination, seek medical attention right away.

http://www.bclocalnews.com/bc_thompson_nicola/kamloopsthisweek/news/69247222.html
http://www.ny.gov/governor/press/press_1130091.html
http://abcnews.go.com/Politics/congress-demands-answers-health-human-services-department-h1n1/story?id=9101254
http://abclocal.go.com/kabc/story?section=news/health/your_health&id=7105396
http://www.ny.gov/governor/press/press_1120092.html

Prevention
--Elizabeth Lopez and Jennifer winkler

We can stop the spread of H1N1 virus by
--washing hands with soap, water, and hand-sanitizers;
--avoiding touching your eyes, nose and mouth;
--covering your nose and mouth with a tissue when you either cough or sneeze and dispose of that tissue in the trash;
--wearing a facemask so that you are not breathing on other people, if you are still infected with the flu;
--seeking medical help from your doctor.

http://www.cdc.gov/h1n1flu/qa.htm#d

What is in the vaccine?
--Nadia Alie and Reena Peter

The Influenza A (H1N1) 2009 Monovalent vaccine contains an A/California/7/09-like virus and ingredients to help prevent bacterial contamination, to inactivate the viruses, and to stabilize the vaccine.

How is the vaccine given?
Regular injectable and nasal spray. The injectible vaccines contain an inactivated virus while the nasal sprays have live, attenuated (weakened) virus. The nasal spray vaccine is approved to be used only in healthy individuals, ages 2-49 who are not pregnant. Pregnant women and people with weak immune systems are urged to get the "flu shot" vaccination. However the nasal spray vaccine is safe for women who have already delivered, even if they are nursing.

According to the U.S. Food and Drug Administration, "People who have a severe (life-threatening) allergy to chicken eggs or to any other substance in the vaccine should not be vaccinated."

How soon will the vaccine start working?
The H1N1 vaccine begins to generate an immune response that is expected to protect against the 2009 H1N1 influenza virus within 8 to 10 days following vaccination. These results were obtained from an experimental trail conducted by the National Institutes of Health. The participants in the trail consisted mainly of children. The results were similar to clinical trails conducted on healthy adults as well.

http://www.fda.gov/BiologicsBloodVaccines/Vaccines/QuestionsaboutVaccines/ucm182335.htm
http://www.nih.gov/news/health/sep2009/niaid-21.htm
http://www.kingcounty.gov/healthservices/health/preparedness/pandemicflu/swineflu/FluMistGeneral.aspx

How long will the vaccine remain effective?
--Kewe Mbengue

Since this is the very first time the H1N1 flu vaccine is being distributed worldwide, there aren't any records of its effectiveness. Patients who have received the vaccine recently are being monitored and documentation is currently being developed by VAERS (Vaccine Adverse Event Report System) and the VSD (Vaccine Safety Datalink)Project. Learn more at the following web sites. http://vaers.hhs.gov/index
http://www.cdc.gov/vaccinesafety/Activities/VSD.html .

Disclaimer: Information is provided for your reference only. You should see your doctor if you show any flu symptoms.