

Infectious Diseases & Endocrinology 2019: Universal vaccine and artificial pandemics by infectious attenuated live vaccine to save people from dangerous new influenza pandemic- Yoshinori Hayakawa- Toin University of Yokohama, Japan

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Influenza is an infectious illness caused by an influenza virus, generally known as "the flu." Symptoms may go from mild to serious. High fever, runny nose, sore throat, muscle and joint pain, headache, coughing and feeling exhausted are among the most common symptoms. Typically these symptoms start two days after exposure to the virus, and last less than a week. However, cough can last longer than two weeks. Diarrhea and vomiting can occur in children but these are not normal in adults. Diarrhea and vomiting occur more often in gastroenteritis, an infectious illness that is often referred to inaccurately as 'stomach flu' or '24-hour flu.' Influenza complications may include viral pneumonia, secondary bacterial pneumonia, sinus infections and worsening of chronic health conditions such as asthma or heart failure. Three of the four influenza virus types affect humans: Type A, Type B, and Type C. Type D was not known to infect humans but is thought to have the ability to infect humans. The virus is usually transmitted through coughs or sneezes through the skin. It is thought to often occur over fairly short distances. It can also spread through touching virus contaminated surfaces, and then touching the eyes, nose, or mouth. A person may become infectious with others before and during the symptoms. Testing for the virus on the throat, sputum, or nose can confirm the infection. There are a number of rapid tests available; however, even if the results are negative, people may still get the infection. More sensitive is a form of polymerase chain reaction, which detects the RNA of the virus. Frequent hand-washing reduces the risk of viral spread, as does surgical mask wearing. Annual influenza vaccines are recommended for those at high risk by the World Health Organization (WHO), and for those six months and older by the Centers for Disease Control and Prevention (CDC). In general, the vaccine is effective against three or four influenza forms. Typically accepted well. A one year vaccine may not be effective in the following year, because the virus is

rapidly evolving. Antiviral medications such as the neuraminidase inhibitor oseltamivir have been used to treat influenza, among others. The benefit of antiviral medication does not appear to be greater than its risks in those who are otherwise healthy. No benefit was found in those with other health issues. Influenza occurs all over the world in regular outbreaks, resulting in about three to five million serious disease cases and around 290,000 to 650,000 deaths. Last year, nearly 20 percent of unvaccinated children and 10 percent of unvaccinated adults become contaminated. Outbreaks occur primarily in winter in the northern and southern parts of the world, while outbreaks can occur at any time of year across the equator. Death happens mainly in high-risk groups — young people, elderly people and those with other health issues.

Influenza symptoms can begin quite suddenly one to two days after infection. The first signs are generally chills and body aches, with fever also normal in early infection, with temperatures ranging from 38 to 39 °C. Most people become so sick that for many days they become confined to bed with aches and pains in their bodies which are worst in their backs and legs. During the early stages of these diseases it can be difficult to differentiate between the common cold and influenza. Symptoms of influenza are a mixture of common cold and pneumonia symptoms, body ache, headache and tiredness. Diarrhea is typically not a symptom of influenza in adults [although H5N1 "bird flu" has been reported in some human cases, and may be a symptom in kids. The most frequently observed influenza signs are shown in the table next to it. The specific combination of fever and cough was found to be the best predictor; with a body temperature above 38 °C (100.4 °F) the diagnostic accuracy increased. Two decision analysis studies suggest that the prevalence will exceed 70 per cent during local influenza outbreaks. Also in the absence of a local epidemic, diagnosis of elderly people during the influenza season. Influenza will sometimes

cause severe illness including primary viral pneumonia or secondary bacterial pneumonia. The main symptom is trouble breathing. Therefore, if a child (or possibly an adult) appears to be getting better and then relapses with high fever, this is a troubling sign because bacterial pneumonia can be this relapse. These viruses are only closely related to human parainfluenza viruses, which are paramyxovirus family RNA viruses that are a common cause of respiratory infections in children like croup, but can also cause influenza-like disease in adults. There is one species in this genus, the influenza A virus. Wild aquatic birds are the natural hosts for a wide variety of influenza A. Occasionally, viruses are transmitted to other species and can then cause devastating outbreaks in domestic poultry or result in pandemics of human influenza.

Universal influenza vaccine is proposed and under development. Universal vaccine seems not to be payable for many people in developing countries, (dangerous pandemics usually start at developing countries from bird influenza). Artificial pandemics by infectious attenuated live vaccine are proposed. Ferret nasal mucosa is carcinized using carcinogen for easiness of incubation. Bird influenza virus is attenuated by reverse genetics. The virus is marked by green fluorescent protein. This attenuated virus is sprayed to many cultured cancer cell specimen incubated. In some specimen attenuated virus will mutate to increase in cancer cells, checked by green fluorescence. Then the virus is tested to infect ferret and then human volunteers without serious syndrome. Virus with strongest virus titer to infect ferret is selected as seed virus of infectious attenuated live vaccine. The seed virus will be increased in incubated cancer cells by bioreactors all over the world and sprayed to vulnerable people, e.g. soldiers, students, people in slums, medical staffs and people engaged in lifeline. Artificial pandemics of dangerous virus as H7N9, H5N1 etc. are to be created serially with few years interval. Artificial pandemic should be initiated before wild type pandemic starts. One reason is to avoid reassortment (mixture) of virus RNA and another is to avoid clinical confusion. It should not overlap with influenza season.