THE NEXT PANDEMIC: Evidence Based Forecast


HIST 3245
Empires, Epidemics & Environment
History, Ecology, Public Health

Course Objectives
- Understand the significance of historical events and the environment’s role in epidemics.
- Evaluate primary and secondary historical sources on the basis of sound evidence and methodology.
- Trace the historic development of public health from antiquity to the modern day.
- Identify social behaviors and worldviews that inhibit disease control measures and exacerbate an epidemic crisis.
- Explain the global pattern of diseases across history from earliest beginnings and the effect of global travellers in spreading diseases.

Forecasting the Next Pandemic

Purpose: Provide students a platform to master course goals through iteration and collaboration. Here, students employed course concepts to forecast a plausible “next” pandemic originating from a global location.

Learning Objectives:
- Create and design a plausible pandemic informed by historical patterns of people, microbes, environment, and geographic context.
- Cultivate a greater understanding of the complexity in preparing for and dealing with a major health crisis.
- Synthesize concepts of history, ecology and P.H. through problem-based activities.

Concept Design
- Brainstorm: Identify or design the agent of the next pandemic.
- Develop an evidence-based concept map, iterate & synthesize course concepts.
- Create a communication artifact for public comprehension.
- Disseminate concept to classmates and faculty. A scholarly conversation.

Student Perception of Final Project

Figure 1. Word cloud visualization of student’ perceptions of the final project. Students were prompted to provide one to three words to describe the final project. Visual representation of word frequency is depicted.

Hepatitis E
- Hepatitis E induces liver inflammation
- Recent mutations have increased transmissibility and disease onset
- Water, meat and produce may be contaminated
- No treatment is currently available

Balles Bleues
- Novel zoonotic virus isolated from sheep in South Asia
- Causes male infertility
- Viral spike protein targets blood-testes barrier specific glycoprotein
- Symptoms include fever and light blue testicles

Chicken Originating Amoeba-1
- COA-1 was discovered in Sao Paula, Brazil
- This brain eating amoeba originated within the soil
- COA-1 is resistant to heat
- Currently no vaccines or treatment methods have proved beneficial

Poxy
- Smallpox virus accidentally released into the environment from a lab in Johannesburg, South Africa
- Uniquely transmissible between and abundance of animal and plant species
- Never leaves anywhere without leaving a mark

Koala Clap_CHLAM-2X
- An estimated 90% of koalas have chlamydia
- CHLAM-2X is a novel variant with increased contact transmission zoonotic features
- Extension antibacterial resistance has been report

Bald Flu: H19N12
- Baldness is a sign of this novel influenza variant
- H19N12 originated in Europe and is quickly spreading through Asia and Africa
- H19N12 kills 60% of those infected