1918 Influenza

It is the 100th anniversary of the peak of the 1918 influenza outbreak, the largest documented communicable disease pandemic in modern times. Pandemics can still occur, and could have significant impacts in our society.

Seasonal Influenza

Influenza viruses cause respiratory and systemic symptoms including fever, cough, sore throat, body aches, headache, and chills. Influenza is spread by droplets or by touching contaminated hands to the mouth, nose or eyes. Illness complications include viral or bacterial pneumonia as well as worsened respiratory and cardiac conditions. Risks for these complications include age over 65 or under two years, pregnancy, and certain chronic medical conditions.

Influenza viruses change constantly. Typing and subtyping can identify the specific influenza virus and are used in vaccine formulation. Most disease is due to human-adapted strains, but periodically avian and swine influenza strains cause human illness, and may be origin of a pandemic strain.

Seasonal influenza outbreaks occur each year during winter months, affecting up to 20% of a population. Severity varies, but usually there are hundreds of thousands of hospitalizations and thousands of deaths. Existing healthcare resources including vaccine supplies and antiviral medications can usually accommodate seasonal influenza cases.
1918-1919 Pandemic

An influenza pandemic occurs when a new virus emerges and people have little or no immunity to that strain, resulting in a global outbreak. A pandemic can have health, economic, and social impacts. Cases may start any time of year and healthy persons may experience severe illness. Healthcare and pharmaceutical resources may be overwhelmed, and a vaccine may not be available. Schooling and businesses may be disrupted.

Influenza pandemics were recognized in the 18th century although the viral cause was unknown. Laboratory methods of the time were limited to bacteria; the isolate of an organism during an 1892 influenza outbreak resulting in the now-confusing name of *Haemophilus influenzae*. The influenza virus itself would not be described until 1931.

The pandemic known as “Spanish flu,” reflecting news reporting earlier in Spain due to less restrictive wartime censorship rather than origin of the virus, was likely exacerbated by World War I. International troop movement, concentrations of populations, poorer nutrition, and limited heating fuel supplies may have hastened the global spread and impact of the virus.

Media reporting often down-played the pandemic to avoid demoralization, resulting in reduced awareness and inadequate control measures. War bond rallies bringing together large crowds continued in some cities even during the peak of pandemic. In Seattle the mayor imposed use of masks for workers along with closures of theaters, churches, schools, and sporting events. An old courthouse was used for overflow from hospitals, as gymnasia and similar buildings were used elsewhere as improvised hospitals.

Medical management of cases was limited to basic care, with no antivirals (for treatment of influenza), antibiotics (for treatment of secondary bacterial infections) or supplemental oxygen available in the civilian setting. Influenza-associated mortality rates for previously healthy young adults were unusually high. The United States had around 675,000 deaths in a population of 103 million (0.65/100,000) with an estimated 50 million deaths globally (about 5% of the world’s population), exceeding the number of deaths due to the war. Isolated populations were particularly affected, with influenza killing around 15% of the population in Fiji, 22% in Western Samoa, and a third in Labrador.

Subsequent Pandemics

Various H1N1 influenza strains have been in circulation since 1919, contributing to seasonal influenza cases. In 1957, there was a pandemic of the “Asian flu” due to H2N2 with 69,800
deaths in the United States attributed to the new strain. In 1968, the H3N2 “Hong Kong flu” appeared as waves over four years. The impact of the pandemic was mitigated because the virus had some similarities to the 1957 H2N2 strain and because advances in medical care reduced fatalities. H3N2 strains subsequently replaced H2N2 strains. A milder outbreak occurred in 1977 due to “Russian flu” caused by an H1N1 virus similar to those circulating from 1947 to 1957. Younger people who had not been exposed to the previous strains were primarily affected.

In 2009 a new H1N1 only distantly related to previous viruses including the 1918 H1N1 strain emerged in April at the end of the usual influenza season. There were two waves with a small peak of cases in July and August (although limited testing during summer months may have underestimated the impact) followed by a major peak of cases in November and December.

Two groups were particularly affected by the 2009 H1N1 virus. Nationally there were 65 laboratory-confirmed, influenza-associated pediatric deaths reported in the spring and summer. During influenza season 2009-2010, an additional 279 such deaths were reported, nearly four times the average for the previous five influenza seasons. Compared with the general population, pregnant women with 2009 H1N1 influenza were at much higher risk for hospitalization. In addition, they accounted for around 5% of influenza-associated deaths that season while making up about 1% of the population. Severe influenza complications gave an increased risk for preterm birth or for babies born small for the gestational age.

Like other states, Washington conducts seasonal influenza surveillance to determine where influenza is occurring, disease severity, and specific influenza strains in circulation. This information is collated nationally to track trends and identify an emerging virus.

Influenza viruses change continually and a new strain with pandemic potential can occur at any time. Increased international travel could hasten the spread of a pandemic strain. Newer diagnostic tests, improved vaccines, and antiviral agents to prevent or treat influenza can lessen but not eliminate the effects of an influenza pandemic. Public health planning and preparation are a way to mitigate those effects.
Resources

- 2009 Pandemic: https://www.cdc.gov/mmwr/preview/mmwrhtml/mm5929a2.htm and https://www.cdc.gov/flu/pastseasons/0910season.htm

Passenger without a face mask is refused entry to a Seattle streetcar. Courtesy National Archives (Record No. 165-WW-269B-11)