H1N1-A (Swine flu) and Seasonal Influenza (2010-2011 Season)

Influenza, commonly known as the “flu”, is a contagious viral disease that typically occurs in the winter months and causes cough, fever, sore throat, headache, chills, muscle aches and fatigue. Last year a new strain of influenza known as the Swine “flu” or H1N1-A influenza appeared, raising concerns that it might represent a much more serious illness than typical seasonal influenza. However, for the most part, the H1N1-A flu virus appears to cause an illness similar to that caused by the typical seasonal influenza virus. The H1N1-A virus has caused some deaths, just as does seasonal influenza. Pregnant women as well as some children under the age of 6 have been reported to experience more serious infections than average. There is no information to suggest that patients with primary immunodeficiency diseases (PIDD) have a higher relative risk from H1N1 than from earlier influenza strains. It is expected that this H1N1-A strain of influenza will continue to circulate throughout the population this flu season.

Influenza (caused by both the H1N1-A and seasonal viruses) is transmitted from person to person by airborne droplets formed during coughing and sneezing. These droplets are inhaled or land on mucus membranes (lining of the nose or inside of the mouth) or the conjunctiva (the thin membrane that covers the surface of the eye). Influenza virus also can be transmitted orally. Good hygiene and frequent hand washing are important to prevent transmission. For most people, the “flu” lasts only a few days, but some people get much, much sicker. Influenza can lead to pneumonia and is of particular concern in people with pre-existing heart and/or lung conditions.

Prevention
Commonsense hygiene practices are critical in helping to limit the spread of the virus. The CDC recommends that patients refrain from returning to work or school until 24 hours after body temperature has returned to normal without fever-reducing medication. It is also recommended that all people cough into their elbows or sleeves, and wash their hands frequently.

The most effective way to avoid an infection with influenza is to receive the influenza vaccine annually. The CDC has recently updated its guidelines and now recommends that everyone over the age of 6 months be given the influenza vaccine every year. Influenza vaccines are safe and effective and, contrary to a common misconception, they do not cause the “flu”. Because the influenza virus characteristically changes or mutates from year to year, each year it is necessary to prepare a new vaccine for protection from the new “flu” strains that are present that year. For this reason it is essential that everyone get immunized against the seasonal “flu” every year because last year’s vaccine may not be protective against this year’s virus strains. Currently there are two different types of seasonal “flu” vaccine available in the US - the inactivated or “killed” “flu” vaccine (the flu shot) and a live attenuated influenza vaccine (nasal spray). Both are highly effective in preventing influenza in normal individuals.

Last year a swine flu virus mutated to allow that virus to cause disease in humans and, therefore, a new vaccine to protect against this mutant virus needed to be prepared. Because swine flu appeared after the seasonal “flu” vaccine for last year had already begun to be manufactured, a separate vaccine needed to be prepared for the H1N1-A virus. This year the H1N1-A virus has been incorporated into the regular seasonal flu vaccine so that only one vaccine is needed for this flu season.
The “Flu-Shot”
The most commonly used vaccine, often called the “flu shot,” is a killed virus vaccine that can be
given to individuals ranging from 6 months to senior citizens. This inactivated vaccine can be used
by everyone except individuals who have had an allergic reaction to eggs.

This traditional vaccine requires an injection and may cause local swelling and tenderness at the
injection site. For children receiving the flu shot for the first time, two injections spaced about one
month apart are required. These should preferably be given in September and October before the
influenza season begins. In subsequent years, only a single vaccine dose is required.
Unfortunately, children who only received a single dose of vaccine in the first year often do not
develop protective immunity and two doses should be given to the child in the second year. (See
AAP guidelines below)

FluMist
The other vaccine is a live attenuated influenza virus (LAIV) vaccine that is administered by
droplets given into the nose (FluMist). FluMist is the name given to the intranasal seasonal
influenza virus vaccine. Attenuation means that the virus has been weakened so that it does not
cause illness in normal healthy people.

FluMist is approved for individuals ranging from 2 to 49 years old. Administration does not require
any injections. However, since it is a live virus vaccine, it has some theoretical risk for patients with
defective immunity. It is the general recommendation that patients with T cell disorders, such as
SCID and DiGeorge Syndrome, and B cell disorders with
hypogammaglobulinemia/agammaglobulinemia, such as X-linked agammaglobulinemia and CVID
not be given this form of influenza vaccine (FluMist). The IDF has reviewed this issue carefully with
the FDA and the manufacturer of FluMist and hopes that additional studies will be conducted to
help clarify the actual level of risk to our patient population. There seems little reason to expect that
FluMist poses an increased risk for patients with CGD or complement disorders. Patients with HIV
infection and immunodeficiency have been given this live agent vaccine without problem, but there
have been no studies of patients with primary immunodeficiency.

As with any live virus vaccine, concern has been raised about the possible spread of the vaccine
virus from an immunized person to a close contact such as a family member with PIDD. Studies
looking for spread in nursery schools where only some children received the FluMist found the
level of spread to non-immunized classmates was very low. This observation gives us some
reassurance that the risk of the spread of this agent from a FluMist immunized child or adult to an
immunodeficient family member should also be low. Furthermore we are not aware of a single
instance of a patient with PIDD developing influenza as a result of contact with a FluMist
immunized individual, despite several million doses of this vaccine being used each year for the
past several years. As a general recommendation only patients with the most severe forms of
PIDD (babies with untreated SCID) should avoid contact with individuals recently immunized with
FluMist.

The CDC Advisory Committee on Immunization Practices (ACIP) issued the following
recommendation concerning FluMist (LAIV) use in individuals in close contact with patients with
impaired immune systems. “The flu shot is preferred for people (including health-care workers and
family members) in close contact with anyone who has a severely weakened immune system
(requiring care in a protected environment, such as a bone marrow transplant unit). People in close
contact with those whose immune systems are less severely weakened (including those with HIV)
may get LAIV.”
Primary Immunodeficiency Family Plan

Nevertheless, for families with a member who has PIDD, we recommend that all members of the family group should be given the inactivated (killed) vaccine. The vaccines usually become available in August or September. Studies have shown that immunization can still be effective when given well into February or March in some years, so it is important to ask for the vaccine even if the New Year has passed.

Why do we recommend that everyone be immunized? First, some patients with a primary immunodeficiency may benefit from the vaccine. Even if they don’t, there is little down side to receiving the inactivated vaccine. Family members who are able to respond to the vaccine will be protected (a good thing in its own right). Even if the patient with PIDD does not respond to the immunization, he/she will benefit from having everyone else in the family protected from infection and not susceptible to bringing the virus home with them. We want to create a “protective cocoon” of immunized persons surrounding our patients so that they have less chance of being exposed. It would be a good strategy to encourage employers to provide influenza immunization programs at the place of work and schools to similarly encourage immunization of the student body to further extend this “cocoon.”

Currently, the Immune Deficiency Foundation understands that individuals with PIDD have at least the same risk of contracting swine flu as does the rest of the population. The same type of anti-viral medicine, i.e. Tamiflu or Relenza, which is effective for people with normal immune systems, would be effective for patients with PIDD who get influenza. Note that IgG replacement therapy may not protect against new strains of the influenza virus since the IgG contained in the currently available lots of IVIG or SCIG was obtained from donors several months ago, probably before the newer strains of influenza had circulated thru the donor population to result in antibody formation. It is unclear how much protective antibody against H1N1-A virus is present in the current lots of IVIG.

Influenza can be diagnosed rapidly by a test done in physician offices. If the test is positive it is recommended that persons immediately begin anti-virus treatment. Speed is important in this situation since the antiviral medications are most effective if begun within 48 hours of the onset of the illness. It would be a good idea to discuss with your physician plans for dealing with influenza before you get sick so that you are prepared. If you do become ill you should contact your doctor immediately about initiating treatment. However, it would be wise to contact your physician first, before going to their office, an urgent care facility or emergency room.

During the “flu” season, you may want to stay away from crowded public places, such as shopping malls, if you are concerned about exposure. Most people can get information from the national media and from their physicians on other ways to prevent exposure, as well as when to use additional precautionary measures.

What do I do if there is seasonal or swine “flu” in the schools or at my workplace?

There is no single recommendation that is applicable to every situation. Some medical advisors recommend that unless influenza is in their classroom, children with PIDD should go to school. If there is a known direct contact with secretions from a “flu”-affected child or adult by the PIDD child, some medical advisors suggest that the child should go on Tamiflu once a day for 10 days. If the PIDD child develops symptoms of influenza, that child should go on Tamiflu twice a day for 10 days. Relenza could also be used as the anti-viral treatment. The same treatment recommendations should apply to adults with CVID. As stated earlier, only patients with the most severe forms of PIDD (babies with untreated SCID) need to strictly avoid contact with individuals recently immunized with FluMist. If you have any questions, please contact your specialist.
American Academy of Pediatrics Specific Guidelines concerning the required number of influenza vaccine doses for children are as follows:

- Children younger than 6 months are too young to receive influenza vaccine.
- Only 1 dose is needed for children at least 9 years old.
- Children younger than 9 years require at least 2 doses of 2009 pandemic H1N1 vaccine. They will need 2 doses of seasonal influenza vaccine this year if they did not receive the H1N1 vaccine during last year's influenza season.
- Children younger than 9 years who have never before received the seasonal influenza vaccine will require 2 doses.
- Children younger than 9 years who received seasonal influenza vaccine before the 2009-2010 influenza season need only 1 dose this year if they received at least 1 dose of the H1N1 vaccine last year, but they need 2 doses this year if they did not receive at least 1 dose of the H1N1 vaccine last year.
- Children younger than 9 years who received seasonal influenza vaccine for the first time last year, but who only received 1 dose, require 2 doses this year.
- For children younger than 9 years who received influenza vaccine last year, but for whom it cannot be determined whether it was a seasonal influenza vaccine or the H1N1 influenza vaccine, 2 doses are recommended this year.
- For all children who require 2 doses, the second dose should be administered at least 4 weeks after the first dose.

For more, updated information on the Flu, go to the CDC Website: www.cdc.gov/flu/ or www.flu.gov

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