Novel Influenza A/H1N1
Summary of Information
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What is the new influenza A/H1N1?
This is a novel virus of swine origin that has never before circulated among humans. It is thought to have developed within the past 6 years, possibly even in the United States, but was virtually unknown until the outbreak in Mexico that began in March 2009.

How do people become infected with the virus?
The virus spreads person-to-person. It is transmitted as easily as the normal seasonal flu, and can be passed to other people by exposure to infected droplets (expelled by coughing or sneezing) that can be inhaled, or that can contaminate hands or surfaces. Touching a contaminated surface and then touching your eyes or nose leads to spread of the virus.

The infectious or contagious period for H1N1 is similar to regular seasonal influenza, and is defined as one day before until 7 days after the onset of illness.

There is NO known instance of people getting infected by exposure to pigs or by eating pork products.

How is spread of the virus reduced or prevented?
People who are ill should:
- Cover their mouth and nose when coughing and sneezing (preferably with the sleeve or elbow, or into a tissue, but NOT with a hand). Teach children to “cough in your elbow” and to “sneeze in your sleeve”.
- Use tissues to contain respiratory secretions, and dispose of them in the nearest waste receptacle as soon as possible. Hands should be washed, or hand sanitizer used, after each tissue use and disposal.
- Stay home when they are unwell. If someone is known to have H1N1 influenza, they are urged to stay out of public places (including work, stores, and classrooms) for at least 7 days after the onset of your symptoms. Having visitors is best avoided. And if an infected person must go out, a facemask should be worn, and portable hand sanitizer used often.
- Clean their hands regularly. The virus is spread easily when contaminated hands touch faucet handles, door knobs, grocery carts etc.
- Keep some distance, preferably 6 feet, from healthy people as best as possible

Why are we so worried about this flu when hundreds of thousands die worldwide every year from seasonal flu epidemics?
Seasonal influenza occurs every year (peaking in the U.S. between December and March), and the viruses change each year – but many people have at least some immunity to the circulating virus, which helps limit infections. Many are also vaccinated each year against that season’s circulating viruses.
But novel influenza A/H1N1 is a NEW virus, and one to which most people (especially under age 55 years) have little or no immunity, and therefore the virus could cause more infections and more complications than are seen with seasonal flu.

People over the age of 55 do not seem to be getting this new influenza as much as younger people (especially ages 5 to 45 years), likely because of exposure when very young to flu viruses similar to the H1N1 virus.

This new influenza A virus causes mild illness in the majority of people, and most people recover without anti-viral treatment or medical care. Nonetheless, people should be aware that the virus can cause severe illness, resulting even in death.

**What is the difference between new influenza A/H1N1 and regular seasonal flu?**

Keep in mind that many people use the word “flu” incorrectly. Influenza is NOT a “twenty-four hour bug”, nor is it a “vomiting and diarrhea illness” or the “stomach flu”. Influenza seldom causes vomiting, and rarely causes diarrhea.

Instead, influenza is a RESPIRATORY illness, causing sudden onset of cough, sore throat, runny nose, headache, body aches, and fever. Only RARELY in influenza illness does fever NOT occur. Symptoms typically last for 5-7 days, and fever for 3-4 days. Influenza is NOT a “bad cold”, but rather a distinct illness by itself.

There are three types of influenza – types A, B, and C. Type A influenza viruses are by far the most common to cause illness in humans. Influenza A viruses are further typed into subtypes according to different kinds of combinations of virus surface proteins. Among many subtypes of influenza A viruses, currently the influenza A/H1N1 and A/H3N2 subtypes are circulating among humans.

And avian flu (influenza A/H5N1, or “bird flu”) is also still out there, causing sporadic illness and high rates of death in countries such as Indonesia, Vietnam, Egypt and others.

Influenza typically causes an average of 25-35,000 deaths in the United States each year, usually in the very young or very old, or in people of any age with certain medical conditions, such as chronic heart, lung, kidney, liver, blood, or metabolic diseases (such as diabetes), or weakened immune systems (such as HIV/AIDS, or due to chemotherapy). The numbers of deaths from the new influenza A (H1N1) is thus far relatively low (see below), but **what is concerning is that the deaths are occurring mostly in healthy older children and younger adults**.

Influenza viruses circulate in every part of the world, though at different times. The novel influenza A/H1N1 is currently spreading rapidly in the Southern Hemispher, where the season is winter. However, what is very different about H1N1 is that, rather than die down in the summer in the northern hemisphere, as influenza viruses typically do, H1N1 is **continuing to flourish and spread** across the U.S. and Europe (especially the United Kingdom).
What do we know so far about novel influenza A/H1N1?
The WHO declared on June 11 that H1N1 was now a **global pandemic**, a decision based on the spread of the new virus, not the severity of illness caused by the virus. The 2009 influenza pandemic has spread internationally with unprecedented speed. In past pandemics, influenza viruses have needed more than 6 months to spread as widely as the new H1N1 virus spread in the first six weeks.

The overall severity of the H1N1 pandemic appears to be moderate. Cases have been reported in over 100 countries. **The overwhelming majority of people are recovering without the need for hospitalization or medical care.**

Rates of disease complication appear to be similar to those seen during the regular seasonal influenza outbreaks. Thus far within the U.S., there have been just over 40,000 reported cases, in all fifty states, and 302 deaths since April; about **3/4ths of the deaths have occurred in individuals with underlying chronic medical conditions**. Laboratory-confirmed cases represent just a small subset of the total number of cases – there have likely been **as many as one million unreported, and therefore mild, cases.**

Extreme obesity has thus far been an unexpected risk factor for developing serious complications from H1N1, specifically a severe respiratory illness known as ARDS. Pregnancy has also been an unexpected risk factor, with 6% of U.S. deaths thus far occurring in pregnant women (even though only 0.5-1.0% of the U.S. population is pregnant at any one time). Asthma is always a chronic medical condition that leads to more serious influenza illness, as is diabetes and other metabolic disease, neuromuscular diseases, and malnutrition.

Rates of illness from H1N1 are currently decreasing somewhat in most, though not all, states. However, **99% of cases of influenza currently in the U.S. are the novel influenza A/H1N1; regular seasonal influenza is rarely seen during the summer months.**

Different than regular seasonal influenza, **the highest rates of illness from influenza A/H1N1 are among people under age 50, and especially under age 25.** Eighty percent of those hospitalized as a result of H1N1 thus far in the US have been under age 50, with 19 years the median age at hospitalization. **The median age for those who have died is 37 years, much younger than with regular seasonal influenza.**

As this is a new virus, we do not yet know whether it will mutate and strengthen. So far, it has done neither. However, the World Health Organization and the U.S. Centers for Disease Control & Prevention are continuing to monitor H1N1 cases and complications extremely closely. WHO estimates that as many as 2 billion people (one-third of the world population) could become infected over the next 12-24 months; **we are therefore very early in this pandemic.**

At this time the WHO is NOT recommending any travel restrictions.

**What can we expect this fall?**
We anticipate that there will be more cases, more hospitalizations, and more deaths associated with this pandemic in the United States over the summer and into the fall and winter. The novel influenza A/H1N1 virus will circulate **in conjunction with** regular seasonal influenza viruses.
Because of this, people should be very aware that there exists a significant potential over the fall and winter of 2009-2010 for a higher (possibly much higher) than average number of flu-related illness, complications, and death. Experts are predicting this pandemic to be a “Category 2” on the hurricane-like pandemic severity scale of 1 to 5.

Staying informed is crucial, as is following the advice of medical and public health experts who will be working hard to reduce the spread of the new virus.

**When should medical care be sought?**

Any adult or child should seek medical care if they experience shortness of breath or difficulty breathing, purple or blue discoloration of the lips, seizures, or if a fever continues for more than 72 hours. All babies less than two months of age should be seen by a doctor in the event of a fever above 100.4F (38.0C).

If a close contact (friend, co-worker, or relative) is diagnosed with influenza A/H1N1, consider seeking medical care if you develop a cough with sore throat, stuffy nose AND fever greater than 100.4F. If started within the first 24-48 hours, anti-viral treatment may be effective at reducing the duration and severity of your illness.

**What is the best prevention of influenza?**

The most effective way to prevent the disease or severe illness due to influenza is vaccination. Safe and effective vaccines have been available and used for more than 60 years. Among healthy adults, influenza vaccine can prevent 70-90% of cases of influenza. Among the elderly, the vaccine reduces severe illness and complications by 60%, and deaths by 80%.

Annual vaccination of regular seasonal influenza typically begins in late September, and continues through January. This year, however, supplies are expected to begin being made available in August, and physicians and pharmacies are being urged to begin vaccinating patients as soon as possible, before the expected H1N1 vaccination program begins. Given the need for two different flu vaccines, this year the challenge of vaccinating against influenza has doubled.

Nothing will change as to the need for vaccinating those at highest risk of death or severe illness against regular seasonal influenza. People over the age of 65 (especially nursing-home residents), and people with the chronic medical conditions mentioned above should absolutely be vaccinated against regular seasonal influenza. Also, young children ages 6 months to 2 years should be vaccinated, as should pregnant women, and health care workers.

Any child older than age 2 years can receive the vaccination, and should if they have asthma or another chronic medical condition, or have a new younger sibling under the age of 6 months.

However, the routine influenza vaccine will NOT protect against the novel influenza A/H1N1, but only against the other strains of influenza A expected to circulate.

**Is There A Vaccine Against Influenza A/H1N1?**

A vaccine against H1N1 has been rapidly developed, and in mid-July went into the testing phase. It has also gone into mass production (though early reports are that the vaccine is proving...
difficult to manufacture) in hopes of making stockpiles available by this fall, when the virus is likely to reappear in greater numbers in the northern hemisphere, especially when children return to school. The earliest the new vaccine is expected to be available is in early- to mid-October.

On July 29th, the CDC’s Advisory Committee on Immunization Practices issued its guidelines for who should receive the vaccine. Over 120 million doses of vaccine are expected to be made available to immunize the first wave of recommended recipients, who include:

- Children ages 6 months to 18 years
- Pregnant women
- Young adults 18 to 24 years
- Health care workers and emergency service personnel
- Adults with chronic medical (lung, heart, liver, kidney, metabolic, immune system) conditions
- Adults living in a home with an infant less than 6 months of age

The next wave of recipients will include all adults ages 25 to 64 years of age. Once those needs are met, the final wave will include all adults older than 65 years of age. What can be safely said is that vaccinating virtually the entire U.S. population against H1N1 will be an effort of historic proportions.

The rate of laboratory-confirmed cases in Americans 65 and older is very low (just 0.06 per 100,000), compared with 2.6 per 100,000 for the group with the highest infection rates, children 5 to 11. Studies have found that many older Americans carry at least some antibody protection against the new influenza virus, probably because it is similar to flu viruses that circulated widely in the 1920s through the early 1950s.

While we do not yet know for certain whether one dose or two of the vaccine will be necessary to protect against H1N1, we should expect 2 doses given a minimum of 3 weeks apart.

The U.S government has spent nearly $1.2 billion to buy enough vaccine to immunize the entire U.S. population against the new flu. The vaccine will be distributed through the states, rather than through purchase from pharmaceutical companies. States are also providing syringes, needles, alcohol wipes, and sharps containers to offices and other locations where the vaccine will be administered.

There remains much to be worked out, and public health authorities at the federal, state, and local level are meeting frequently to determine the best approach to reducing the anticipated spread of H1N1. The virus and the vaccine are in a race; the virus may win. If the pandemic influenza strain starts spreading fast between now and the October release of the vaccine, hospitals and medical personnel will be pushed to the limit.

We will provide updates as more information becomes available.

**What is the best treatment for the novel influenza A/H1N1 virus?**
Most people will experience only mild symptoms if infected with the new virus, and therefore will not need treated.
Additionally, by the time most people would seek medical care, for instance after running a fever for more than 72 hours, the time has passed for anti-viral medications to be of much help.

But for those with a known close exposure (having cared for or lived with a person who is a confirmed, probable, or suspected case of H1N1), quick testing for influenza (preferably within the first 24-36 hours of developing symptoms of cough, sore throat, runny nose, AND fever) may then lead to anti-viral treatment, especially if you are pregnant, a child under the age of 5 years, or have one of the chronic medical conditions mentioned earlier.

**Children under the age of 5 years** confirmed as having influenza A will also be candidates for receiving anti-viral treatment. The Food and Drug Administration has even granted an Emergency Use Authorization for health care providers to use Tamiflu™ (see below) in children under the age of 1 year. Older children and otherwise healthy adults under the age of 65 years not a risk for influenza complications generally do not require treatment.

The only medications effective for treatment of H1N1 are oseltamivir (Tamiflu™) and zanamivir (Relenza™). Tamiflu™ is the drug of choice for pregnant women (it is safe even to the fetus), and for children, who often cannot tolerate Relenza™, which is administered by inhalation. Thus far, only 5 cases of resistance to Tamiflu™ have reported worldwide.

To be effective, medication must be started within 48 hours of the onset of symptoms. The recommended duration of treatment is 5 days. Side effects are few, and may include nausea and vomiting (in about 10% of individuals). For seriously ill persons (i.e. hospitalized) with H1N1, treatment may still be considered even if symptoms have been ongoing for greater than 48 hours.

Individuals at high risk for developing complications of influenza, or health-care workers who have had a recognized unprotected contact exposure to a person with H1N1, may receive anti-viral medications as prophylaxis for 10 days post-exposure to H1N1.

**What can parents and caregivers do NOW to prepare?**

- Educate children as to cough and sneeze etiquette
- Educate children as to the importance of not sharing cups, glasses, or utensils
- Educate all adults in your immediate life as to the signs of influenza
- Stockpile facial tissues, hand soap, and alcohol-based hand sanitizer (minimum alcohol content 60%)
- Stockpile disinfectant spray, such as Lysol™
- Purchase small vials of hand sanitizer to keep in pockets or purses for use this fall and winter when in public places, such as after opening doors or pushing grocery carts
- Be in the habit of carrying your own pen to use to sign receipts in the check-out aisle
- Make certain each person in your household has his or her own hand towel, and that everyone understands the need to use only their own.
- Purchase a small supply of respiratory masks (facemasks) for use during coughing illnesses this fall and winter. Facemasks should not be re-used once taken off, but should be immediately disposed of.
- Have acetaminophen and ibuprofen on-hand for fevers and body aches. Remember that children should NEVER be given aspirin, and if your child becomes ill with influenza they should not receive aspirin-containing products such as PeptoBismol™
Where can we get more information?

- [http://www.cdc.gov/h1n1flu/](http://www.cdc.gov/h1n1flu/)
- [http://www.cdc.gov/h1n1flu/parents.htm](http://www.cdc.gov/h1n1flu/parents.htm)
- [http://www.medpagetoday.com/InfectiousDisease/SwineFlu/](http://www.medpagetoday.com/InfectiousDisease/SwineFlu/)

If I am a clinician, what do I need to know about testing for H1N1?

According to the CDC, “It is reasonable to assume that rapid diagnostic tests that detect influenza A viral nucleoprotein antigen can detect novel H1N1 infection in respiratory specimens as these nucleoproteins are highly conserved across influenza A viruses. However the sensitivity and specificity of the different rapid tests is not yet known for this novel virus…Confirmation of novel H1N1 flu infection can only be made by reverse-transcription polymerase chain reaction [RT-PCR] or viral culture.” For the full CDC guidelines on rapid diagnostic tests, click this link: [http://www.cdc.gov/h1n1flu/guidance/rapid_teseting.htm](http://www.cdc.gov/h1n1flu/guidance/rapid_teseting.htm)

Locally, Oregon Medical Lab has issued guidelines for H1N1 testing, and recommends that 2 nasopharyngeal swabs (preferably with a polyester or flocked tip and an aluminum or plastic shaft. Wooden shafted swabs should not be used.) be sent for the Respiratory Virus Panel (order code: 58375); results should be released within 24 hours. OML uses the Binax Now Influenza Influenza A and B rapid antigen test (order code: 65090), but again cautions that the sensitivity and specificity for detection of the novel influenza strain is unknown. For OML’s policy, click this link: [http://www.omlabs.com/?sid=479](http://www.omlabs.com/?sid=479)

Also for clinicians, what is the latest on vaccine distribution in Oregon?

Offices should plan for administration of the new vaccine beginning in October. Offices are STRONGLY ENCOURAGED to begin vaccinating patients who meet risk criteria for regular seasonal influenza as soon as vaccines are made available, expected to be sometime in AUGUST. Offices are encouraged to COMPLETE, if at all possible, much of their regular seasonal vaccine activities before the arrival of the pandemic H1N1 vaccine in October.

It remains unknown whether the novel influenza A (H1N1) vaccine will be administered in a one- or two-dose series. We will not likely know until September, when clinical trials are completed. For planning purposes, clinicians and office managers should anticipate a two-dose series, with the doses separated by 21-28 days.

The majority of vaccine will be in multi-dose vials, though single-dose, thimerosal-free, pre-loaded syringes will be available for young children and for pregnant women. A nasal spray form will also be available. The vaccine WILL be egg-based.