



## WHAT IS THIS NEW SWINE FLU AND WHY IS IT DIFFERENT AND POTENTIALLY SERIOUS?

Written by **DR.PAUL Roulmeliotis, MD, CM, MPH, FRCP(C)**

Given the recent outbreaks in North America, I wanted to talk about the new swine flu virus and how it has been able to change and infect humans. Viruses are small germs that, unlike bacteria, cannot live on their own. As parasites, viruses live and grow at the expense of the cells that they attack. The virus particles look like little round particles with a centre which is the genetic material covered by an outer layer or coat. In the case of the influenza virus, they specialize in infecting the respiratory system.

There are two types of influenza viruses: A and B. Within each group there are subtypes, based on how the virus coat or "cover" looks. Just like humans, the way a virus looks and behaves is determined by genes. In humans, eye color, hair color and skin color are determined by our genes. In the same way, the coat details of a virus are determined by the viral genes. Genes also determine what the virus will infect and how severe the infection may be. Some influenza A viruses only infect birds (avian) while others, only infect pigs (swine). When we are in contact with a virus or if we get a flu vaccine our bodies make antibodies against the specific virus coat or covering. In this way we can be protected in the future against these viruses. The usual human flu shot contains several virus types that we predict will cause each year's seasonal flu infections. These viruses change very frequently and this is why we need to get a flu shot each year.

So what happened with the new swine A-H1N1 virus? What experts currently understand is that this was initially a swine virus that recombined, or joined with at least two other viruses. This new swine virus strain now contains swine influenza genes plus genetic material from avian influenza virus and from influenza A subtype that infects humans.

### **So the new virus is different in two ways:**

Because it has some human influenza A virus genes, it now has the capacity to be transmitted from human to human. Without this change the animal-specific influenza strains can rarely infect humans, but if they do, the infection stops there as it cannot be transmitted to another human. This new virus can now be spread from human to human although it originated in swine. Because it has new genetic material, the coat of this virus is different. Humans have not been exposed to this and thus have no protection. By exposed before, I mean either through actually getting the infection or receiving a specific vaccine. Unfortunately, it seems that the usual 2008-2009 flu shot does not protect against this new virus. These two factors are a recipe for spread of infection worldwide. This is why health authorities are working diligently to try to contain and better understand this new virus.

The good news is that since we have isolated the virus, a vaccine can be developed. In the meantime, the best way to protect you family from this virus and other germs is to practice routine infection prevention habits including frequent hand washing.

On a final note please do not be confused by the name change, the new virus is referred to as H1N1 Flu Virus (Human Swine Influenza).

*The information provided is designed to be an educational aid only. It is not intended to replace the advice and care of your child's physician, nor is it intended to be used for medical diagnosis or treatment. If you suspect that your child has a medical condition, always consult a physician.*

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