



## A Cultural Look at Pandemics, Vaccines, and Herd Mentality

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### ***"A plague on both your houses." - William Shakespeare***

How have cultural leaders responded to pandemics through history? How have cultures and societies been changed by the ravages of disease? What part have pandemics played in the rise and fall of societies? Can a disease change the course of history? How will we wrestle with concepts of reopening the economy, Return-to-Work, and efficacy of treatments and vaccinations in the time of COVID-19?

As a degreed anthropologist I have studied human societies and cultures through their development over time. Within the science of anthropology I focused my interests in cultural anthropology where I studied people and legends, learned and shared beliefs, rituals and symbols, and the elements that define, differentiate, and change a culture over time.

Cultures have been traditionally viewed as homogeneous classes of socialized people who, influenced by personal beliefs, evolve through collective concepts based on shared experiences.

In the late 1980's with the birth of my first child, my husband and I had to decide whether to vaccinate him for known diseases or not. Some of our friends were against vaccination and shared their concerns with me. In the end, we opted to vaccinate based on our understanding of medical science, public health and statistics.

Eleven years later while going through the adoption of a 6-year-old little girl, my husband and I found ourselves wondering again should we or shouldn't we vaccinate. Our little girl came to us with no medical or vaccination records. The state had mandated our then foster child be given the same vaccinations our son received and we were provided a lengthy course and schedule of injections and oral medications. I felt the state's plan was a formulaic approach for a child with an incomplete record and did not consider her individual circumstances.

To address our concerns, I asked a friend who worked at the CDC to write a protocol for vaccinating an otherwise healthy 6 year old with no prior record of vaccinations. I advocated for my daughter with this protocol and requested that the original state mandate of more than 25 vaccinations be reduced to a schedule of less than 10. After approval from our pediatrician, the welfare agency, and a judge, the state agreed to the plan and we again chose a pathway informed by science, evidence based facts, and quality data. This is a personal example of how people and groups define themselves through their conformity to a society's shared values, and through their contributions to society.

***"History, despite its wrenching pain, cannot be unlived, but if faced with courage, need not be lived again."***  
- Maya Angelou

Through an anthropologic lens I watch and wonder what beliefs and symbols are identifiable during protests of the self-isolation/stay-at-home orders with protestors carrying signs that read, "Give me Liberty or Give me COVID-19" and "My Body, My Choice to Work." I am reminded of the "My Body, My Choice" signage of the late 1960's and early 1970's. What are the collective concepts, features, and artifacts that can be observed? Does "We the people" meant for "all of society" and not "of one", convey a right of personal choice when it can adversely affect or impact others? When there is no treatment, cure or vaccination should a personal choice of one override a responsibility to others? And when a vaccine is eventually developed will there be a vaccination mandate to be welcomed into society, public buildings, or places of employment?

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When considering infectious diseases, a pandemic is the worst-case scenario, so designated when an epidemic



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spreads into multiple countries. Have we learned and adapted from the world's pandemic history? Communicable diseases have existed since pre-historic hunter-gatherer periods, but the move to agrarian life moved people to build communities that made epidemics more likely to occur. Life in organized communities, even loosely, created transmission routes for diseases such as Smallpox, Leprosy, Malaria, Tuberculosis, and Influenza. In looking back through the history of pandemics, it is important to consider the lessons learned, and often forgotten.

***“History never looks like history when you are living through it.” - John W. Gardner***

Throughout human history, societies, cultures, and people have interpreted epidemics through rituals, beliefs and relics. The spirits and gods brought disease and destruction upon those deserving of their wrath. Across Africa, India and Asia, smallpox and plague deities were held in special regard and worshipped. Unscientific perceptions have led to uncontrolled and calamitous results. Trade, transportation and urbanization have all played starring roles in the historic movements and habits of disease. Governmental, Community, Tribal and Familial controls and restrictions are seen early on in the history of epidemics. The practices of quarantine and isolation date back to biblical references related to leprosy and the plagues of the middle ages.

Culture is the accumulation and transfer of knowledge, core conceptual structures, and spoken and unspoken rules and societal mores. Regarding COVID-19, will we ultimately experience a public shift away from those who protest, in essence, against public health benefits claiming “Freedom Isn't Free If You Have to Have a Mandated Vaccine”? Society and government often regulate, discourage and outright ban behaviors, substances, and activities for the good and survival of society. Some examples include: no smoking in restaurants and bars to protect the bartenders, wait staff and patrons of those establishments; discrimination, sexual harassment or threats of physical violence; and practicing medicine or dispensing pharmaceuticals without a license. Some of these may intend to prevent harming the doer but all are examples with the intent to benefit and protect society.

### **Pandemics and their Impacts on Humans since 430 BC**

Let us review more than 2,000 years of human experience, while thinking about how we are positively informed by anthropology and science, pondering why we have to keep relearning the benefits of public health, and realizing that caring about others is not an infringement on personal rights.

430 BC – The Athenian Plague, crossed into Athens as the Spartans laid siege. As much as two-thirds of the Athenian population died, giving Sparta the upper hand during the Peloponnesian War. Greek historian, General Thucydides who was infected during the outbreak, described the devastation as the beginning of the decline and fall of the Athenian Empire. The accounts of Thucydides showed the disease saw no differentiation of economic, religious or societal position. The sick were left to die alone and traditional funeral ceremonies were discarded for fear of the contagion.

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165-180 AD - The Antonine Plague may have been the earliest reported appearance of smallpox and measles. The spread began in the nomadic tribes of the Huns who then passed it to the Germans who in turn infected Roman troops, returning to their homeland, who in turn spread the disease throughout the Roman empire. Emperor Marcus Aurelius was reportedly sick from the disease; it may have led to his death. In all, 5 million died, or about 3% of the world's population.

249-269 – The Cyprian Plague, a pandemic initially seen in Ethiopia, that then passed through Northern Africa, into Rome, then onto Egypt and northward as it spread. Reportedly caused by smallpox, influenza and viral hemorrhagic fever such as Ebola, the virus made its way to the cities of the Roman empire. The Romans, fearing the disease, fled to the country and through their escape spread the disease well beyond the gates of their cities. At the height of the outbreak, as many as 5,000 people a day were dying in Rome. This plague claimed the lives of two emperors: Hostilian and Claudius II. Between their reigns, political instability was significant

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with rivals struggling to claim and hold the throne. The lack of leadership and depletion of soldiers from the ranks of the legions caused widespread shortages of food and contributed to the deteriorating empire by weakening Rome's ability to fend off external attacks.

541-542 – The Justinian Plague, believed to be the world's first bubonic plague, was bacterial. Initially appearing in Egypt, it spread by flea bites in Palestine and the Byzantine Empire, and eventually throughout the Mediterranean. The recurrences of Justinian plague over these two centuries killed between 30-50 million people, estimated as 26% of the world's population that changed the course of the Roman empire, squelching Emperor Justinian's plans to bring the Empire back together and causing massive economic struggle. Procopius described a pestilence that would cause the annihilation of the human race. This plague is credited with creating an apocalyptic atmosphere that spurred the rapid spread of Christianity. The severe decimation of the populations of the Mediterranean and Europe from early plagues demonstrate the results of pathogenic introduction to people with no previous exposure or immunity.

735-737 – The Japanese Smallpox epidemic was the first recorded smallpox epidemic in Japan that started in 735 and killed about one-third of the Japanese population. Around 95% of the deaths were children under the age of 10. A total of twenty-eight smallpox epidemics were recorded in Japan through 1206. Over the centuries there was a progressive shortening of the interval between epidemics: until the year 1000 a recorded interval of 24 years on average, and between 1001 and 1206 a recorded interval of 13 years. These epidemics may have led to the first organized attempt use of a live vaccine through the capture of fluid in pustules and scratching the material into the arm of an individual who had not had smallpox.

11th Century – Leprosy (Hansen's Disease) is a bacterial infection. The disease had already been in existence for ages but grew into a European pandemic in the Middle Ages, resulting in the building of numerous leprosy-focused hospitals to accommodate the vast number of victims. A slow-developing disease that caused sores and deformities, leprosy was believed to be a punishment from God that impacted families. This belief led to moral judgments and ostracization of victims.

12th Century onward – Smallpox was recorded in Egypt through the analysis of the skin of mummy Pharaoh Ramses V (died 1157) showing the telltale pockmarks. It and other diseases became especially notable around 1520 when the Spanish arrived in the New World, passing smallpox to the native populations. With no previous exposure, the illnesses brought by the explorers devastated the indigenous people. Upon arrival on the island of Hispaniola, Christopher Columbus encountered the Taino Indians, population 60,000. By 1548, the population stood at less than 500.

Pandemics have destroyed cultures, societies, empires, and the course of history. Why is it so difficult to take pandemics as seriously as the threat of intentional biological warfare?

1347-1352 – The Bubonic Plague, aka "Black Death", was a bacterial infection spread by flea bites, and was responsible for the death of one-third of the world's population at the time. This second large outbreak of the bubonic plague may have started in Asia and moved west, entering Europe through Sicily, spreading rapidly, and killing 200 million. England and France were so incapacitated that the countries called a wartime truce. The British feudal system collapsed when the plague drastically changed economic circumstances and demographics.

1629-1631 – The Italian Plague was a bacterial infection that affected cities in Italy. It sustained a persistently long-term effect on the pattern of population growth with an estimated one million dead. In the northern Italian regions, the plague caused a lasting decline in both the size of the urban population and urbanization rates.

1665-1666 – The Great Plague of London, caused by a bacteria, led to the deaths of 20% of London's population, and an estimated 75,000-100,000 died. The disease spread through ports along the Thames. As human death tolls mounted and mass graves appeared, hundreds of thousands of cats and dogs were slaughtered as the possible

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cause. The worst of the outbreak tapered off in the fall of 1666, when another destructive event occurred, the Great Fire of London.

Late 1780's – Yellow Fever was first seen as an epidemic in South America and sub-Saharan Africa and was spread by mosquitoes. In 1793, it swept through Philadelphia, our nation's capital at the time, and killed 10% of the population. Then president, George Washington and Secretary of State, Thomas Jefferson left town and resettled our capital in Washington, D.C.

1817-1923 – Seven Cholera pandemics, a bacterial infection that lasted over 150 years, caused by a small intestinal infection that reportedly originated in Russia. Spreading through feces-infected water and food, it passed to British soldiers who brought it with them to India, where millions died of the disease. Through the reach of the British Empire, Cholera was spread to Spain, Africa, Indonesia, China, Japan, Italy, Germany and America. A vaccine was created in 1885, but the pandemic continued after fears of medicine and cultural beliefs prevented a widespread use of the vaccine.

1885 – The Third Plague pandemic started in China and moved to India and Hong Kong. This bacteria killed between 12-15 million. Initially spread by fleas during a mining boom in Yunnan, the plague was considered a factor in the Parthay rebellion and the Taiping rebellion outcomes. India faced the most casualties from the spread, and the epidemic was used as an excuse for repressive policies that sparked revolt against the British.

1875 – Fiji Measles Pandemic was brought to Fiji by its Chiefs who visited Australia to sign a treaty. Measles spread quickly, killing 27% of Fiji's population, littering Fiji with corpses that were scavenged by wild animals. Entire villages died and were burned down, sometimes with the sick trapped inside the fires. It was estimated 40,000 people died.

1889-1890 – The Russian Flu, described as the first significant flu pandemic, began in Siberia and Kazakhstan, moved to Moscow, and made its way into Finland and then Poland, where it moved into the rest of Europe. America was not alarmed because of the mistaken belief that ocean distance protected America and thus the pandemic was downplayed. However, by 1890 the flu had traveled far into North America as well as Africa. Changes in transportation such as roads, rivers, and railways led scientists to report human to human spread and the Russian Flu as the first modern global flu pandemic. In the United States, New York City recorded the highest number of deaths although Boston was harder hit on a per-capita basis. The total United States death toll was about 13,000. Russian Flu returned in the United States several times in subsequent years. Reports indicated that the Czar of Russia, King of Belgium, and emperor of Germany all fell ill and in total one million died.

1918-1920 - The Spanish Flu, was an avian-borne flu that infected 500 million people worldwide or about one-third of the world's population and killed 20 to 50 million people of which 675,000 were Americans. Caused by the H1N1 virus and named the Spanish Flu as it was first publicly acknowledged in Spain. This flu came in two waves, initially devastating Europe, the United States and parts of Asia before swiftly spreading around the world. During Spring 1918, in the final year of WWI, German soldiers on the western front in France became ill and this contributed to the failure of their offensives. Almost as many American soldiers died from the flu as were killed in combat. Among the British, an estimated 150,000 died. Franklin Roosevelt, then Assistant Secretary of the Navy, traveled to Europe in 1918 as part of a fact-finding mission and became infected. At the beginning of April 1919, President Woodrow Wilson became seriously ill which nearly derailed the Paris Peace talks, but from his sick bed he negotiated peace treaties with Germans, French, Italians, and Japanese. There were no effective drugs or vaccines to treat the Spanish flu. In the United States, people were ordered to wear masks, and schools, theaters and businesses were closed while bodies piled up in makeshift morgues. The United States Public Health Service (USPHS) went into action to educate and redirect societal behaviors, training the public on hand

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washing, cough and sneeze etiquette, and distributed recommended precautions to avoid and manage the illness. Staggered work shifts and store hours were instituted to lessening crowding. Local governments passed laws prohibiting public spitting and banned shared drinking cups in schools and train stations; prohibitions on public gatherings included weddings and funerals; and closure of non-essential businesses. Cities instituted mask wearing, quarantines of the sick, and some cities began using untested vaccines and treatments. Cities that moved quickly like St. Louis, imposed an early shelter-in-place, prohibited church gatherings and required mask use in public. By contrast Philadelphia continued business as usual, holding a 1918 military parade and had the worst outbreak; at its peak, Philadelphia had daily death rates of 1,000. Exceptions for funerals were made only for parents or wives identifying soldiers before burial, and even then, the caskets could only be opened if family members wore masks and refrained from touching the body.

1957-1958 – The Asian Flu, first identified in Hong Kong (H2N2), spread throughout China and into Europe and the United States. A second wave followed in early 1958, causing an estimated total of about 1-4 million deaths globally, with 116,000 deaths in the United States alone. In April 1957, after reading reports in the newspaper of an influenza outbreak in Hong Kong, Dr. Maurice Hilleman recognized a pandemic was on its way to the United States and pushed for the development of a vaccine by the fall, the time he had estimated its appearance in the United States. As the chief of respiratory diseases at Walter Reed Institute of Research, Dr. Hilleman looked at a large volume of serum from patients, but couldn't find any evidence of population immunity to this new influenza strain, so he sent the virus to other health organizations to confirm his findings. It was found that the only people with antibodies to this new strain was a small group of 70-80 year-olds who had survived the "Russian flu" pandemic of 1889 and 1890. When the flu did hit in the fall 1957 as Dr. Hilleman predicted, the United States was ready with a vaccine, without which the virus likely would have killed more.

Preparation and planning are keys to "early detection, early response" both of which are needed to contain epidemics and pandemics.

1968-1970 – The Hong Kong Flu pandemic, a global outbreak of influenza (H3N2) that originated in China in July 1968 and lasted until 1970. The outbreak was the third influenza pandemic to have occur in the 20th century. This pandemic resulted in an estimated 1 to 4 million deaths.

1981-current – HIV virus outbreak, AIDS/HIV was first observed in America in the early 1980s but is believed to have developed from a chimpanzee virus in West Africa in the 1920s. The disease, which spreads through body fluids, moved to Haiti in the 1960s, and then New York and San Francisco in the 1970s. The prominence of this outbreak shed significant light on just how varied, unpredictable and devastating human diseases can be, even considering how far diagnostic and predictive medicine has advanced. To date, thirty-five million have died.

2002-2003 – SARS (severe acute respiratory syndrome), a coronavirus, was initially identified in February 2003 after several months of cases. The virus is believed to have started in bats, spread to cats and then to humans in China, followed by 26 other countries, infecting 8,096 people, and estimated 774 deaths. Over the initial months, SARS spread to more than 2 dozen countries in North America, South America, Europe and Asia before containment. The quarantine efforts put in place proved effective and by July 2003, the virus was contained and hasn't reappeared. SARS was seen by global health professionals as a wake-up call to improve outbreak responses, and lessons from the pandemic were used to keep diseases like H1N1, Ebola and Zika under control.

2009-2010- The Swine Flu, a novel influenza A (H1N1) virus was detected in the spring of 2009 in the United States and spread quickly across the world. The virus contained a unique combination of influenza genes not previously identified in animals or people. The Swine Flu affected nearly 21% of the world's population and is attributed to 200,000 deaths. Those infected were primarily children and young adults.

2014-2016 – Ebola, the first cases (ebolavirus) were recorded in Guinea in December 2013 and later the disease spread to Liberia and Sierra Leone. For a number of reasons, Ebola never became a pandemic. As the Ebola



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outbreak progressed, many hospitals, short on both staff and supplies, were overwhelmed and closed down, leading some health experts to state that the inability to treat other medical needs may have caused additional deaths that may have exceeded the outbreak itself. Hospital workers, who worked closely with the contagious body fluids of the victims, were especially vulnerable to contracting the virus; in August 2014, the World Health Organization reported that 10% of the dead had been healthcare workers. The Ebola epidemic waned, following international control efforts including effective training, proper use of PPE, boots, gowns, gloves, masks and goggles, sterilizing all equipment and surfaces, surveillance and contact tracing. During the outbreak an estimated 28,646 suspected cases and 11,323 deaths were reported.

2015– MERS, the Middle East Respiratory Syndrome, a previously unknown Betacoronavirus was first identified in Saudi Arabia in 2012. When MERS emerged in the Republic of Korea in 2015, it led to the largest outbreak outside of the Middle East. By the end of the outbreak, 186 laboratory-confirmed cases (185 in Republic of Korea and 1 in China) and 38 deaths had been recorded. The South Korea outbreak difference was that transmission was not only intra-hospital, but also hospital-to-hospital.

2019-present–COVID-19, the virus SARS-CoV-2 that causes COVID-19 and the virus that caused the outbreak of Severe Acute Respiratory Syndrome (SARS) in 2003 are related to each other genetically, but are in different in most other ways. As I write this, the history of COVID-19 is unfolding and only time will tell.

***“Those who do not remember the past are condemned to repeat it.” – George Santayana***

While no two pandemics are exactly the same, note the number of similarities between past outbreaks starting in 735 AD and today’s COVID-19. How many times have we heard that history repeats itself? Let us carefully study and learn from COVID-19. Let us ask all the right questions. Let us track the data. Let us use proven scientific methods to produce accurate testing, and ultimately a reliable and effective vaccine.

Let us be ready for the next and not live in denial. History and science assures us with certainty that the next pandemic is not a matter of “if”, but is shrouded in the uncertainty of “when”.

History and science assures us with certainty that the next pandemic is not a matter of “if”, but of “when”.

And, oh yes, let us never forget.

***“Oh yes, the past can hurt. But from the way I see it, you can either run from it, or learn from it.”  
– Rafiki (The Lion King)***

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*This essay is the fifth in a series by Principals of RHP regarding the topic of risk and COVID-19. At RHP Risk Management, we help our clients characterize the uncertainties associated with environmental and occupational hazards and risks to contextualize meaning that can be understood by their decision-making audiences be they the public, employees, consumers, regulators, or shareholders. For more RHP resources concerning COVID-19, visit [www.rhprisk.com/coronavirus/](http://www.rhprisk.com/coronavirus/)*