

# Epidemiology of the influenza virus



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The influenza virus, colloquially referred to as the flu, is a standout amongst the most well-known infectious processes in individuals of all ages and demographics. The central focus of this paper is to investigate the methodology of disease transmission for the influenza virus. To altogether comprehend the organism there are a few features to be examined. This includes identifying the virus itself through the distinguishing signs or symptoms, mode of transmission, complications and available means of treatment. The demographics affected will likewise be inspected through current information of mortality and morbidity, pervasiveness and rate of infection. An intensive examination will be made of the social determinants of health and how those components factor into the ailment along with the epidemiologic triangle in relation to the flu infection and the chain of contamination. Lastly the roles of the community health nurse and public aid as they relate to the treatment and response to the viral impact will be reviewed.

The flu arrives in various outbreaks episodes of variable range yearly. To accurately describe Influenza we must incorporate details on what causes the infection. The flu is an intense respiratory disease brought about by influenza A or B infections, most often occurring during the span of the winter months. (CDC, 2015) The infection lives in the respiratory discharges of an infected individual and is spread through droplets caused by talking, hacking or wheezing. (CDC, 2015) These respiratory droplets then land in the mucous membranes of individuals close-by or are spread through a non-

tainted individual touching a surface or article of clothing with the organism on it and after that touching their own eyes, nose, or mouth. (CDC, 2015) The virus can continue to shed for 5-10 days. (Dolin, 2015) The incubation period, from the time one is infected to displaying symptoms of infection is 2 days. (WHO, 2014) Signs and symptoms of influenza are a fever or feeling hot, coughing, sore throat, runny nose, headaches, weariness, emesis, and loose bowels. (CDC, 2015) Complications of this season's flu virus can include bacterial pneumonia, ear contaminations, sinus diseases, and dehydration. (CDC, 2015) pneumonia is the most widely recognized complication and is more regular in those with debilitated and susceptible systems. (CDC, 2015) Prevention with inoculation is an effective way to fight infection and the complications that come with it. Treatment choices for most incorporates treating the symptoms; by resting, increasing intake of liquids, taking acetaminophen, and cough remedies. (CDC, 2015) Antiviral medicines, such as Tamiflu, can diminish the seriousness and length of time of symptoms by a day and this prescription is ordered in the off chance that you have had influenza symptoms for more than 48 hours and you have complications related to contracting the flu.

The demographic of interest is juveniles and the elderly. Although death tolls related to Influenza contraction is “ usually disproportionately higher among elderly individuals and infants during influenza epidemics, a shift in the age distribution are seen during pandemics.” (Dolin 2015) Nurses are at risk for infection as well. The World Health organization states that “ vaccination is especially important for people at higher risk of serious influenza complications, and for people who live with or care for high risk individuals.

High risk individuals are pregnant females, the young 6 months to 5 years, the elderly over 65 years of age, individuals with chronic conditions, for example, diabetes, and healthcare workers. (WHO 2014)

As indicated by the Healthy People 2020 the social determinants of health are: Economic Stability

Education

Social and Community Context

Health and Health Care

Neighborhood and Built Environment.

These determinants of wellbeing have an effect on the infection rate of flu. There has been broad research on how social and financial circumstance assumes a significant part in the general health status of an individual, family and the community at large. As indicated by the WHO there is a relationship between habitations in devastated or overcrowded neighborhoods and increased risk of poor health status results and transferrable illnesses. (WHO, 2014). Absence of access, or restricted access, to health resources enormously affects the individual's wellbeing. Case in point, when people don't have health insurance, they are less inclined to take an interest in preventive care and are more prone to defer therapeutic treatment. The time of year or season is one of the greatest natural elements for influenza transmission in the United States. Regular occurrence of influenza happens predominately in the winter months from October to March. Individuals have a tendency to invest more energy inside and are

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exposed to a higher amassing of airborne viruses. Dry climate can dry out nasal passages which results in making them more vulnerable to airborne infections. Individual observation of infection precautions assumes a large part in community health management of infections. Case in point, if a man gets this season's flu virus immunization his or her danger of getting the flu infection is significantly reduced. An individual has some control over how to decrease danger of this season's flu virus by honing hand washing skills, covering the mouth when coughing and getting the prescribed measure of rest and reduction of every day stressors.

The epidemiological triangle model for understanding and visualizing a transmittable illness depicts the communication of the agent, host and environment giving a visual guide in controlling and keeping the transmission at bay by disturbing the equalization of this triangle. The Influenza virus (A, B and C) is the causative agent. Human beings are the primary host of the flu infection. Viruses have a genetic core, yet no real way to replicate itself. The virus attacks a host cell and assumes control over the cells capacity to reproduce. Influenza viruses are very versatile and resilient. Low temperature and low humidity support drop transmission. This clarifies the rationale for the seasonal nature of the virus. In tropical climates flu infection rates are connected with increased precipitation. Individuals invest more energy inside during harsh weather and cool climate expanding human to human interactions, in turn increasing exposure to the beads which convey the influenza infection. The extremely immunocompromised can be contagious for a considerable length of time. The epidemiologic triangle is utilized to break the chain of the flu disease. Immunization makes the host

less susceptible against the influenza infection, observing good hygiene breaks the chain of transmission from reservoir or tainted individual to the next host. (CDC 2014).

The Institute of Medicine characterizes general wellbeing as what the general public does, by and large to guarantee the conditions in which individual can be healthy. (IOM n. d.). The Public Health Nurse is the foundation of the public health system's framework. A nurse can use the epidemiologic triangle alongside the nursing procedure to lessen the effects and quantities of flu cases in their communities. The assessment phase is utilized to gather and dissect information about the flu infection and to distinguish community needs and accessible assets. Through the gathering and interpretation of information on the flu infection in the community the nurse has the capacity take part in flu case findings and serves to monitor trends. The diagnostic phase is the used to translate data and is the premise for execution of care and interventional planning. The nurse via home visits has the capacity identify and plan for strategies to overcome hindrances to vaccination such as cost and accessibility of service. Primary prevention would incorporate instruction on cleanliness, how the viral infection is transmitted, and inoculation. Secondary prevention incorporates distinguishing those in the community who are infected and conceivably the of caring for the individuals who are at most serious risk for getting an secondary infection by administration of antiviral medication.

There are various associations which advance flu awareness and prevention, an example of such an association would be the CDC. The CDC formed a program called The Influenza Division International Program, which works

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collectively with other international entities like The World Health Organization and others to develop the capacity to react to pandemic and seasonal flu outbreaks. The Influenza Division International's plan is to decrease the risk factors of individuals contracting the flu by giving individuals and the overall population including health care professionals about transmission precautions, populations at risk and the significance of seasonal influenza immunizations. The CDC reduces the dangers of a pandemic, restrains the spread of pandemic and seasonal influenza through week after week observation and evaluation of data. Through the utilization of the epidemiologic triangle the CDC has the capacity to: distinguish new strains of the flu, focus variables influencing individual to individual transmission, the directions of infection as it spreads at the worldwide and neighborhood levels, and team up with organization on general wellbeing measures to breaking the chain of transmission.

The CDC can advance the treatment of patients by perceiving variables connected with pathogenesis and clinical seriousness. An impact can be made on the general wellbeing of the population on a local or global scale. History has demonstrated the potential the influenza virus has to be incredibly destructive and its ability to evolve keeps public health organizations in close observation, advancement of new immunizations, and training on all levels from healthcare workers, communities and the citizen. By using the epidemiologic triangle to map the influenza virus in order to give a more all encompassing picture of communicable disease, both the individual health care professional and the public health organization can help stem the tide against a potent viral agent.

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