

Plagues, Poxes and Pandemics: Disease from the Black Death to COVID

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Course Code: HIST-3630H-A

When Taken: Winter 2023

Week 1

1. Disease is always a socio-political-cultural-economic event, more than just biology
 - a. Looking at case studies in this lens
 - b. Looking at what the diseases are and how they are distinct, but also the relationship that they had with the population
2. Focus on major infectious diseases, but you can write a paper on anything (could write on non-infectious diseases like cancer)
3. Our questions
 - a. What does the science suggest was happening at the biological level
 - i. Looking at the non-human actors driving history and these events
 - ii. Understand the disease itself
 - iii. What does science tell us today what was happening
 - b. What did they think was happening
 - i. How did the people interpret what was happening
 - ii. How did doctors understand the body and the disease
 - iii. How did people's worldview shape how they understood and responded to disease
 - c. How did pre-existing social and cultural forces shape the epidemic
 - i. Pre Existing arrangements affect their response to the epidemic
 - ii. Class, urbanization, living arrangements, transportation, religion
 - d. What did they do about the epidemic
 - i. Medical, political responses
 - ii. Who benefited from epidemic policies
 - iii. Were policies contested - they are always controversial
 - iv. Fair bit of social unrest in times of epidemics
 - e. Cultural responses
 - i. How do they talk and present what happens in art, literature, media, news
 - ii. How did people respond to confusion and fear
 - iii. Conspiracy theories
 - f. What were the effects of disease
 - i. Demographically, socially, economically, politically
 - ii. What is left after the disease
 - g. Legacies, how are they remembered
 - i. How did earlier epidemics influence later epidemics
 - h. To what extent were epidemics distinct
 - i. This is a good exam question
 - ii. Look at similarities and differences between each of the epidemics

- iii. Are they distinct because the diseases are distinct, or because of the historical circumstances in which they take place

Case Study #1 - Leprosy

1. What does the science tell us
 - a. Today it gets called Hansen's disease because it gets so stigmatized that it works against doing good public health so they changed the name
 - b. It is a bacteria - *Mycobacterium leprae*
 - c. Discovered in 1873 and it disproved existing theories of heredity or miasma
 - d. Details of the disease
 - i. Obligate intracellular pathogens - cannot grow outside a host
 1. Can't grow it in a petri dish
 - ii. Slow growing - up to 20 years before symptoms show
 - iii. Not highly contagious
 - iv. Spread by droplets but prolonged exposure of months is needed
 - v. Today 95% have natural immunity
 - vi. Potentially zoonotic
 - e. Archeologists show that it is at least 4000 years old and was circulating in medieval England
 - f. Shown in clusters of families, but not heritable from mother to child or sexually transmittable but because they have close long-term exposure
 - g. Genes may also elevate risk for other diseases like Parkinson's
 - h. Currently treatable with antibiotics
 - i. About 127,000 cases in 2020 most of which are in the global south
 - j. Clinical presentation
 - i. Attacks nerves, skin, nasal lining
 - ii. Can cause numbness
 - iii. Discoloration, dry and flaking skin
 - iv. Typically famous but ignored wounds can lead to infection and reabsorption of body of digits
 - v. Rarely fatal, but highly disfiguring
2. What did they think was happening at its highpoint (medieval times)
 - a. Leprosy is discussed in the Bible a lot
 - i. Told to go to the priest, priest would say that if they had leprosy they are unclean and have to leave the camp
 - ii. Some have argued that it is a mistranslation saying that it should include anyone with a wide range of skin conditions, but it is translated as all leprosy
 - b. Connection made between leprosy and sin
 - i. Disease is evidence of divine punishment
 - ii. Leprosy is individual and not communal punishment
 - iii. Chroniclers often describe the transgressors as lepers
 - c. Becomes a metaphor for all sin which supports excommunication
 - d. Leprosy was seen as a punishment for heretics
 - i. Talks of a plague on the society

- e. Links with Jews where are medieval outsiders and were segregated
 - i. Arguments that they don't eat pork because they are not healthy enough to eat it because of their inner corruption
 - 1. Idea of a bodily predisposition, predisposed to getting the disease
 - ii. Exclusion from society as well as lepers
 - iii. Thought that Jews has leprosy a lot
3. What were doctors saying
 - a. They thought it was hereditary, contagious, and incurable
 - i. They have some salves and ointments they can put on skin but they don't think they can heal it
 - b. Notion of a disease of physical corruption and rot
 - i. Foul matter is in body, if it cannot escape then it will stay in your body and rot
 - c. They thought it was sexually transmissible
 - d. They thought that if a child was conceived while a woman was menstruating that it would be a leper or have elephantia because the blood is unclean, and the man would also get leprosy
 4. Sex, Lust, and Danger
 - a. Lepers are drawn to spreading this disease sexually
 - b. In the 2nd century it was called Satyriasis because it would make lepers have an increased libido
 - c. Lustfulness is part of larger discussion about what it does to their personalities - passionate in all the wrong ways - meddlesome, lustful, greedy, easily angered
 - d. Framed as an emblem of sin which takes a physical form
 - e. Society needs to be protected from these people - frame them as dangerous
 5. Policy and segregation - what did they do
 - a. Main policy was segregation
 - b. Fear of contagion through leper's breath or living with lepers
 - i. They are not totally wrong
 - c. It may have been more contagious 500 years ago than it is now
 - d. Segregation was a symbolic death, or a social death
 - i. Research into a ritual that would come when they were excluded that was very similar to a funeral
 - e. Would have a bell so people would know you are coming
 - f. Separation would have legal ramifications - banned from testifying in court, inheritance
 6. Peak intensity from 1100 to 1300
 - a. Thousands of leprosaria built in western europe
 - i. About 1.4% of national population could live in these houses
 - b. Raises questions about how common leprosy was
 - i. Many lepers probably had other conditions
 - ii. Diagnosis was uncertain as they were often performed by priests and civic officials not doctor
 - iii. Symptoms were vague, medieval art simply suggests blemished skin

- c. Archeologists suggests some leprosaria had high rates of leprosy a while others didn't
 - i. Ranging from 70% to 0% of skeletal remains in these places show leprosy
- 7. Great leper scare of 1321
 - a. King Phillip V hears rumors of a plot where a group of lepers were arrested and under torture confessed that they were going to infect the water everywhere so that the number of lepers would increase and they would become lords of various places
 - b. Phillip argues for the general arrest of lepers, and violence was recorded across france and into spain
 - c. The violence then merges with antisemitism and some blame muslims and heretics
 - i. Narrative that a rich Jew had given money to the lepers to carry out their plot
 - d. The public then takes over, and more lepers were burnt by the people than by the authorities, turns into general hysteria
 - e. This is the conspiracy theory aspect of this disease
- 8. Revisionist interpretations
 - a. Segregation of lepers and this sort of oppression is sometimes argued as a caricature of the middle ages
 - b. Argument that it was not so much a dark ages
 - c. Lazar houses were supported through charity money and these cost substantial land and money
 - d. New testament shows lepers as ones worthy of love and caring - demonstrating a far more kind depiction
 - i. Christ touches and heals lepers
 - ii. Raises Lazarus
 - 1. People who deny charity to lepers are the bad ones in this framing
 - 2. Demonstrates examples of people needing to look kindly on these people, viewing them as sick people in need of compassion
 - iii. Job - ideal depiction of a leper, takes his suffering with grace
 - e. Really devout christians would care for lepers physically - kissing them, washing their feet - it was the danger of these interactions that made them spiritually powerful
- 9. Important to keep in mind where they kept the leper houses
 - a. They are just outside the city wall
 - b. They are all at the main gates to the town
 - c. Notion that they were placed far away so that people didn't see them is not true
 - d. In Yarmouth they are placed about 100m away from the church
 - e. They remained parts of the community even though legally and spiritually they were not part of the community - these people were still there
- 10. Conclusion

- a. The revisionists point is very important - think about more complex framing and more ambiguous story
- b. The image of the leper did a lot of cultural work - if you wanted an image of sin you could hang it on these people, and it could also be used as an image of christian love
- c. This disease demonstrates that society organized themselves around conceptions of public health and disease - who is and is not part of the community is organized around if you did or did not have disease
- d. It goes into decline in europe after 1400
- e. Lost lazar houses shut by the 16th century
- f. Leper houses get turned into syphilis hospitals
- g. Theories were that it was
 - i. Overtaken by TB - bacteria are related, some theories that it took over and outcompeted leprosy
 - ii. Rising immunity
 - iii. Prohibition on marriage may mean that the predisposing genes are not passed on
 - iv. Herd immunity

Week 2 - Plague Pt 1 The Medieval Black Death

1. Plague - what does our science tell us
 - a. Yersinia Pestis - this was only identified in 1894
 - b. Continues to exist today, about 20 cases a year in the US
 - c. Still considered endemic in some parts of the world
 - d. Can be treated with antibiotics, but still a relatively high mortality rate as it can kill fairly quickly
 - i. 27% case fatality rate
 - e. There has been genetic sequencing of modern plague in 2001
 - f. Medieval plague was sequenced in 2011 from bits of dental pulp
 - g. Medieval and modern plague are fairly similar, it evolves slowly
 - h. Osteological paradox
 - i. Plague kills you too fast to leave a record on the bones, they can only look at bones for chronic disease
 - ii. However they were able to find bits of blood and dental plaque which can keep biological material, and this is what they used to sequence medieval plague
 - i. Answers retro diagnosis critique - can you diagnose illnesses hundreds of years after the fact
 - i. Often based on documents of doctors describing symptoms
 - ii. The genome sequencing answered this question and demonstrated that the plague we have today is pretty confidently the same plague
 - j. Studies of ancient skeletons demonstrate it also circulated in late antiquity
 - i. Justinian plague (541-549)
 - k. Phylogeny - a family tree for organisms at the genetic level

- i. Comparison of ancient, medieval and modern samples allow scientists to chart its different varieties and date where they evolved and struck
 - l. Idea of silent epidemics - ones that we haven't paid attention to before
 - m. This is a zoonotic disease
 - i. Effects ectoparasites, many rodents, larger mammals
 - ii. When the plague recedes or the epidemics are seen to end it may mean that it is just continuing to circulate in non-human bodies
 - n. Spread to humans
 - i. Model of spread from fates matches the 3rd plague pandemic in the 19th c
 - 1. Question about this happening in medieval times
 - 2. Some suggest that this may be from other parasites such as lice
 - o. Bubonic plague - infected lymph nodes
 - i. Most common
 - p. Pneumonic plague - infected lungs
 - i. Less common but typically more transmissible and deadly
 - q. New research shows that it may have evolved to attack lungs before attacking lymph nodes so pneumonic plague may have been more common than previously thought
 - i. Also hard to know who had which one after the fact
- 2. Plagues origins and routes
 - a. Thought that it moved from central Asia and China westward across Mongol empire through the silk road
 - i. This is during the medieval times, and this idea is supported by geneticists
 - ii. Took about 10-12 years for the disease to make its way to Europe
 - b. In 1346 it hits the city of Kaffa
 - c. Theories as to why it moved
 - i. Climate change may have reduced certain Asian rodent populations driving fleas to seek new hosts like camels and humans
 - ii. We also know that something happened to change the disease at a genetic level - as it moves into new hosts it has new genetic variations of the disease
 - d. Climate of Europe makes it hard for plague to establish itself in the European rodent population so it was probably reintroduced to Europe repeatedly
 - e. Story goes that Italian ships bring the disease to Turkey, Greece and Italy
- 3. Scope of the disease of the Black Death 1347-1353
 - a. 75-200 million dead - large range indicating we do not have good numbers on this
 - b. 50% of the European population - estimates range from 30-60% of the European population
 - c. Another 25-30 million dead in Asia, the Middle East and Africa
 - d. Mortality was not evenly distributed
 - e. Impact varied due to

- i. Urbanization and population density
 - ii. Exposure to trade
 - iii. Ecology - animal hosts
 - iv. Southern Europe was hit much harder than places like Germany
- 4. Palynology - The study of dust
 - a. Pollen was captured as microfossils
 - b. They compare pollen tikes
 - c. A falling population means that there are increasing meadows and forests, a stable or rising population means that there is more farmland
 - d. This allows them to see where populations fell the most
- 5. Variability
 - a. The health of Europeans prior to the plague would have impacted their experiences - in particular malnutrition
 - b. Great famine from 1309 to 1325 due to multiple crop failures and bovine epidemics
 - i. Occurred 20-35 years before black death meaning that adults during the black death would have been children during the famine and would have been malnourished as kids and therefore had less robust immune systems
 - ii. Skeletal studies show that being short correlated with higher plague morality
 - iii. Regional patterns of plague mortality may be influenced by regional patterns of earlier death
- 6. What did they think was happening
 - a. Therapeutic weakness - the tools that doctors have were not sufficient to address the plague - their attempted treatments did not work and did not keep people from dying
 - b. Yet doctors remained in great demand and were important ideologically - cultural importance of trying to explain what was happening - strong attempt for doctors to try to interpret this disease
 - c. The crisis was explained using trusted ideas
 - d. Ideas included
 - i. Astrology - believe in the connection between things on earth and things in the sky
 - ii. Trusted authorities - relating this to people like Aristotle
 - iii. Humoral theory - notion that all bodies, foods, and medicines were hot, cold, wet, and dry and they then tried to counteract this
 - iv. Corruption
 - v. Airborne - get this disease by breathing it in
 - e. A great deal of medical advice focused on prevention
 - f. The idea of disease of corruption and thus they needed to keep a place clean and purify the air
 - i. Always burning things in an attempt to purify the air

- g. Also spent a lot of time trying to figure out why some people got sick and others didn't
 - i. Theories around predisposition
 - ii. A mix of scientific advice and moral advice telling them what kind of lifestyles they should lead
 - h. Plague was linked to sin, but communal sin rather than individual sin
 - i. Say they should pray and then go to a doctor - god saves people through doctors
 - ii. See processions for plague which were linked to religion
7. What did they do - policy
- a. The government is small, and kings lack the bureaucracy to manage the crisis at a national level
 - b. In this period we are talking about local government - city or the town
 - c. City health boards are created
 - i. Empower authorities to bring in regulations to try to deal with this
 - d. They clean - focus on hygiene, legislation regarding that people clean their homes and streets
 - e. Try to regulate animals - they don't figure out that rats are a key part of it but they try to regulate horses, mules, dogs, cats and animals get carted out of the city and manure is ordered to be carted away
 - f. Regulation of "filthy trades" - butchers, tanners, regulation of jobs that stink or produce dirty water
 - g. Issues with burials - traditional burials are disrupted due to the volume of deaths
 - i. They run out of ground
 - ii. Restrictions on how to bury them and how they should be handled
 - iii. These orders were resisted - people want to bury their loved ones in a customary matter
 - iv. Limit the number of people who could attend funerals, couldn't ring church bells for death anymore
 - h. They wanted to control the movement of people - they understood that the disease was contagious
 - i. Miasma theory - idea that the air is poisonous
 - j. Contagion theory and miasma theory were not at odds - see the plague as something that moves from place to place
 - k. Prohibitions on travel to or from infected towns - both goods and people
 - l. Prohibitions on secondhand goods
 - m. Locking up homes - when plague has been found in a household that person and their household needs to stay at home
 - n. Hiring of guards to enforce quarantine and enforce the property of the rich
8. Quarantine
- a. First example of quarantine comes from Ragusa in 1377 30 years after plague gets to Europe
 - i. All ships and visitors had to stay on an island before entering the city
 - ii. It then expands to 40 days, hence quarantine

- iii. The systematic processing of people and goods - with fencing, gates, etc
 - iv. It was quite strictly enforced
 - b. Paperwork and bureaucracy starts to get developed at these places
 - i. Health passes
 - ii. Health certificates
 - iii. Question of how do you shut down and control the movement of people and still have a functioning economy
 - iv. This is the precursor to the modern passport - these emerge as documents which allow people to pass borders and show that they are healthy
 - c. Lazarettos - have three meanings
 - i. Leper houses
 - ii. Plague ports
 - iii. Plague hospitals
- 9. Plague hospital or home quarantine
 - a. Pest houses were only built a century after the black death - takes nearly 100 years and London gets on in 1594
 - i. Plague hits and it is a decade of calamity, but it doesn't go away
 - b. Argument for hospitals is that home quarantine locks healthy and sick together
 - c. Quarantined families need monetary support and it was cheaper to do this at home
 - d. Debate of if it is better to put them in a hospital or let them serve it at home
 - i. Both solutions were met with resistance
 - e. They didn't ever have enough space in the plague houses, london could only house 600 in their pesthouses
 - f. The rich would be allowed to quarantine at home and the poor would have to be in hospital
 - g. The pest houses would get burned down a lot as a form of resistance to them
- 10. Community bonds
 - a. Communal support
 - i. Massive amounts of charity
 - ii. Feeding the sick
 - iii. Raising money for the poor
 - iv. Paying doctors and staffing hospitals
 - b. Confraternities - lay organization for people to work with and for the church that does charity work - research shows that epidemics correspond with surviving membership
 - c. Sometimes the civil leaders would stay - they would often send their families away if they had the funds, but they would stay
 - d. Social relationships strained
 - i. Civic leaders would also flee - an ethical question of if it is okay to run away

- ii. Master-servant relationships - servants were abandoned or fired, domestic servants would get turfed out or fired meaning they lost their homes, and jobs
- e. Even family bonds would get strained
- f. Family bonds tended to hold, but some did not

Week 3 - Plague Pt 2: Plague After the Black Death

1. Black death refers to the outbreak in the 1300s, but plague remains after this
2. Also a problem in the early modern 16th and 17th century
 - a. Plague becomes a part of life
 - b. Continues to be big outbreaks where a quarter or third of the population would die
3. Economics
 - a. Losing significant parts of the population has economic impacts
 - b. In the short term
 - i. Economic disruption
 - ii. Prices start to surge, real wages fall
 - iii. Significant inflation
 - c. Longer term
 - i. Rages rise between 20% and 87%
 - ii. At the start real wages fall, but then they rise in the longer term
 - d. There is a shortage of labour, so people can demand more for their labour
 - i. Land was thus uncultivated
 - ii. King says to not take higher wages, but people did not take notice of this, and the workers still had the power
 - iii. Out of nowhere, these people have the bargaining power that they never before had
 - e. See legislation emerge in England, and in other countries
 - i. Set wages at pre-plague levels
 - ii. Required all to work up to 68
 - iii. Crime to refuse work or break the contract
 - iv. Outlawed charity to able-bodied beggars - starts long tradition against charity and welfare, idea that hunger would force people to work
 - v. Punished by branding
 - f. This legislation was difficult to enforce, and wages continued to rise
 - g. Rebellions as a response to enforcement of this legislation
4. New changing social relations and new social tension
 - a. Remnants of feudalism start to be resisted and abandoned
 - i. European peasantry no longer wants to do the services, because their labour is in demand elsewhere and people are willing to pay them for their work
 - ii. Refuse to do feudal services
 - b. 1381 peasant rebellion demands
 - i. End to serfdom

- ii. End to labour laws
 - iii. Refused feudal services
- c. Increased critiques of peasants as idle, wasters, or criminals in social commentary
- d. England passes a law concerning diet and apparel
 - i. This outlines what people who earn certain amounts can wear and eat
 - ii. So worried about changing social order that they want to legislate the old order
 - iii. Laws proliferated elsewhere
 - iv. These are the responses to increased purchasing power of workers
- 5. Plague was the great leveller
 - a. There are fewer other renters and workers
 - b. Land prices and rents start to fall
 - c. Former workers can become landowners
 - d. Peasants standing of living rises and inequality falls
 - e. Good economic period for the lowest classes
 - f. Plague conditions stick around, so the population is kept low, and the good economic times remain
 - i. When the population goes back up so does inequality
 - ii. Takes 200 years for population to rebound to pre-plague levels
 - g. Important to note that the economic impact of every epidemic is not typical of every epidemic
 - i. This is kind of unique among epidemics
 - ii. Even in later plague epidemics, the workers do not benefit
- 6. Plague and Hysteria - the Flagellants
 - a. Emotions run high in epidemics
 - b. Saw people running to the church and embracing religion - piety increased
 - c. Catholicism is a public affair with lots of public rituals and processions
 - d. Displays of penance and begging for god's mercy are pretty common during the plague
 - e. Flagellants
 - i. Groups of devouts who would travel between towns whipping themselves and sometimes preaching
 - ii. Pain was seen as a medium to communicate with god
 - iii. Often hooded so they were sort of anonymous
 - iv. These seem to have begun in eastern Europe, but become common, particularly in Germany
 - v. Hundreds would enter the town, go to the church, throw themselves on the ground, assume a crucified position, and start beating themselves on their backs with a whip
 - vi. Pope participates in this early on, but they become controversial
 - 1. Not sanctioned by the pope
 - 2. Seen as ungovernable
 - vii. Seen as a serious challenge to church authority, dangerous and radical

1. Unauthorized preaching
 2. Claims of speaking to mary or christ
 3. Groups of thousands set upon towns and monasteries
 4. Anti-Semitic violence
- viii. Papal bull against flagellants in 1349 - critique of them shedding the blood of Jews
7. Anti-Semitism
- a. The same accusation that the Jews had poisoned the wells and springs
 - b. Said that only the more powerful Jews knew about this - this is a common anti-semitic idea
 - c. The burning of Jews presented as doing god's will
 - d. Waves of violence against them all over Europe
 - e. Catalan immigrants were similarly blamed
 - f. The flagellants were also often involved
8. These examples of social disruption tend not to persist after the black death - even when the plague emerges later there isn't this sort of abandonment
- a. But there are examples about panics in the alps about plague spreaders in the 16th century spreading the disease on purpose, so they use the format of a witch trial
9. Were the public health policies implemented attempts at social controls?
- a. Examples such as the banishment of sinners including prostitutes and sodomites
 - b. Banishment of immigrants
 - c. Often used the plague as an excuse for police behaviour
10. Plague and the poor
- a. The poor died the most, and bias meant that they were blamed for the plague
 - b. They didn't recognize it as disproportionately killing the poor, they originally thought it was an indiscriminate killer
 - c. Connections between poverty and plague were both real and imaginary
 - i. The poor did die more
 - ii. However, there is also a constructed image of the urban pauper being uniquely dangerous
 - d. How do we know the poor died the most
 - i. Bills of mortality - disease surveillance, bureaucratic accounting of disease, weakly account of all the births and deaths
 - ii. Tax records also show which parishes were rich and poor - the poorest parishes also have the highest plague rates
 - e. Reasons for this correlation include
 - i. Poor cannot flee - richer people got out of the city
 - ii. High urban density = more proximity to people and rats
 - iii. Quality of housing
 - iv. Ability to wash bedding and linens
 - v. Poor have to keep working
 - vi. They were more likely to work plague jobs like gravediggers, nurses at pesthouses, and searchers of the dead

- vii. Malnutrition made them more susceptible to plague
11. People know that the poorest areas are getting hit the worst. How did they know? What did they think was happening
- a. They thought poor people were predisposed to plague
 - b. Believed that the bodies of the poor could intensify and create plague
 - c. They think that class is physiological - classed bodies have differences
 - d. Term of depauperate blood - blood from the impoverished which is weak, idle and putrid and can spark epidemics
 - i. In comparison to noble blood that is lively or jovial
 - ii. Noble blood can fight plague off, while depauperated blood cannot
 - iii. This doesn't necessarily refer to the blood of the rich in particular, but it does sort of have those connotations, and takes on a life of its own in the sciences
 - e. The understanding is that all poor citizens in London are essentially walking plague factories - even when the plague isn't around
12. Banishing the poor
- a. Made medical and public health sense to kick them out of the city when the plague hit
 - b. Believe that they are liberating the city from contagion by policing these people
 - c. Laws against begging and vagrancy get harsher in the 1600s than they had ever been
 - i. Prior it wasn't a crime to be a vagrant or homeless
 - ii. They start to make it a crime, driven by population, and plague
 - d. The idea of cleansing the city means getting rid of vagrancy
 - e. Openly suggesting that the rich are not dangerous, and can be let into London, but the poor should not be as they could bring plague
 - f. By this point the church is on board with these sorts of policies - reformation attacks the idea that doing good deeds can get you into heaven, results in a hardening of attitudes towards the poor, and rise of the protestant work ethic
13. Daniel Defoe - a book called the due preparations for the plague proposes a plague preparedness plan
- a. Banish 40% of London's population
 - i. charity/welfare recipients
 - ii. Orphans
 - iii. Hospital and workhouse inmates
 - iv. Prisoners
 - v. Old age pensioners
 - b. They don't have to all go as far out of London
 - c. Calculus of risk for how far people have to go, often determined by their class status
 - d. A belief that this would take away the fuel (the poor) for the pestilence
14. In early modern epidemics impossible to disentangle social tensions
- a. Increasing stratification of society and social classes
 - b. Yet another epidemic at the dawn of the century - in readings

Week 4: Smallpox

1. First disease for which you get vaccinations
2. The smallpox virus
 - a. Virus means not alive
 - i. Molecules of DNA or RNA covered by proteins and/or fat
 - ii. Do not respond to antibiotics
 - b. Two varieties - variola major (30% fatality rate), and variola minor (1% case fatality rate)
 - c. Symptoms emerge 12-14 days after exposure
 - i. Pustules can cover the entire body
 - ii. High risk of blindness
 - iii. Very high fever
 - d. 300-500 million deaths in the 20th century even post vaccine development
 - e. Droplet transmission
 - i. Most infectious when the rash has broken out
 - ii. Aerosol transmission is also possible
 - iii. Pustules and scabs are also contagious
 - f. Humans are the only hosts of this disease - but there are similar diseases in other animals (cowpox, monkeypox etc.)
 - g. Appears to be at least 3,000 years old, archeological records show it in ancient Egypt
 - i. It became more deadly in the 1500s
 - ii. Pox viruses become more virulent as they lose genes
3. The smallpox virus in London
 - a. Accounted for 6-10% of deaths in the 1700s
 - i. This is because of the bills of mortality
 - ii. Smallpox is very apparent because it is fairly common and is quite distinctive
 - b. Mainly children die
 - i. Basically, 80% of all smallpox deaths were deaths of children
 - c. It is endemic - it is there all the time
 - d. Steady horrible killer that is killing the very young
4. Smallpox in the new world
 - a. Virgin soil thesis
 - i. This is the dominant theory
 - ii. Idea that European diseases were especially horrible because they were hitting a population whose immune systems were unprepared
 - iii. We think smallpox was the worst, but it's hard to actually know and there are other diseases there as well
 - iv. Theory most commonly associated with Alfred Crosby
 - b. Criticism that the virgin soil thesis runs the risk of obscuring the actions of colonizers and letting them off the hook for their actions - argument of the revisionists
 - i. Think about the role of war, enslavement, and displacement

- c. Epidemics were reported in the late 1400s and early 1500s
 - d. 96-99% of the population lost in one generation
 - e. Smallpox epidemic starts in the Caribbean, moves to the mainland in 1518
 - i. Around the same time as the military conquest against the Aztecs
 - ii. The spread of disease played a significant role in the ability of the Spanish army to win militarily in things like the siege of Tenochtitlan
 - f. These sorts of epidemics also occurred in South America
 - i. Reached the Indian world in 1528
 - ii. This kills the emperor and his oldest son creating a power vacuum and resulting in civil war
 - g. Dynamic relationship between disruption, war, enslavement particularly in mines, disease
 - h. In North America, the destruction took place a little later in the 17th century
 - i. The outbreaks tend to follow when the Europeans show up
 - i. Smallpox was an ideal disease to spread over the land as it has a long incubation period - people could go pretty far in 2 weeks on their trading networks
 - j. The Europeans are aware that how every time they show up people get the disease
 - i. Disease pushes northwards and inwards on the continent
 - k. Gets to northern and western North America in the 18th century
 - l. Accelerated by the war in America
 - m. No single flashpoint
 - n. Lots of regional epidemics spread over centuries
 - o. Devastation continued into the 19th c
 - p. Pre-contact American population estimates were 60-112 million in 1491 but by 1600 there were only 6 million about 5-10% of what it had been
 - q. Smallpox was not the only disease operating but it was the worse
 - r. Disease functioned in dynamic relation with other brutalizing forms of colonialism
5. Impact of the depopulation event caused a little ice age
- a. Period when global temperatures fall - late 1300s to 1850s, especially focused on 1500 to 1750
 - b. Falling global temperatures coincide with American population collapse
 - c. Rewilding of 56 million hectares of land - an area bigger than California
 - d. Plague deaths may have spurred cooling in the 14th c
 - e. They can see that there is a drop in carbon through looking at antarctic ice cores
6. History of vaccination
- a. 70% survive and they are marked so people know that you had the disease
 - b. People who have had it and survived never have it again
 - i. In outbreaks they were safe - this is a conclusion that people get to in several places
 - c. Evidence of early inoculation in China and India
 - i. Giving people the disease on purpose in a controlled way in order for them to develop protection in the future
 - ii. Many methods - typically inserting pus/scab into an incision in the arm

1. Idea that they would hold onto it for a while and it would weaken
 - iii. Person gets smallpox but it is typically mild
 - iv. They would then be immune
 - v. However, it can be fatal - they still get smallpox and could die from it
7. Europeans learn about this practice in the early 1700s
 - a. Lady Mary Montagu - British ambassador's wife in turkey, inoculates her son, brings the idea back to England
 - b. Dr. Charles Maitland watches this happen and does an experiment on prisoners and orphaned children
 - c. Princess Caroline inoculates her children who are heirs to the throne
8. Controversy
 - a. People think it is a crazy idea from a faraway place that they do not look to as having good science
 - b. Physicians cannot explain how it works so they stress statistics
 - i. Natural smallpox has a 16.3% mortality rate, whereas inoculation has a 1.8% mortality rate
 - c. Inoculation can also spread smallpox - people after inoculation can spread the disease
9. Vaccine then supplants inoculation
 - a. Learn that exposure to an orthopoxvirus confers protection against others
 - i. Small rates of smallpox among milkmaids because they were frequently exposed to cowpox
 - b. Inoculates a boy from one of the milkmaid's cowpox sore
 - i. Boy becomes immune to smallpox
 - ii. Calls the procedure vaccination from the Latin word for cow - vacca
 - c. Much safer than old-style vaccination
10. Starts to be compulsory vaccination laws beginning in the 1800s
11. Continued opposition and controversy
 - a. Early depictions of it were as monstrous
 - b. Frightening and they don't understand it
 - c. Science fiction - fear that a monster will be developed out of scientific advancements
12. Smallpox and vaccinations in Canada
 - a. Provinces begin mandating vaccinations for school in 1867
 - b. Municipalities were permitted to mandate vaccinations in epidemics
 - c. First Canadian anti-vaccine league was formed in 1872 in Montreal
 - d. Dr. Joseph Emery Coderre - he argued that smallpox and cowpox were the same viruses and that animals could make the virus more virulent
 - i. He becomes the face of anti-vaccination in Montreal
 - e. Infections in cow lymph were possible, it was not a sterile process
 - f. Mayor of Montreal William Hales Hingston champions vaccines
 - i. French Montrealers had a much higher mortality rate than the English from all causes of death - they were not as healthy

- ii. This is also from a lot of reasons related to poverty, and living conditions, but the french are also much more vaccine hesitant
- iii. Hingston aggressively promotes vaccination and smallpox infection and death rates start to fall

13. Montreal epidemic in 1885

- a. Board of health responds by ramping up vaccination efforts
- b. Vaccinated orphans develop a strep infection
- c. Anti Vaccination groups seize on this story and exaggerate it
- d. Considerable vaccination resistance in working-class neighbourhoods
 - i. Tearing down placards
 - ii. Refusal to report new cases
 - iii. Refusing entry to fumigators and threatening them with violence
- e. Two solitudes - the English are promoting vaccination, and the french papers are not encouraging vaccination, saying it is not properly an epidemic
- f. People in other parts of the country wouldn't permit imports or travelers from Montreal
- g. It then breaks out into violence
- h. Montreal starts to try to use door-to-door vaccination - not mandatory, and not very many people accept it
- i. Then make compulsory - isolation, removal to hospital, placarding, disinfection
- j. Cases continue to rise, and then there was compulsory vaccination with the threat of a fine
- k. Pretty serious rioting
 - i. Crowds prevent removal of children to smallpox hospital
 - ii. Buildings were attacked
 - iii. The Chief of police gets stabbed
 - iv. Crowds present this in terms of the French-English debate
- l. French Montreal dies at a rate 8x higher
- m. Outside of Montreal, the outbreak is contained because people go along with restrictions and vaccines

14. Mandatory vaccination of children by 1887 - this spurs the start of a national anti-vaccination league

- a. However this becomes a fringe group
- b. There starts to be many other vaccinations, and people overall like the new vaccines that are coming out

15. Conclusion

- a. Massive efforts in eradicating the disease around the world
- b. It remains the only disease that we have eradicated, and it was eradicated in 1980
- c. This created an environment where people don't even need to get vaccinated for it or fear it, so nobody does
- d. The lack of fear of diseases is the environment in which 21st-century vaccine hesitancy has grown

Week 5: Typhus

1. Not typhoid - that is a different disease
2. The science
 - a. Typhus is spread through lice, tick, and fleas - primary culprit for us is body lice
 - b. Lay eggs in clothes and bedding
 - c. Today treatable with antibiotics
 - d. Transmitted in lice poop, not their bites
 - e. It can survive for up to 100 days outside the body of lice
 - f. Enters through scratches and mucus membranes
 - g. Potentially aerosolized as dried dust
 - h. 10-14 day incubation period
 - i. Infects blood vessels and destroys the lining of capillaries
 - i. Tons of symptoms - headache, fever, neurological issues, tissue necrosis, most common symptom is a rash - causes it to be called spotted fever
 - j. 30-50% fatality rate, death in about 12 days
3. Origins unknown, arises in the 1500s
 - a. Possibly crossed the Atlantic - but which direction?
 - b. Can be found in eastern red squirrel in America
 - c. Tend to think it was already in Europe in the 1400s
 - d. Cases become more common on both sides of the Atlantic in the 16c
4. Diseases of squalor, crowding, poverty
 - a. Refugee camps
 - b. Dense slum conditions
 - c. Army camps/ships
 - d. Famine - takes advantage of a weakened immune system, big outbreaks in Irish potato famine
 - e. Anne Frank died of it in a concentration camp
 - f. See it in refugee camps today
 - g. Don't see it on slave shifts - they are often in near nudity and the lice love clothes
5. How did they think about it - 17-19th century
 - a. It had many names - Over a dozen names that are all circulating
 - i. Known by symptoms - spotted fever, petechial fever, violent fever
 - ii. Where it breaks out - jail fever, hospital fever, ship fever, factory fever, poor man's cabin fever
 - iii. Qualities the disease was imagined to have - malignant fever, putrid fever, pestilential fever - last two names suggest links with plague
 - b. Plague lite?
 - i. They fear that it will become plague
 - ii. As plague doesn't come back typhus gets the messaging of plague
 - iii. Believe that plague is the highest form of fever and could grow out of lesser fevers
 - iv. Terrifying possibility of it becoming plague
 - v. Lump plague and typhus together
 - c. Poverty, putridity and predisposition

- i. The lower class was more likely to get it and they blame it on the lack of ventilation, and putridness of their living situations and their food
 - 1. These are recycled theories about plague
 - ii. Useful way to depict the poor in the crowded cities and justify policing them
 - iii. Moral biology of the poor - idea that moral actions have biological consequences
 - d. They are seeing/or are most concerned about typhus in prisons - this influences the moral perception of the disease
 - i. They don't know its spread by lice, they think it is airborne
 - ii. Lumping in of prisons and workhouses
 - e. Theory about breathing
 - i. Think that breathing cleans out the body - breath is excrement
 - ii. Confined paupers breathe in each other's waste - effluvia
 - iii. Mixes with their inner corruptions, becomes more toxic
 - iv. Their innards are more poisonous and corrupt because of their lifestyle
 - v. Becomes exponential - they breathe each other's waste, then mixes with corruption, and then everyone breathes in each other's waste getting stronger and more toxic
 - vi. This is how fevers are generated, turns into a pestilential fever, and this can turn into plague
 - f. Jail fever in the 16/17th c
 - i. They get the disease in jail, but then they get put on trial leading to contact zones
 - 1. Areas where rich and poor come together, which are scary places
 - ii. Oxford 1577 was one such outbreak
 - 1. 300 die including judges, lawyers
 - 2. In the trial of Rowland Jenks
 - 3. This is included in histories for centuries because of who died and where, not how many died
 - iii. Other accounts name the rich people who die because they were considered more important
 - g. Old bailey outbreak - London May 1750
 - i. Multiple, judges, jurors, lawyers and the mayor die of fever following a criminal trial
 - ii. It immediately gets blamed on the prisoners
 - iii. Response was to
 - 1. Wash prisoners in vinegar before going to court
 - 2. Canvas jumpsuits - idea to hold their deadly fumes within
 - 3. Washed/scraped the walls of the prison
 - 4. Excavate cesspit of the prison and cart it miles away - there are lots of other cesspits in the city, but this one was considered more toxic

5. Screening for interrogation - so prisoners and lawyers would be opposite sides of a screen
 6. Judges sniff vinegar
 7. Ventilation area gets made for prisoners in court
- h. They also released debtors - debtors vs felons
 - i. Half of the incarcerated population was debtors
 - ii. These people were typically propertied people, not the poor
 - iii. Incredibly common, 1 in 12 englishmen
 - iv. There is significant sympathy for these people, but jail is dangerous because of typhus, so this motivates some to push for prison reform
 - v. Fear that they will get sick and die because of their proximity to poor people
 - vi. They were supposed to have separate areas for felons and debtors, but these separations are not being maintained
 - vii. The debtors would make the case that they were a conduit to normal people as they would get visitors
 - i. They start passing insolvency acts
 - i. Conditions for people to promise to pay back so that they can get out of jail
 - ii. Started to be passed after $\frac{1}{3}$ of debtors die in a london jail
 - iii. Fear of contract zones
 - j. Newgate and the jail fever panic
 - i. The largest prison in london - directly next to the old bailey courthouse
 - ii. There are calls for building a new prison in 1750
 - iii. City opts for the cheaper option of building a ventilator
 - iv. Typhus rates fall for about 2 years, but it doesn't work long term and 1755 it is clearly not working
 - v. They apply to parlement for the funds to build a new prison and they get turned down
 - vi. They don't raise the money to start building the prison until 1770
 - vii. In the meantime londoners live in fear
 - k. There is a second old bailey outbreak in 1772
 - i. Panic drives prison reform movement
 - l. John Howard tours all prisons in England and presents his findings to parlement - advocates for the health of prisoners act which is the first piece of legislation that tries to address the living conditions of prisoners
 - m. Crisis - the american revolution - they had previously been shipping people out, but during the revolution you can't ship them out anymore so the jails start to bulge
 - i. The hulks - just put ships in the thames and use them as prisons - awful conditions and terrifying for people
 - n. Newgate was completed in 1780, but 6 days later it was burned down in the Gordon Riots

- o. A crisis of bodies - too many people and not enough space, so they are too close together
 - i. Solution is to just move them away
 - ii. Restarting transportation to australia
 - iii. Vagrancy removals to put them back into the towns and rural areas that they were born
 - iv. Building new prisons all across the country
- p. Prison reform is being driven by typhus - public health panic about typhus leads to prison reform as a public health policy
 - i. Being driven by class relations and the anxiety of contact zones
- q. Gauging fear - Howard the hero
 - i. He is a massive cultural hero
 - ii. Career spent inspecting prisons and lazarettos
 - iii. How does he do it and not die
 - 1. Don't breathe too heavily
 - 2. Air clothes and notebook by the fire
 - 3. Smelling vinegar while in the place
 - 4. Changing clothes after
 - 5. Ushers in a fad for vinegar sniffing
 - iv. Have a sense that people live with day-to-day worry about typhus
- 6. Typhus beyond prisons
 - a. They build fever hospitals
 - b. General hospitals banned contagious patients
 - c. These segregated hospitals are built to protect the city from these patients
 - i. Prevent cross-class contamination
 - d. Thought that the disease was always among the poor, and occasionally among the rich
 - e. Epidemic is thought about socially and geographically - when you have a disease among people and in a place that you are not used to having it
 - i. Typhus is constantly present among the poor - the numbers vary, but this is not focused on
 - ii. Understood as part of the natural habitat of the poor, terrifying when it leaves there and goes to people that are not working class
- 7. The lazaretto comes home
 - a. Howards study of lazarettos
 - b. Looks at how they structure the movement of people and they create zones
 - c. By 1800 the british were treating the working class like potential plague spreaders
 - d. The fever hospitals follow the same strategies
- 8. Rebuilding of a london workhouse 1796
 - a. The poor sits in one room, the committee sits in the other - designed this way to separate the committee from the poor people
- 9. Conclusion

- a. Typhus is actually waning later in the 18th century - this whole story takes place when typhus rates were going down
- b. Advent of cotton cloth means easier clothes washing
- c. Hospital system worked and decreased mortality rates
- d. Public health interventions worked - fumigation worked
- e. But typhus remained a terrible killer in times of despair and famine
- f. Connection to poverty, filth and vermin made it both a real killer and a powerful idea

Week 6: Yellow Fever

1. Disease which can be connected to race, and can be connected to geopolitics
 - a. Wars are won or lost because of this disease
 - b. Politics of national conflict was impacted heavily by the disease
2. The science
 - a. Transmitted by mosquitoes
 - b. Typically affects monkey and non-human primates
 - c. Not classically contagious between primates
 - i. See the virus almost as a parasite of the mosquito rather than a virus of the monkey
 - d. Once mosquito is infected it is infected for its whole life
 - i. Can be transmitted to its offspring - vertical transmission
 - e. Lay eggs in water and the mosquito larva can lie dormant for up to 8 months
 - f. About 500 years ago they start to feed on human blood
 - g. Like to lay eggs in shallow water like pots and barrels
 - h. Bug stays within a few hundred yards of where it hatched
 - i. It is a tropical disease - sub saharan africa and south america
3. Origins
 - a. It likely originated in africa
 - i. Mild in african monkeys, deadly in S American monkeys (virgin soil thesis)
 - ii. DNA shows it to trace linkage to africa
 - iii. Phylogeny - more strains in africa
 - b. Mosquito eggs survived in water barrels and ship's bilge water long enough to cross the ocean
 - c. Climate needs
 - i. 15-35 C, 25+ to reproduce, optimal is 30-35
 - d. Thanks to global warming the mosquito is moving further north
 - e. Feeds almost exclusively on us, on ankles and fit
4. Symptoms
 - a. Flu like symptoms
 - b. For 85% that is it, and they have immunity
 - c. 15% have a worse case
 - i. Return of a very high fever - with delirium
 - ii. Internal hemorrhaging

- iii. Liver dysfunction - jaundice - this gives the disease the name of yellow fever
 - iv. Kidney failure
 - v. The black vomit - caused by internal bleeding - gets referred to by this by the spanish
 - vi. 85% case fatality rate for people with this worse case
- 5. Today
 - a. 200,000 cases per year
 - b. 30,000 deaths per year
 - c. 90% of which are in Africa
 - d. Strangely not in asia despite mosquito - belief if that there are similar flaviviruses which may provide protection
- 6. The virus leaves africa and goes to the caribbean
 - a. Carried by slave ships
 - b. Breakouts in sugar plantations - mosquitos like sugar, the heat, and the many water receptacles
- 7. Early epidemics
 - a. Just a few years after sugar production begins in the colonies there are major epidemics
 - b. People at the time were aware of its connection to sugar production
 - c. The virus has to move because people either die or become immune
- 8. Virus and geopolitics
 - a. Newcomers to a colony die at astounding rates
 - b. Europeans coming to the colonies for the first time was a lethal time
 - c. British soldiers were dying at a rate 7x higher due to the disease
 - d. Expedition trips would be lost because 50% of their troops would die
 - e. Theory that the disease determined who conquered the caribbean
 - i. Because the spanish are there first they have an immunological advantage which helped them keep their colony
- 9. British try to take Cartagena
 - a. They amass 27,000 soldiers - largest army in the region
 - b. 12,000 were dead within 2 months only 650 by combat
 - c. Turn to try to take cuba
 - i. Lose 50% of remaining soldiers to yellow fever
 - d. Takes remaining troops to panama
 - i. Defeated in 3 days
 - e. Loses 75% of troops, 20,000, only 1000 were lost in battle
 - f. Comparatively in a similar war in russia only 8% would typically be lost in disease and battle combined
- 10. 1762 the british try to take havana cuba
 - a. They take the city and hold it for only 9 weeks
 - b. By autumn
 - i. 21% were fit for duty
 - ii. 37% were ill

- iii. 41% dead, 7% died in combat
- 11. Yellow fever benefited defenders in war
 - a. They are protected by the environment
 - b. Local troops would only have to hold out for a few weeks to wait for newcomers to fall ill
 - c. Most of the battles were siege warfare, but they would die before the siege would work
 - d. Yellow fever stabilized the spanish empire
- 12. The virus and revolution in Suriname
 - a. Dutch sugar plantation
 - b. Maroons - communities of escaped west african slaves who formed communities away from the plantations
 - c. They started to raid plantations in the hope of freeing everyone
 - d. Dutch send a force of 1650 troops to put them down, and succeed at the cost of 88% of them die
- 13. Haitian revolution
 - a. 90% of population was enslaved west africans
 - b. Periods of yellow fever epidemics from 1690-1755 but then there were very few after this period
 - c. Slave revolution in 1791
 - d. French send a major army battalion, and within a month 50% of french soldiers are dead
 - e. Toussaint Louverture the leader of the rebellion had a medical background
 - i. Recognized that the french would be okay at first, and then they would get sick and die
 - f. They defeat the french, and then the british send troops
 - i. Lose 10% of men per month from June-Nov 1794
 - 1. Held only 4 small pockets
 - ii. 13-22% men per month fin 1975
 - iii. The heavy rains increased the mosquito population
 - iv. 23-25 000 troops had gone to haiti and 65% had died there - most of disease
- 14. Napoleon tries to retake Haiti
 - a. Sends 65,000 troops
 - b. Toussant has 35,000, used guerilla tactics and awaited sickness to thin the french before attacking
 - c. Within a year napoleon abandons the project
- 15. Question of the 18th c - Why did Yellow Fever seemed to strike white bodies and black bodies so differently
- 16. Dilemma of how to keep white people healthy in the colonies
 - a. Idea that it was due to climate
 - i. The european body is not fit to deal with this environmental change
 - ii. Idea of seasoning

- iii. Idea that you might be sick at first, but then you get habituated if you die (we now know this is basically immunity to yellow fever, but they don't know that)
- iv. Thought that getting sick was just part of the process

17. Race

- a. Monogenism - theory that all people share the same heritage - adam and eve
 - i. Differences are not innate but acquired, especially by climate
- b. Creeping polygenism in the late 18/19C
 - i. Depictions of an innate racial difference
 - ii. Say that distinctions are essential, and not changeable by climate so boundaries between them are hard and fast
 - iii. Look at anatomy to say that there are racial differences

18. Yellow fever theories

- a. They often lumped yellow fever in with typhus as a pestilential fever
 - i. These areas are hot and moist so it is easier for putrefaction
- b. Jaundice changes skin color
- c. They often speculate on yellow fever as an issue of perspiration
 - i. This then says that they are made to work in these hot places while being enslaved
- d. The differential experience of yellow fever was a way in which people could justify slavery and the denial of rights to their slaves - because it shows that they are different and thus different treatment is okay

19. Conquering yellow fever

- a. Further north in the US yellow fever becomes seasonal - but there are significant outbreaks of it
- b. Tropical medicine emerges as a discipline
 - i. Belief that the diseases of the tropics were all the same so they put together Africa, Asia, and South America
- c. The US army establishes a Yellow Fever Commission
- d. Walter Reid innoculates people successfully
- e. There are experiments which determine that the mosquito is a vector
 - i. Then then go around policing mosquitos
 - ii. Encouraging people to get rid of standing water and using mosquito nets
- f. By 1902 they declare Cuba yellow fever free - this is an exaggeration, but there is significant success
- g. 19th century it significantly decreased in cases
- h. Vaccine for it in 1951

20. Politics of tropical medicine

- a. They are doing this work to protect white people
- b. About getting natural resources of the world
- c. Idea of separating the native Africans away from the Europeans - dangerous repositories of disease

- d. Tropical medicine did end up saving a lot of lives but the politics behind why the questions are being asked and why the research is being done is tied up with economic forces and the politics of the time

Week 7: Cholera

1. It is a disease of modernity and industrialization
2. The great divergence of living standards
3. Shifting ideas about disease because of germ theory
4. The science
 - a. It is a bacteria
 - b. Humans are the only known animal host
 - c. Thrives in water - particularly areas where fresh and saltwater mix
 - d. Very sensitive to temperature and salinity
 - e. Humans ingest it, typically through fecal contaminated water or food
 - f. Not classically contagious from person to person
 - g. Main problem is the contamination of drinking water, and this allows it to spread quite quickly
 - h. Remains endemic to the global south
 - i. 1.3 to 4 million cases per year
 - j. 21,000 to 143,000 death/year
 - k. Often mild or asymptomatic
 - l. 1 in 10 have a severe reaction
 - i. People with more stomach acidity are less susceptible to it
 - ii. People who are malnourished have impacts on their stomach acidity
 - iii. Type o blood are more prone to it
 - m. Infected people shed the bacteria for up to 10 days
 - n. Disease action
 - i. Quick onset 12hrs to 5 days
 - ii. The bacteria knows when it is in the large intestine, secrete toxins which rupture cells in gut lining cells pour out salt and water, copious dietary, bluing of skin, death by catastrophic dehydration
 - o. Treatment
 - i. Antibiotics and rehydration
 - ii. Vaccine - good for 1 year, offers 70% protection
 1. Only used in uncontrolled epidemics
5. Origins
 - a. Jump to humans is recent, probably in the last 100 years
 - b. Likely arose in india
 - c. Confined to indian subcontinent in 1700s
6. Pandemic Cholera
 - a. There are said to be 7 cholera pandemics - but these span almost the entire 19th century
 - b. Its spread is facilitated by war and crisis
 - c. Also colonial wars and rebellions
 - d. Returning british soldiers bring Cholera to europe

- e. People eating unsanitary food, poor water access, difficulty accessing sufficient sanitation
7. Cholera and modernity
- a. Starts to rage when steam travel is developed as this allows for faster travel
 - b. Cities are growing significantly and they are mostly poor, living in poor neighborhoods with poor services
 - i. Ex. water - there are many people in the city who do not have access to water because they can't afford it, and they rent so they aren't going to get it installed
 - c. Sewers were only designed for rain water so they were easily clogged with waste, these would back up frequently into cellars (where the really poor lived)
 - d. Waste removal was private and costly
 - e. There would be shared communal privies or tubs - outhouses
8. Cholera in Britain
- a. They kept an eye on it traveling across the continent so they knew it was coming
 - b. Cholera was seen by them as a statement on modernity
 - i. The suffering from the disease is the opposite of what they believed they had built with modernity
 - c. Would suddenly show up and then killed in a dramatic way
 - d. Smaller body count than other diseases, it is the nature of the disease that is scary
9. Race
- a. It was remembered in a racial way
 - b. Asiatic cholera or Indian cholera
 - c. Often depicted wearing a turban
10. Politics
- a. In the British case it arrived during the Reform Bill Crisis (1830-1832)
 - i. Campaign for electoral reform
 - ii. Large scale working class demonstrations in the name of political rights
 - b. Reform act of 1832 - seen as great moment of electoral reform
 - i. Extends the vote only to about 7% of men
11. Conspiracy theories
- a. Working class radicals present cholera as a government ploy to distract from the movement - do not think that cholera is real
 - b. Doctors are folded into this conspiracy because they are taking roles on public health boards
 - c. Doctors are accused of exaggerating case counts for money
 - d. Present it as this made up thing
 - e. They cannot present it as fake forever
 - f. Fear of dissection
 - i. They would give unclaimed bodies to medical schools - this is seen with revolution by many people
12. Cholera Riots
- a. Significant opposition to being removed to cholera hospitals

- b. UK seeks cholera riots in all major cities
 - c. Stipulations for quick burials cause suspicion that they are being buried alive
 - d. Not just a british phenomenon
13. Politics of policy
- a. Governments pull back from heavy handed policies like quarantine as a result of riots
 - b. Liberal countries tended to oppose strict policing measure
 - c. Authoritarian countries were more likely to opt for stricter measures
14. Medical theory
- a. They were debating if the disease is contagious or miasmatic
 - b. Those who believed in contagion theory demanded policing of movement
 - c. Those who believed miasma theory demanded sanitation
 - d. In the british example the sanitarians win - massive sewer projects, start to defeat cholera, sewers let them address cholera without addressing poverty
 - i. This is a decision that works, but is based on bad science (miasma)
15. International quarantine systems
- a. Perceived as a disease of the east
 - b. International health systems start to take form
 - c. Decry the east as filthy, and there is blame placed on pilgrimages to the rivers in India
 - d. There were 14 international sanitary conferences
 - i. International means europe
 - ii. Much of their debate is about trade
 - e. Neoquarantineism
 - i. Old style quarantine didn't work
 - ii. Discover the germ that it is - aware that there are healthy carriers
 - iii. System of short quarantines (border inspections) - this allows trade to continue
 - iv. International public health office oversees quarantine
 - f. Policies are sanitation at home, quarantine abroad
 - i. Policing of bodies falls heaviest on non-citizens
16. This system was largely effective - combination of neoquarantine and sanitarianism works and pandemics largely avoid the west
17. The great divergence
- a. In the west cholera is a 19th c phenomenon
 - b. Cholera continues to occur elsewhere - becomes a litmus test for living conditions in the 20th c
 - c. It becomes a rural and peri-urban killer in India
 - d. Continue to see quarantine in poor areas today with poor water infrastructure
 - e. Can still see similar diseases like e-coli in areas where there are boil water advisories - think Canada
 - f. Global north and global south, as well as rich/poor, urban/rural, in countries in the west like Canada

Week 8: Influenza

Part 1

1. 1918 pandemic - 50-100 million deaths
2. Most deadly if you are talking about number of deaths, but not portion of population
3. $\frac{1}{3}$ of the population got it in about 24 months
4. Not regional, it was truly global
5. 4 main types - A, B, C, D
 - a. A is serious
 - b. B and C can infect humans but are typically mild
 - c. D infects animals like cattle and pigs
 - d. This pandemic is influenza A
6. Influenza A
 - a. Primarily affect waterfowl
 - b. Can also affect other mammals
7. Flu
 - a. Highly adaptive
 - b. It changes and has a lot of subtypes
 - c. Antigenic drift - shifting of surface proteins which can render disease unfamiliar to immune system
 - d. Antigenic shift - more radical changes, virus trades RNA molecules with other viruses
8. Probably not very old among humans, but hard to tell as it has vague symptoms
 - a. Likely in Europe by 1500
 - b. Word influenza comes from Latin "to flow in"
 - i. Flows in from vapors in the stars
 - ii. Astral influence
 - c. Term is often quite general
 - d. In the 1700s we start to see outbreaks that we would recognize
9. Science of 1918
 - a. Likely an antigenic shift in 1917
 - i. Strain of H1N1 jumps from birds to human
 - b. A W shaped mortality curve - there was high mortality in 20 somethings
 - i. Typically they kill the old and very old (and ill)
 - ii. Very high among those who were young, spike in 20s, and then rise for the elderly in terms of mortality rate
 - c. Theories for this strange mortality chart
 - i. Theory 1 - cytokine storm
 1. Immune over response which causes large system over failure
 - ii. Theory 2 - previous exposure
 1. 1889/1890 Asiatic or Russian Flu epidemic may have conditioned immune system so this may have offered some protection to those born before 1890
10. Flu and the war
 - a. Why did the war enter the textbooks but not the pandemic?

- b. 20 million people died in the war, 50-100 million people died in the pandemic
- c. War deaths seem to have a different cultural value than pandemic deaths

Part 2

1. First noted to have broken out on American army bases
 - a. Think it was operating earlier
 - b. Major outbreaks in 1916, often at army camps again in Europe
 - i. First referred to as purulent bronchitis
 - c. Shift noted in 1915/1916 in America
2. There were three waves in 1918 and 1919
 - a. First wave hits in different places in different times
 - b. US joins the war in June 1917 and this mobilization created the perfect conditions for it to spread
3. War
 - a. Constant cycling of men at the front
 - b. People in confined circumstances
 - c. People moving all around the world
 - d. Spread even before demobilization
 - e. Suggestion that a German postponement of an offensive was caused by the flu
4. First wave
 - a. Not a lot of death in the very beginning
 - b. Doubt that it was actually flu; gas symptoms were mild
 - c. Hit and miss geographically
5. Censorship
 - a. Essential to keep up morale
 - b. They did not report much of the pandemic
 - c. Law preventing anti-government or internationalist press
 - d. Using legislation to crack down on left-wing politics
 - e. Newspapers cowed into downplaying the epidemic and they deny outbreaks
6. Spanish influenza
 - a. It was a neutral country so had a free press so they were able to report on it
7. Second wave
 - a. Much larger and many died
 - b. Deaths came quickly typically from pneumonia
 - c. Example of Philadelphia - health board is denying it, local doctors implore them to cancel events, newspapers refuse to print doctors' opinions, there was a massive outbreak after the parade and they were forced to cancel public meetings

Video 3

1. In the US action at the national level was pretty weak, so cities were largely on their own to respond
 - a. Only in November did they talk about the disease - the disease had been raging for a long time
 - b. Later they do things - organize volunteer doctors to go where they were needed
 - c. There was a massive nurse shortage as nurses had been called up for military service

2. Local policies
 - a. Hygiene - continuation of old filth theories (a lot of street cleaning)
 - b. Closing things down - schools, churches, cinemas, theaters, bars, restaurants
 - c. Anti-spitting by laws
 - d. Sneezing by laws - handkerchiefs were made mandatory
 - e. Masking
 - i. Ordinances in seven cities by october 1918
 - ii. Shame people into demonstrating good citizenship
3. Mask opponents
 - a. Challenge the science behind masks
 - b. Libertarian politics
 - c. Some were violent
4. Did local policies work
 - a. Markel chartered 43 city's policies and dates of when they were brought in
 - i. Correlated these with weekly death rates
 - ii. Found that the layered approach was best - cities that did the best had 4+ policies working in tandem
 - iii. School closures and gathering bans had the greatest impact
 - iv. Timing mattered - cities that implemented these earlier had lower peak and total mortality rates
 - b. Policies did work to flatten the curve
5. Winnipeg 1918
 - a. Reported on october 1st and they are shutting down by october 12
 - b. First cases among those who had traveled and were well off, but then it hit hard in poor, working class, and immigrant neighborhoods
 - c. Part of the history of the winnipeg general strike
 - d. Pandemic was a contributing factor in the strike
 - i. Working conditions for the working class highlighting social divides
 - ii. Brings communities together and fosters solidarity
 - e. Trade unionists all lobby the city for support - including employment insurance
 - f. Expensive private hospitals and city money went towards these
 - g. Pauper burials as burials got expensive - pushing for regulation of prices or assistance to cover price
 - h. Want a form of socialism
 - i. Turn to labour unions (organizes men mostly) and mutual aid societies and auxiliary organizations (organize women mostly) for support
6. Last big resparty disease before covid
7. Belief that there was bound to be another one

Week 9: Tuberculosis

1. The deadliest infectious disease
 - a. In 2020 10 million infected and 1.5 million dead
2. The science
 - a. Is a bacteria
 - b. Can get it through eating tainted beef or affected unpasteurized milk

- c. 1.7 billion people have been infected, about 23% of the population
 - i. The infected only have a 5-10% chance of getting sick
 - d. Slow to reproduce, typically handled by immune system
 - e. Bacteria can remain latent for many years
 - i. Can escape if granuloma weakens, meaning that it affects people with a weakened immune system
 - f. It has lots of healthy carriers
3. Origins
- a. Probably very old, but we don't know exactly when it begins
 - b. Present in early textual records
 - c. Called it Scrofula (King's Evil) and consumption
 - i. Belief that the king could heal you
4. Symptoms
- a. May confer immune protection for leprosy
 - b. Attacks all organs but especially lungs
 - c. Can be spread through droplet transmission
 - d. Long exposure is typically necessary for contagion - not super contagious
 - e. Active patient can infect 5-15 people a year
 - f. About 45% fatal for people who have tuberculosis diseases (symptoms) and untreated
 - g. 100% fatal for people with HIV patient
5. Incidence
- a. Disease of poverty, most cases occur in the developing world
 - b. Within the west racialized people and immigrants are overrepresented
 - c. Because it is affected by the strength of the immune system poverty is a significant factor
 - d. It was the most common non-plague death in early modern London (called consumption)
 - e. TB mortality peaks in 19c and remains significant into 20c
6. Treatment
- a. Can be treated with antibiotics
 - b. Access to medication helps explain the social discrepancy
 - c. MDR-TB - resistant to first line drugs, second line drugs are less effective and are very expensive
 - d. XDR-TB - extensively drug resistant TB, 10% of MDR which are also resistant to 2nd line drugs
7. Why have we heard so little about it
- a. Endemic - not epidemic
 - b. Slow, wasting, undramatic death
 - c. This impacted the cultural framing of TB
8. Framing of the disease
- a. Less commonly associated with filth
 - b. Thought to be hereditary - this is how they explain why it runs in families
 - c. Freed from some moral connotations and stigma

- d. Instead of projecting it as an other which is the fault of people who are marginalized, people instead choose TB as a marker of their identity
 - e. They give the disease positive associations
 - i. Seen as a good death - gentle death
 - ii. Long death - gave people a lot of time to think about existence and say goodbye
 - iii. Seen as edifying - raised one's identity and spirit
9. Consumptive Chic
- a. It becomes fashionable and some people wanted it
 - b. 18th/19th c theories of the nerves - delicate, sensitive people had sensitive nerves, and this was linked to intelligence
 - c. Theories of hereditary suggested TB ran in elite families
 - d. Influences fashion and ideals of beauty - pale, weak, thin
 - e. Linked to higher intelligence
 - f. Death of young people enhanced TB's romantic sense of tragedy
10. Two TBs
- a. Victims from the richer classes were lauded
 - b. Victims from the lower classes were stigmatized similar to the way they are in other diseases
 - i. Never presented as an attractive disease in the poor
11. Germ theory shifts the debate
- a. Cultural shift away from romanticization of it with the coming of germ theory
 - b. Are able to identify it
 - c. They are able to grow it in a lab
 - d. Able to inoculate rabbits with TB - shows this is a contagious disease and not a hereditary one
 - e. Tuberculin
 - i. Fails as a vaccine
 - ii. Succeeds as a test
 - f. Consumption now fades as a name and it is named based on its tubular pathological presentation
 - g. Mood shift and policy shift
 - i. TB as a scourge
 - ii. TB needs to be fought
12. Sanatoria
- a. Once there is an awareness that it is a disease they start seerating patience
 - b. Antibiotics were still 50 years away
 - c. Treatment involved
 - i. Segregation - separating them from healthy people
 - ii. Sunshine and fresh air - build up bodies constitution
 - iii. Focus on good food and warm, dry, air
 - d. Sanitorium building craze
 - e. Not nearly enough beds
 - f. They were inaccessible for many as they were expensive

- g. Varied experiences in the sanitariums - vary from very nice, to tent cities
- 13. TB and moral causes
 - a. There were often still moral connections with TB
 - b. Constitutional theory of TB
 - c. Often had strict rules in sanatoria
- 14. Public health campaigns
 - a. Anti public spitting campaigns
 - b. These behaviors are defined in terms of moral citizenship
 - c. Messages about preventing TB on the back of NYC street car transfers
 - d. Mandatory notification
 - e. Men were told to not drive or spit
 - f. Women were told to clean the house
- 15. Racial Politics and African-Americans
 - a. TB rates were starting to fall in the 1980s but were rising among Black Americans
 - b. Hoffman investigates Black TB rates - question of living conditions or heredity
 - i. Blames constitutional weakness and believes in hereditary
 - ii. Presents TB as an essential feature even though they know it is a germ because it is politically useful
- 16. Racial Politics and Mexican-Americans
 - a. California had originally welcomed sanitarium patients, but then by 1900 they petitioned to bar all TB patients because they have too many
 - b. People applying for welfare were given TB tests and if positive they were given one way train tickets
 - c. Since TB is a slow wasting disease it takes a lot of time and therefore care is very costly
 - d. Mexican Americans were reported with higher TB rates and racial explanations of this support greater surveillance and policing
 - e. In 1928 the petition to increase immigration restrictions for Mexicans
 - f. 350,000-1 million Mexicans expelled from the US and repatriated back to Mexico - 50% of which were US citizens

Week 10: Polio

1. Hasn't killed nearly as many people
2. Large cultural impact
3. Often doesn't kill but leaves victims paralyzed
4. The science
 - a. Caused by a virus
 - b. Humans are the only hosts
 - c. Three variants - all highly transmissible and have similar symptoms
5. Transmission
 - a. Can be inhaled, but more likely to be fecal oral transmission
 - b. Humans shed virus for up to 6 weeks
 - c. incubation period is 3-35 days
 - d. Survives in blood for up to 17 weeks
 - e. Can spread to other parts beyond the gut

- i. This is an accident of the virus, not essential for its survival
- 6. Symptoms
 - a. 70% no symptoms
 - b. 25% abortive polio - mild flu like symptoms
 - c. 5% inflammation of meninges - meningitis
 - d. <1% of cases - paralysis
 - i. In children the risk is 1 on 1000
 - ii. In adults the risk in 1 in 75
 - e. Most children inherit protective antibodies from mom
 - f. Most children have mild cases, but over time this protection fades
 - g. Infection confers lifelong immunity
- 7. Treatment
 - a. Currently no treatment
 - b. Managed by immunization and physiotherapy
- 8. Post-polio syndrome
 - a. Can occur decades later
 - b. Weakening of the muscles, theory caused by some sort of neural degeneration
- 9. Origins
 - a. Suggested artistic representations date to ancient egypt
 - b. Too few cases pre 1890 to drive identification of an epidemic
 - c. But cases start to flare up after this point
 - i. Other diseases are declining at this point due to mainly sanitary reform
- 10. Theories as to why there was a surge
 - a. In this newly sanitized environment fewer kids exposed at a young age, and more moms never had antibodies to pass on
 - b. More people get exposed to polio later when it is more dangerous
- 11. New York 1916
 - a. Summer epidemic
 - b. New yorkers flee the city, communities restrict non-residents
 - c. Health certificates for travel
 - d. 8,000 cases, 2,400 deaths
 - e. Camps canceled, schools delayed
 - f. House quarantine/placarding
 - g. Quarantine hospitals for the poor and working class
 - h. Oyster bay had higher per capita rates
 - i. This is a rich area of the city
 - ii. Idea that politicians are inflating numbers so they get paid
 - iii. Angry citizens take over the health board
- 12. Polio, class and ethnicity
 - a. Link between immigrants and disease
 - b. Targeted pig town - italian immigrants
 - c. Despite germ theory disease was still linked to filth
 - d. Immigrant groups blamed for their lack of hygiene
 - e. Called infantile paralysis at this point

- f. Poor areas did not have more polio
 - i. Studies show that poor, immigrant urban areas had lower rates than wealthy native born suburban areas
 - ii. Doctors did not consider the ramifications of these findings and continue to look to poverty
 - 1. Not willing to associate disease with a lack of dirt
13. The search for vectors - how scientists are looking for the disease
- a. Focus on transmission, think it is generated in the slums and then transmitted to the upper class
 - b. Calls for the fumigation of subway cars
 - c. Attention to the milk supply - connection with TB remembered
 - i. Investigation finds no link to TB, but they forge one anyway
 - ii. Argument that immigrant women are contaminating the milk
 - d. Flies
 - i. Flies had been shown to spread other diseases
 - ii. Is believed that flies can transmit polio, but this was likely not a main way the disease was getting around
 - iii. Swat the fly campaign, but these say no impact on polio rates
14. Theory
- a. Polio rates in wealthier neighborhoods were older - had not been exposed to polio as children
 - b. In poorer areas they were more likely to have been infected as infants so were less likely to get polio in this outbreak
15. FDR takes sick
- a. Born into wealth/power, homeschooled until teenager, goes to boarding school as a teenager
 - b. Develops polio at 39 in New Brunswick in 1921
 - c. Paralyzed from the chest down
 - d. His illness was front page news, and there was a campaign to cover up the extent
16. Warm springs georgia
- a. Swimming is a form of physiotherapy
 - b. FDR does not remain much more moment, but learns to use the muscles he does have better
17. FDR return to politics
- a. He could walk very short distances, and had leg braces under trousers, had aid at arm helping him
 - i. Give speeches in standing position but had something he could hold onto
 - b. Continues to mask disability
 - c. There are a few videos of him walking
 - d. Virtually no public photos in his wheelchair
 - e. Secret service prohibited/confiscated cameras
 - f. No political cartoons showed him as disabled
18. Had a complicated impact on the representation of disability

- a. He advocated for the disabled
 - b. Public opinion increasingly saw the disabled as capable
 - c. But he fostered the idea disability was something to overcome or hide
 - d. FDR was closely aligned with the march of dimes for fundraising
 - i. Very successful fundraising organization
19. Polio cases explode in the 1940s and 1950s
- a. Iron lung is developed in 1928, is terrifying and costly
 - b. Also pool closures
20. Quest for a vaccine
- a. The potential for the vaccine would be able to nullify the vaccine as it does not circulate in animal hosts
 - b. Early vaccines encountered setbacks
 - c. In an early vaccine trial by Brodie 6 died, 10 paralyzed
 - d. Kolmer trial resulted in 9 deaths and 12 paralyzed
 - e. High profile failures caused a research pivot to understanding the disease better
 - f. Three core problems
 - i. How many types of polio virus
 - ii. Safe vaccine for each
 - iii. Discover pathogenesis within the body
 - iv. Progress on all three problems by the end of 1953
 - g. Enders creates a vaccine that works through weakening it with antibiotics
 - h. Salk - learned techniques for inactivating the virus
21. Biggest public health experiment ever
- a. Salk recruits second grade children in 200 counties
 - b. Vaccine is tested widely - rural/urban, black/white, north/south
 - c. 650,000 parents say yes and they test it on their kids
 - d. Results were announced April 12 1955
 - e. A few early batches contained live virus, detected and protocols stiffened
 - i. Some parents did pull kids from trial

Week 11: HIV/AIDS

1. Discussing the AIDS epidemic in Africa - emphasizing the theme of inequality within and between nations
2. 90% of HIV-positive children live in Africa - particularly sub-saharan africa
3. The disease
 - a. HIV - human immunodeficiency virus
 - b. AIDS - acquired immunodeficiency syndrome
 - c. Progress from HIV to aids without treatment
 - i. Takes 9 months to 20 years, an average of 12 years
 - d. Once have AIDS the life expectancy without treatment is about 3 years
 - e. Kills billions of CD4 cells every day - the body loses the ability to protect itself from other pathogens
 - f. Virus is spread through bodily fluids - blood, semen, vaginal, rectal, milk
 - i. Most common transmission through sex, in-utero, IV needles, blood transfusions

- g. Transmissibility differs throughout infection
 - h. Aids was difficult to see
4. Discovered in 1981
 - a. However was around before this time
 - b. Discovered when young otherwise healthy men presented with rare illnesses in America
 - i. This was seen as strange
 - ii. Most of the men identified as gay
 - iii. These diseases are the type that strikes the immunosuppressed
 - c. The CDC does a cluster study
 - i. Look for connections between the cases
 - d. The idea that disease was one of gay men was consequential
 - e. Virus was then identified in 1983
 - i. Virus was identified earlier, they had been infected a decade earlier or more
 - ii. Anecdotal evidence that there was an increase in pneumonia in IV drug users - now assume that this was HIV
 1. These populations were invisible, so people didn't study it
 - iii. Also, a post-death test of someone's blood which contained HIV
 5. Virus origins
 - a. The oldest positive test is from a blood sample taken in 1959
 - b. Think virus evolved from a couple of simian immunodeficiency viruses
 - i. Thought they jumped the species barrier 11 times
 - ii. Theory is that this jump occurred due to consuming bush meat or hunting and butchering animals
 - c. Thought to have originated in central Africa
 - i. This is where there is the most diversity of types
 - d. Virus mutates incredibly fast - in one year it has 180 generations
 6. Evolution and spread
 - a. Jump to humans did not make it infectious, virus had to evolve in humans
 - b. Key mutations occurred in the 1950s
 - c. Mass immunization and colonial medical treatment programs - theory this created conditions for SIV to mutate
 7. Disproven book from Edward Hopper pointing to a connection between the polio vaccine and HIV
 - a. Vaccines did not create vaccines, but there is a theory that these campaigns may have created the conditions for the disease to spread through the reuse of needles
 - b. Some suggest that these practices continue through unsafe injections, but the WHO investigated and found no support
 8. Debate has important implications for the framing of the African epidemic
 - a. Popular assumptions about African hypersexuality
 9. Shape of epidemic
 - a. In Africa, it is a disease of heterosexuality

- b. In Canada and the US, it was largely in circles of gay men and IV drug users
 - c. In South Africa 20% of the adult population (15-49) are HIV+
 - d. 15% of new cases in Africa are congenital or from breastfeeding
 - e. In Africa, it is also an epidemic of women - 3 women for every 2 men
 - f. Black Africans have higher rates than white Africans
 - g. Epidemic of poor young black women
10. Epidemic shaped by inequality
- a. This is between post-colonial Africa and the west, as well as inequality within African societies
 - b. Hits the young, poor, black women first
11. Lots of theories speculate on African sexuality
- a. There were studies on sexual activities which did not show African nations as having the most sex
 - b. The countries that have the most sexual activity do not have the highest rates of STDs
 - c. HIV was circulating for decades before people knew it
 - d. By the time public health campaigns were rolling out after it was circulating so they were facing an epidemic already saturating the general population
12. Impacting factors
- a. Factors that make the epidemic in sub saharan africa worse than it might have been - relating it to the history of colonialism
 - b. Demographics - Africa is incredibly young and sees population grow substantially
 - c. 20% of the global aids burden falls on 15 African cities
 - d. Colonialism
 - i. Changed the traditional economy
 - ii. Migration for employment
 - 1. Employment dried up resulting in poverty, and patterns of migrant labour
 - 2. Migrant labour is connected to high HIV rates
 - iii. Informal settlements (slums) are also connected with high HIV rates
 - iv. Conditions made it harder for people to set up a household and get married - people are remaining in the dating pool which correlates with elevated HIV rates
 - e. gender/age/power
 - i. Women become involved in age-disparate relationships - relationships with significantly older men
 - ii. Often these involve transnational sex, which is more difficult to negotiate safe sex practices
 - iii. Issue of sexual violence
 - f. Displays of sexual power may be reactions to the deepening poverty, unemployment, and frustrated masculinities
 - g. Challenges to classical fatherhood contribute to the disintegration of families
 - h. High rates of alcohol abuse also connected to high HIV rates
 - i. HIV is not a disease of poverty, but it is linked

- i. People live risky lives so contracting HIV seemed like the least of their worries
- ii. Context of poverty creates a feeling of resignation, that HIV is inevitable, and beyond nobody's power to prevent

13. Challenges to international campaigns

- a. Pretty considerable and consistent efforts to help public health campaigns
- b. These campaigns don't initially succeed in the way they did in the west
- c. Problem was that they tried to apply a western-style sex ed
 - i. Developed for an epidemic that was contained to a particular population
 - ii. Overlooked cultural differences
 - iii. Developed for middle-class white gay men based on assumptions about sexual autonomy
 - 1. Telling them to have safe sex implies bodily autonomy that not everyone has
 - iv. Education did not always correlate with HIV status
 - 1. High levels of knowledge about HIV did not correlate with no infection
- d. Also the issue of resources
 - i. Created sizable programs eventually, but didn't start until 1987
 - 1. Started in 1987 with \$1 million and 2 staff
 - 2. By 1990 there is \$100 million and 400 staff
 - ii. The UN and WHO assumed solid public health infrastructure, but this did not exist
 - 1. This public health infrastructure to work with did not exist
 - 2. African public health had been underfunded for years, and people were dying of preventable diseases already
 - 3. Underfunding due to neoliberal globalization

14. Neoliberal globalization

- a. Structural adjustment policies
 - i. Reforms required to secure IMF loans
 - ii. Encourage privatization
 - iii. Restrictions on public spending
 - iv. Per capita spending on healthcare fell 50% in Africa's poorest nations
 - v. These policies corresponded with increases in deaths
- b. IMF money for HIV took the form of loans, not grants

15. An optimistic case study - Uganda

- a. In the 1980s they had the highest HIV incidence in the world
- b. 1987 - 24% of pregnant women were HIV+
- c. President (who is not a good person) makes AIDS a primary focus
 - i. Insisted on speaking plainly about the disease
- d. Evangelical influence creates an absence message
- e. Successfully courts international aid and Uganda receives more aid money than any nation
- f. All levels of government got involved in the fight against AIDS

- g. Awareness of larger structural issues
 - h. Priorities
 - i. Children and youth, especially AIDS orphans
 - ii. Gender issues
 - iii. Looked at places they thought the transmission was occurring
 - i. Uganda stands out as a case that the efforts could have turned out better
 - i. If efforts had been earlier, been committed, and had resources at an earlier age the epidemic would not have been as bad
16. Conclusion
- a. Is Uganda a success story?
 - i. HIV burden is lower than some neighbours, but higher than nations in the west
 - b. HIV aids demonstrates the contours of inequality within and between nations
 - c. AIDS is worst in Africa because it was first in Africa, but it is worse than it might have been because of its colonial history
 - d. In this case, the burden falls disproportionately on young African women

Week 12: COVID-19

1. You will not be required to discuss Covid on the final exam
2. The science
 - a. Is a coronavirus
 - b. 7 types cause infection, 4 just milk colds
 - c. Effects
 - i. Respiratory infections
 - ii. Cardiovascular problems
 - iii. Neurological
 - iv. Cytokine storm
 - d. Transmission
 - i. Droplet transmission
 - ii. Aerosolized - longer distances, prolonged exposure
 - iii. Limited surface transmission
 - iv. Patients shed the virus the up to 14 days
 - e. Variants of concern
 - i. A variety of variants
 - ii. They are either more evasive or more infectious
 - iii. The variants come and take over
 - f. Coronaviruses mutate pretty slowly
 - i. This is based on the opportunities to replicate that it has
 - ii. Therefore it mutated faster because so many people were infected
 - g. Zoonotic
 - i. Unsure of exact origins
 - ii. Think it came from bats but that there was an intermediary animal
 - iii. Debate of it being man made of naturally occurring
3. Who died and where

- a. Mortality rates rise as people get older
 - b. Lot of cases in long term care homes
 - i. Canada had the largest portion of deaths in LTC homes in the world
 - ii. For profit care homes had poorer conditions and higher death rates, chain homes were particularly bad
 - c. Also significant deaths in prisons
 - i. Particularly looking at US cases
 - ii. Top 100 prisons had 1,100 covid cases
 - iii. US jails had covid rates 500% higher than the general population
 - iv. These are transparency desserts
 - 1. They are unreported
 - 2. Conversation around whose deaths matter
 - v. Non-white people had far higher rates of death
 - vi. The more education people have the lower covid mortality they had
 - d. Social determinants of health impacted who died
 - e. Housing type also had an impact of covid rates and covid mortality
 - f. Many of the people who did worked jobs that were more risky, and they were considered essential workers
4. Essential workers
- a. These jobs were both essential and poorly paid
 - b. Border closers exempted those considered essential workers
5. Covid economics
- a. Rising inflation
 - b. The great resignation and rising wages
 - c. The long term impacts of this are yet to be seen
 - d. The rich have gotten richer
6. Why did the US and Canada fare so differently
- a. While Canada had similar case upticks than the US its rates were much slower
 - b. Canadians are healthier than Americans, and live longer - fewer comorbidities
 - c. Universal healthcare - increased access to medical care, Americans often lost health insurance early in the pandemic
 - d. Canadians had higher levels of trust in doctors than the world, and Americans
 - e. Americans have higher ICU rates other than when they have the vaccine first
7. Vaccines
- a. Did well at preventing serious disease and death, not as good at preventing asymptomatic or mild cases
 - b. Large divide between Democrats and Republicans who planned on getting vaccination
 - c. American rights' doubts around science arise during debates during Reagan about climate change and acid rain
 - i. These debates just raised enough doubt about the conclusivity of science
 - ii. Overall decline in Republican's trust in science
8. What does the comparison between the US and Canada teach us
- a. Vaccines work

- b. Public health measures work
- c. Oxford stringency index - looks at all the covid measures, when did they come out, and how long were they in place
 - i. Other countries would have tight restrictions but then would pull back
 - ii. Canada maintained a moderate to severe degree of restriction for the first two years