

USET COVID-19 ECHO

October 2, 2020

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The History Of Pandemics

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Learning Objectives

- Participants will be able to:
 - Define what a pandemic is and the difference between an outbreak, epidemic and pandemic
 - Discuss pandemics from B.C to present
 - Highlight the impacts of pandemics
 - Identify the deadliest pandemics
 - Explain the impact of vaccines
 - Discuss the future of pandemics: New and emerging infections
 - Discuss lessons learned from the past

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Polling Question

What was the first pandemic?

A:541–542: Plague of Justinian

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What is a Pandemic?

A pandemic is declared when an epidemic spans over multiple continents and countries

Example: COVID-19 and the Black Death

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Outbreak, Epidemic, and Pandemic

- Outbreak— An increase in the number of disease cases that exceeds the normal, expected level in a specific area or region (Ex: Ebola Virus in Dallas, TX)
- Epidemic – When an outbreak moves from one area to multiple areas within a city or state (Ex: Hantavirus in the state of Arizona)
- Pandemic – When an epidemic expands across countries and continents (Ex: Smallpox and COVID-19)

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Polling Question

Where do most new pandemics originate from?

A: Vectors

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Who can name that pandemic?



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Plague

- A plague as opposed to the plague
 - The former may be/have been any of a collection of diseases from measles to smallpox
 - The latter is caused by *Yersinia pestis* and has three major clinical manifestations (bubonic, septicemic and pneumonic), in addition to a low-grade, essentially asymptomatic state

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Pandemics from B.C to present

- 541–542: Plague of Justinian
- 1346–1350: The Black Death
- 1899–1923: Sixth cholera pandemic
- 1918–1920: Spanish flu (H1N1)
- 1957–1958: Asian flu (H2N2)
- 1968–1969: Hong Kong flu
- 2009–2010: Swine flu (H1N1)
- 2020: COVID-19

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What am I associated with?



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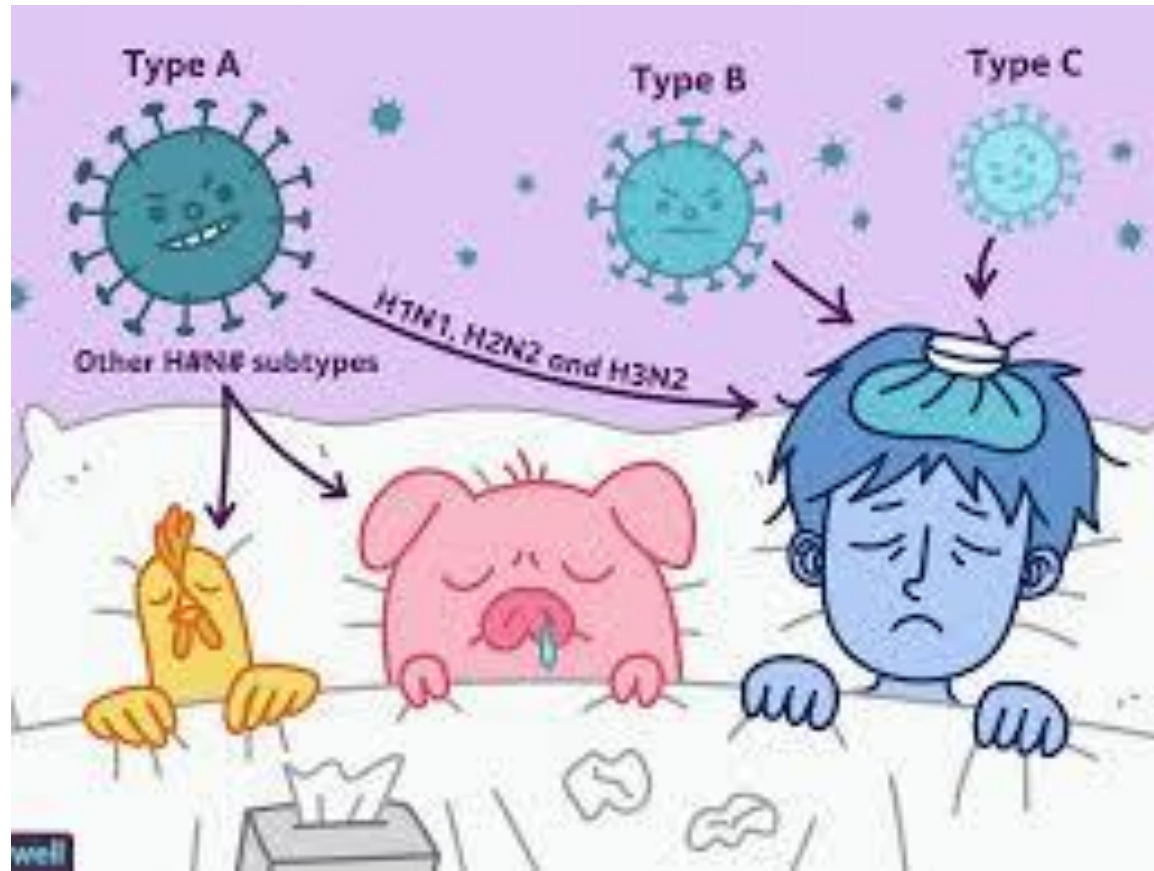
1918 Pandemic

- First US case identified at Fort Riley army camp in Kansas in the spring of 1918
 - In one week, 500 cases identified
 - 48 soldiers died
 - Transmission then slowed, but did not disappear entirely
- Disease spread from humans to swine as well
- Other foci also appear to have initiated human disease on a similar timeframe

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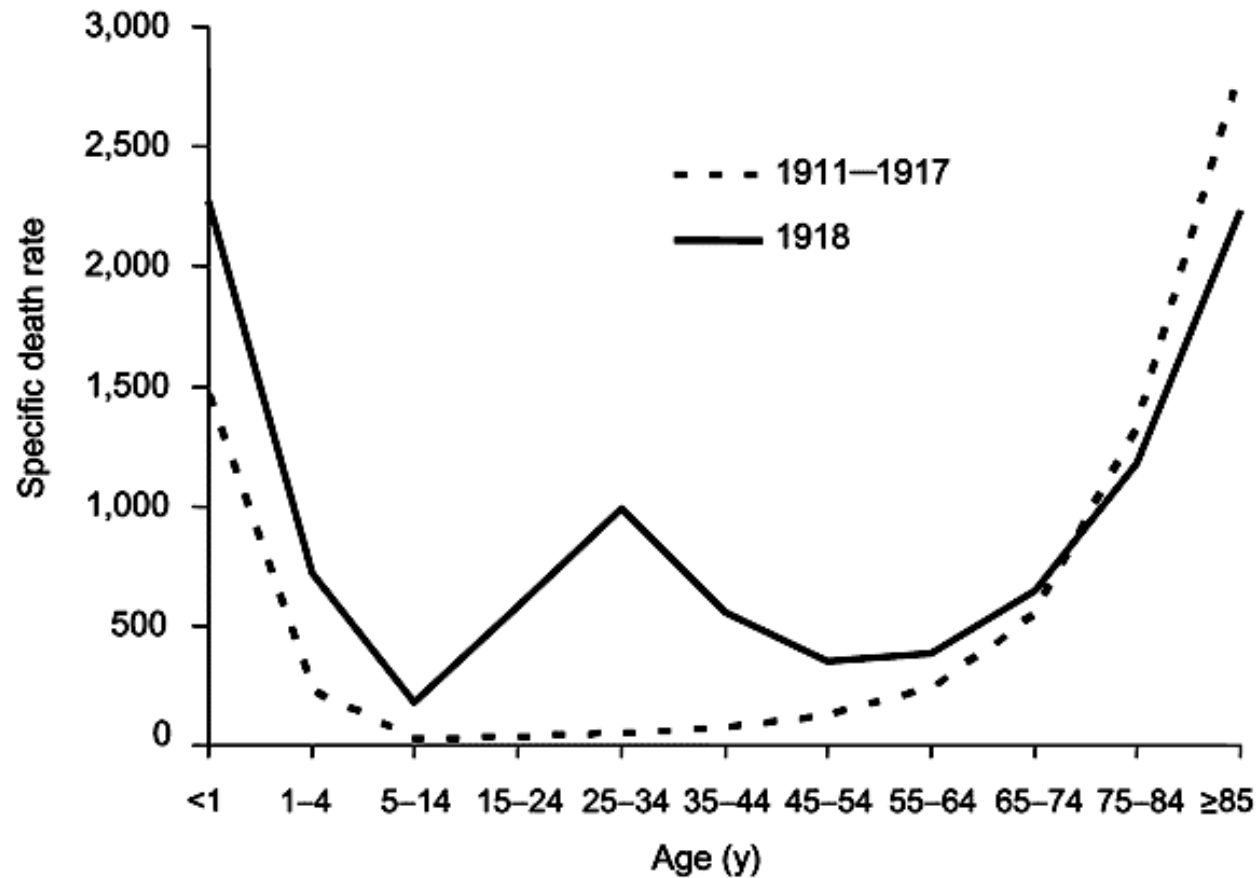
Influenza



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1918 Pandemic Mortality



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Polling Question

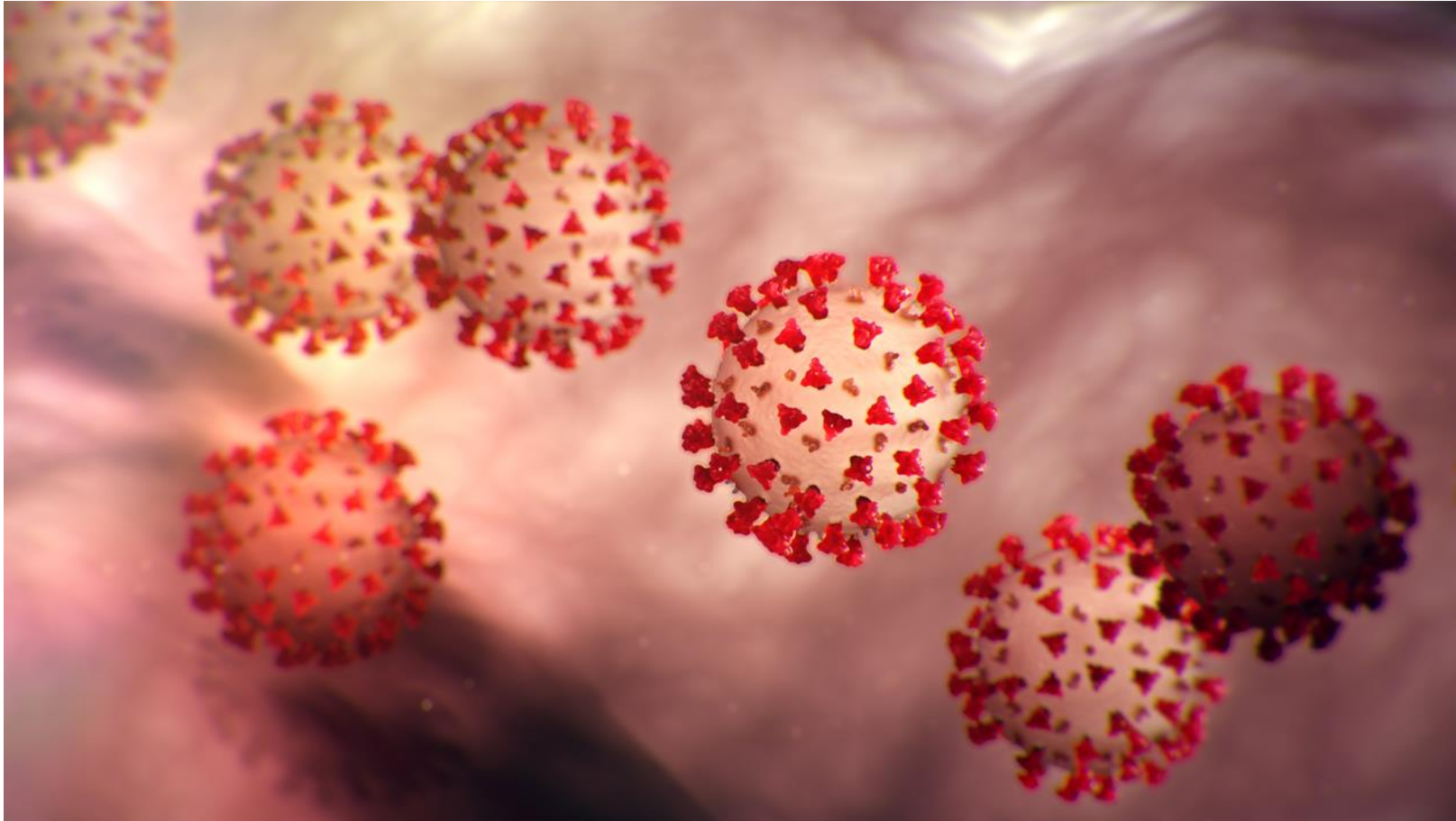
What country was COVID-19 first identified in?

A: Wuhan, China

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COVID-19 (SARS--CoV-2) 2019



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Deadliest Pandemics

- The Black Plague: 200 million
- Smallpox: 50 million
- Spanish Flu: 40-50 million
- Plague of Justinian: 30-50 million

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The Impact of Pandemics

- Significant, widespread increases in morbidity and mortality
- Economic damage through multiple channels, including short-term fiscal shocks and longer-term negative shocks to economic growth
- Increased fear and suicide rates
- Significant social and economic disruption
- Increased stigma and discrimination
- Political stresses and tensions

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Vaccine development timeline

- Smallpox - 1798 / 1935
- Diphtheria - 1923
- Pertussis – 1926
- Tetanus – 1927
- Influenza – 1945
- Polio – 1955

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Vaccine development timeline cont.

- Measles – 1963
- Mumps – 1965
- Rubella – 1967
- Hepatitis B – 1981
- H. influenza, type b – 1985
- Varicella – 1995 Hepatitis A - 1995

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Polling Question

What public health measure had the most significant impact on decreasing epidemics and pandemics?

A: Vaccines

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The Future of Pandemics: New and Emerging Infections

- What's next?
 - Influenza
 - SARS
 - Zoonotic
 - Bloodborne

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History Can Teach Us

- Humans are reactive and respond to direct threats with considerable ingenuity
- We develop systems and technologies to deal with challenges from the microbial world
- The next pandemic can come without warning

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Questions?

To request a REDCap account and get access to the USET TEC COVID-19 Surveillance Tool or for general assistance please contact us at usetepi@usetinc.org

Thank You!

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