

Glossary on influenza vaccines and antivirals

Adjuvant	One or more agents that are added to a vaccine to stimulate the immune system, thereby potentially increasing the protective immune response to a vaccine e.g., aluminum salts.
Antibiotic	Medicines designed to kill or to slow the growth of bacteria that treat and prevent bacterial diseases and infections. Antibiotics are not used to prevent or treat influenza (which is a virus not a bacteria) but may be used to treat bacterial infections, such as pneumonia, that may occur as a complication of an influenza infection.
Antigen	Any substance derived from a microorganism being targeted by vaccination that stimulates a protective immune response.
Antigenic drift	A gradual change of the surface proteins (hemagglutinin or neuraminidase) genes of a particular strain of the influenza virus. Among several parameters, these slight mutations occur in response to the pressure of population immunity against circulating strains. It occurs on an ongoing basis in both type A and type B influenza strains and necessitates ongoing changes in influenza vaccines.
Antigenic shift	An abrupt change in the surface proteins (hemagglutinin and/or the neuraminidase) genes of a particular strain of influenza virus. This major mutation leads to the emergence of a new subtype of the virus potentially leading to a pandemic. Occurs only in type A influenza.
Antiviral	An agent used to kill or suppress the growth of viruses, including influenza. Antivirals are not vaccines.
API	Active Pharmaceutical Ingredient.
Cell culture vaccines	Vaccines produced in tissue culture (populations of individual cells) grown in the laboratory using flask, roller-bottle or fermentor technology
Hemagglutinin (H)	A protein on the surface of the influenza virus that helps the virus attaches to a cell in the respiratory tract and penetrate it. Referred to as the 'H' in the identification and labelling of influenza subtypes and strains
Immune system	The cells, tissues and organs that help the body to resist infection and disease. Important mechanisms of the immune system include the production of antibodies and/or the activation of cells, tissues and organs that can inhibit the spread of the infectious agent.
Inactivated split virus vaccines	Influenza vaccine consisting of fragments of whole virus particles rendered non-infectious through chemical inactivation (e.g., by detergent splitting)
Inactivated whole virus vaccines	Influenza vaccines consisting of whole virus particles that have been rendered non-infectious with a chemical agent or a physical treatment.
Infectious agent	Any organism, such as a pathogenic virus, parasite, or bacterium, that is capable of invading body tissues, multiplying, and causing disease.
Influenza type A	A category of influenza virus characterized by specific internal proteins and further subgrouped according to variations in their

	two surface proteins (hemagglutinin and neuraminidase). Influenza type A infects animals (birds and several mammals) as well as humans and has caused the pandemic influenza infections occurring in this century.
Influenza type B	A category of influenza virus characterized by specific internal proteins. It infects only humans, may cause less severe clinical illness than type A, and spreads in geographic regions rather than pandemic outbreaks.
Influenza type C	A category of influenza virus characterized by specific internal proteins. It does not cause significant clinical illness.
Influenza like illness (ILI)	Acute onset of respiratory illness with fever and cough and one or more signs and symptoms, sore throat, arthralgia, myalgia or prostration which could be due to influenza.
Isolate	In microbiology, a pure specimen obtained by culture.
Monovalent vaccines	A vaccine that contains one strain, such as will likely be the case with a pandemic vaccine.
Mutation	A permanent, transmissible change in the genetic material of a cell or a virus. This change may be leading to a variant causing or not a disease. In the case of influenza viruses, specific mutations and evolution cannot be predicted.
Neuraminidase	An important surface structure protein of an influenza virus particle, which enables the release of the virus from the host cell to infect new cells within the respiratory tract. Referred to as the "N" in the identification and labelling of influenza subtypes and strains.
Neuraminidase inhibitors (NAIs)	NAIs are antiviral drugs designed to prevent influenza virus replication inside the body by targeting one of its two surface proteins - the neuraminidase protein, which enables the virus to continue to infect host cells. When neuraminidase is inhibited, the virus is unable to exit the host cell and dies. Therefore, the virus is not able to spread to and infect other cells in the body. NAIs are effective against both influenza A and B viruses.
NISN	Neuraminidase Inhibitor Susceptibility Network, a network established in 1999 to follow the susceptibility of influenza strains to neuraminidase inhibitors (NAI), oseltamivir and zanamivir, and detect occurrence resistance at a population level in selected areas of the globe.
Oseltamivir	An oral antiviral medicine used in the treatment and chemoprophylaxis of influenza. Oseltamivir belongs to a group of medicines called neuraminidase inhibitors (NAIs) and is designed to be active against all clinically relevant influenza viruses.
Pandemic vaccine	A vaccine composed of antigens from the viruses that cause a pandemic. By definition these vaccines can be produced only after the pandemic strain has been identified.
Pathogenicity	The virulence or capability of a pathogen to cause disease. Based on this, avian influenza strains are divided into two groups: low pathogenic (LP) and highly pathogenic (HP).
Post-exposure prophylaxis	The administration of antiviral drugs after an individual has come into close contact with someone who is suspected of having influenza, in order to attempt to block or reduce infection.
Pre-pandemic Vaccines	Vaccines composed of antigens from avian viruses, which circulate before the outbreak of pandemic caused by virus and

	not capable to spread from humans to humans. These "pre-pandemic" viruses are believed to be the most likely origin of actual pandemic strains. The possibility of using vaccines prepared with candidate pandemic strains in anticipation of the pandemic is currently under evaluation by various public organisations or authorities. The rationale would be to provide some level of cross immunity against the actual pandemic strain and potentially some level of protection.
Prototype pandemic vaccines/mock-up dossiers	Vaccines developed against an avian flu strain (H5N1, H7N1, H9N2...) that is currently not circulating in humans, but following adaptation to man could have the potential to become spread through human transmission. Industry is developing prototype pandemic vaccines/mock-up dossier to validate the methods of production that will be used when the actual pandemic strain will be identified. Development of such a prototype influenza pandemic vaccines is a fundamental step in influenza pandemic preparedness to speed up the production of pandemic vaccines.
Reagent	A substance used in a chemical reaction to detect, measure, examine or produce other substances.
Reassortants	Influenza viruses adapted for the industrial production of trivalent inactivated vaccines. These reassortants viruses are created by mixing viruses of different origins (by strain or by species) swapping segments of gene to produce a new virus that may have characteristics of each original virus.
Resistance	Strains of a pathogen that are able to withstand the effects of an antimicrobial or antiviral agent.
Respiratory tract	Structures contained in the respiratory system, including the nasopharynx, oropharynx, laryngopharynx, larynx, trachea, bronchi, bronchioles, and lungs.
Reverse genetic	A laboratory technique to produce a genetically modified virus. In the context of influenza vaccine production, when this technique is used to prepare avian strains, such as H5N1, the haemagglutinin is firstly genetically modified to remove pathogenicity and provide a non-pathogenic vaccine reference strain.
Rimantadine	An antiviral medicine (M2 inhibitor) indicated in adults for the treatment of illness due to influenza A and for chemoprophylaxis following exposure to influenza type A viruses.
Seasonal influenza	An outbreak of influenza that occurs every year, usually because of antigenic drift.
Seasonal/annual vaccines	The surface of the influenza virus changes slightly every year and a vaccine is produced annually (northern and southern hemisphere) based on the strains recommended by the WHO and EMEA (see trivalent vaccines).
Stockpile	A reserve supply of medicines, supplies and equipment necessary to manage a pandemic outbreak.
Subtype	A classification of influenza type A viruses based on the surface antigens hemagglutinin (H) and neuraminidase (N).
Trivalent vaccines	A vaccine that contains three strains, two are influenza type A and one that is influenza type B, which is the case for the annual or seasonal flu vaccines.
Type	A category of influenza virus characterized by specific internal

	proteins.
Viral shedding	The expelling of virus particles from the body, one route for which is through the respiratory tract. Virus shedding is an important means of transmission, however evidence of virus shedding does not necessarily equate to transmissibility of the virus to non-infected individuals in the population.
Virus	One of a group of submicroscopic infectious agents, usually pathogenic, that replicates itself only within cells of living hosts.
Virus Strain	A genetic subtype or variant of a virus. Different influenza strains can be readily identified based on two membrane glycoproteins: haemagglutinin (H) and neuraminidase (N), e.g. H5N1, H9N2, etc.
Yield	Yield is a measure of the productivity of each vaccine strain in bulk production.
Zanamivir	An antiviral medicine used in the treatment and chemoprophylaxis of influenza. It is a neuraminidase inhibitor and effective against both influenza A and B viruses. Zanamivir is administered using a dry powder, inhaler device.

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