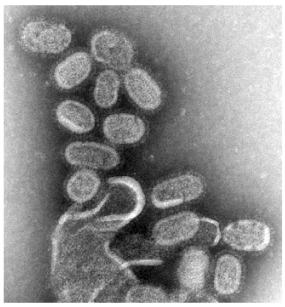
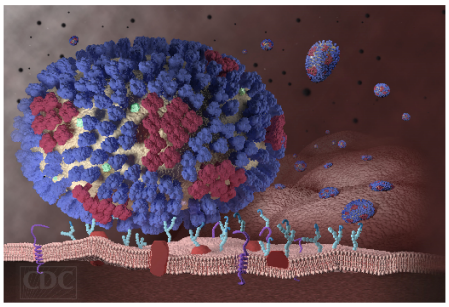
From Under the Microscope

Have You Received Your Flu Shot?



If you are reading this, chances are that you have already got this year's flu shot. Many hospitals and other healthcare organizations have made flu vaccination mandatory. What exactly does the flu shot do, and why is it so important? Flu shot is vaccination against Influenza (Flu) viruses. We should know that the flu shot does not protect us from a common cold, which is caused by rhinovirus, coronavirus and/or 200 other viruses. Nor does it protect against bacterial infections such as strep throat. Seasonal flu shot does work against swine flu (H1N1), although it is not effective for avian flu (H5N1).



Influenza viruses are RNA viruses of the *Orthomyxoviridae* family. There are influenza type A and type B viruses. Type A viruses can be further divided into subtypes based on two surface proteins, hemagglutinin (H) and neuraminidase (N). The currently circulating viruses are mostly H1N1 and H3N2. Flu viruses attack mucosal cells of nose, throat, and lung. They replicate in these cells before being released through coughing or sneezing. They are transmitted between people by airborne aerosols, as well as by direct and indirect contacts. Good health habits can greatly reduce the risk of flu: ***So remember to wash your hands frequently, avoid touching your eyes, nose or mouth, cover mouth when coughing or sneezing, and avoid close contact.***

Flu causes thousands of death and huge economic loss every year. Experts believe that the best way to fight flu is by vaccination. Flu vaccine is made of inactivated viruses. The traditional trivalent vaccine covers 3 viruses: H1N1, H3N2, and a type B virus. The quadrivalent vaccine covers one additional type B virus. CDC recommends everyone 6 months of age and older get a flu vaccine. We need vaccination every year because the immune response declines quickly. A big challenge for flu vaccination is that the viruses undergo antigenic "drift" and "shift" to change their surface proteins. Researchers have to work hard to make vaccines that "match" the circulating viruses. The effectiveness of vaccine varies greatly from season to season, depending on how good the "match" is. In general, vaccines are thought to reduce flu-related hospitalization by about 70%.

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