DISEASES and THEIR TREATMENTS

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Overall Patterns. The history of disease and disease treatment aligns closely with larger population patterns, not surprisingly. Divisions among hunting and gathering, agricultural, and industrial societies are particularly significant. The subject also reflects the importance of changing levels of transregional contact, particularly from the late classical centuries onward (as disease transmission accelerated) and to an extent in the early modern period. Since the mid-19th century contacts have also included new institutional efforts to control transmission, which along with formal advances in medicine have considerably altered more traditional patterns.

The Impact of Agriculture. Hunting and gathering societies were relatively disease-free. Small populations, with relatively little mutual contact and mobile styles of life, reduced opportunities for massive contagions. Agriculture changed this situation dramatically, though obviously population gains continued (with interruptions) nevertheless. Most agricultural people lived in concentrated villages, where contagion became more likely and where in some cases (though particularly in early cities) poor sanitation, particularly around disposal of human wastes, created problems as well. The domestication of animals may have been even more important in introducing new disease strains. And contacts, particularly through trade, would have their own impact, particularly from the classical period onward. American populations were spared the worst forms of agricultural disease transmission (again, partly because of more limited interactions with animals) until the arrival of Europeans and Africans made the resultant lack of inherited resistance to common diseases literally deadly.

Endemic Diseases. It's no secret that the particular attention, in disease history, goes to the great epidemics, and they were indeed important in a variety of ways. But endemic diseases, year in and year out, deserve more analysis than they usually get. While epidemics could sweep away many children – measles and smallpox outbreaks for example, because their resistance was less established – high infant mortality resulted from endemic problems above all. Dysentery and other diseases of the digestive tract were the leading factors here, reflecting sanitation issues among other things. This is why virtually every family, even when epidemics did not lurk, lost one and usually several children to death. It is also true that, until the 19th century, these endemic problems received relatively little attention. It was sad, but seemingly inevitable, when children died. Interestingly, even in societies that called on doctors for adult conditions, at least in the more affluent classes, children's disease was normally left to run its course – not because death caused no sorrow, but because the results seemed so normal. Even precautions against accidents – for example, covering water wells so children would not fall in – were not normally considered. In later age, the most important endemic diseases were respiratory. Here of course prayer, herbal remedies, and in organized societies doctors might more commonly be called upon, though there was also a notion of a "good death", in later age with a gradual decline that would allow farewells to family members.

Epidemics. More broadly communicable diseases, and particularly epidemics, drew more attention, and could have huge demographic impacts. Trade and other contacts recurrently spread plagues among the agricultural centers. The first huge outcropping occurred in the later part of the classical period, affecting both China and the Mediterranean. A smallpox epidemic hit China in the 4th century, carrying away over half the population in some regions. Only gradually did more widespread resistance develop. (Interestingly, doctors in classical India developed some inoculations against this disease, though only much later did these become current in other societies.) In the Mediterranean major plague occurred in the 6th century, most probably bubonic plague, initially developed in rats in East Africa and carried to the Middle East and southern Europe by merchants. Bubonic plague waves continued to affect the Mediterranean, and spread to China by the 7th century. Overall, up to 20% of overall world population fell as a result of these outbreaks, and social and personal dislocation played a huge role in the decline of the classical empires and the spread of interest in more otherworldly religions.

The "Black Death". A second wave of bubonic plague occurred in the 14th century, and reflected even more extensive trade by the extent and rapidity of its impact. The disease broke out in China's Gobi desert early in the century, and reached both the Middle East and Europe within a few decades, killing 25-35% of the regional populations. (Recent research suggests it was carried by gerbils, who traveled in merchant convoys.) Reactions varied intriguingly: fear was widespread in Europe, and many people tried to flee urban centers; but in the Middle East Islamic authorities argued that the plague was God's will, flight was inappropriate, attainment of heaven was

after all a good thing. Echoes of the plague continued to affect these regions for several centuries. Overall, the Black Death reduced world populations (despite the fact that some regions, like sub-Saharan Africa, were not directly affected) by 15%, until rebounding by 1600.

The Columbian Exchange. At many points in history killer diseases spread when one population, which had developed some resistance, invaded another region where the problems had previously been unknown and where lack of resistance set large populations up for massive mortality. Greek invasions of Mediterranean islands, in the classical period, had this impact, for example. The most famous example of this source of disease was the movement of Europeans and Africans to the New World after 1492. Native peoples had no prior contact with diseases like smallpox, measles and influenza. Eighty percent or more of native populations would die off as a result, between 1500 and 1700, when the situation began to stabilize, with most remaining natives resistant and when substantial interbreeding had occurred. The results of this level of morality, obviously, complicated any capacity for organized anticolonial opposition by the natives but also created the need for new sources of labor and a great deal of largely open land for immigrants to seize. A later, similar pattern enveloped the Pacific Northwest and Oceania from the 18th century onward, again with huge levels of native mortality. By this point, however, grasping Europeans had caught on to this means of reducing native populations and often knowingly passed along blankets from people who had died of smallpox.

The Long 19th Century. Epidemic diseases continued to cause problems in the long 19th century. Cholera epidemics, often originating in India and spreading through the Middle East, were particularly troubling, affecting urban populations even in the Americas. However, new countermeasures increasingly developed. More organized European states began introducing better border controls, for people and animals, particularly for trade from the Middle East. By the 1820s and 1830s reformers within Europe began urging new sanitation measures in the cities, including closed sewers. By the 1850s international conferences began attacking epidemic diseases on a more global basis, helping for example to introduce quarantines within the Middle East. More formal medical research began to yield new inoculations, beginning with the attack on smallpox from the 18th century onward; and some new medicines allowed countermeasures, as with malaria. Epidemic disease remained a huge problem, particularly in some of the poor world regions; and globally, the influenza epidemic of 1919 caused massive mortality. But the situation was changing. Under European colonial administrations, but also for reform-minded governments like Meiji Japan, public health measures spread. Effort to reduce mosquito populations had some impact on diseases like yellow fever.

New Disease Patterns. With fewer epidemics, and better sanitation measures that began to reduce traditional levels of both infant and maternal mortality, a new set of concerns began to emerge, particularly in industrialized regions, by the later 19th century. Attention to degenerative diseases, including cancer, strokes and heart attacks, began gradually to rise. Insurance companies started calling attention to the importance of controlling overweight, though in fact obesity problems actually expanded with new food availability and less physical exertion. A focus on psychological disorders gained ground as well, though less systematically.

Global Responses. Traditional disease sources and levels continued to plague many poorer regions, but the interest in improving public health spread widely as well. Communist revolutionaries both in Russia and, later, China, worked hard to provide new medical centers for the population, with particular attention to better maternal and infant health. Inoculations spread more widely as well, and their range expanded to provide protection from classic diseases like measles and infantile paralysis; though there were pockets of resistance as well, particularly in rural communities that feared this kind of external intervention. Gradually, however, in the 20th century overall life expectancy began to gain ground in most regions, including dramatic reductions in traditional infant death rates. Major exceptions occurred in periods of warfare and civil strife, where services were disrupted and massive refugee problems caused more contagion; and in a few cases where, for example, widespread famine countered the standard trends. In industrial societies, particularly, new drugs and regimens even reduced the incidence of heart attacks and high blood pressure, creating substantial increases in adult longevity.

New Concerns. Disease continued to factor strongly in contemporary world history. Global concerns emerged about the overuse of antibiotics, with fears that mutations of germs would decrease drug effectiveness. Globalization, with its more rapid and extensive trade and transportation, created new opportunities for the spread of diseases. Ebola outbreaks in parts of Africa had some global repercussions. More serious were new kinds of respiratory diseases – like SARS, Severe Acute Respiratory Syndrome – that often originated in East Asia for the

Middle East. Government responses, and assistance from international agencies like the World Health Organization (WHO), largely kept these diseases in check, without massive global mortality. Even the AIDs epidemic, which began in Africa in the 1980s, though it had huge regional impacts, did not generate huge mortality levels on a global scale, thanks to sanitation and medical countermeasures. But fears continued, about diseases that might more fully break through modern medical and public health systems and about inadequate support for key international agencies themselves.

Sources

1. "Smallpox: Emergence, Global Spread, and Eradication." By Frank Fenner. From *History and Philosophy of the Life Sciences*. Volume 15, Number 3 (1993). http://www.jstor.org/stable/23331731
   And "Demonic Affliction or Contagious Disease? Changing Perceptions of Smallpox in the Late Edo Period." By Hartmut O. Rotermund and Royall Tyler. From *Japanese Journal of Religious Studies*. Volume 28, Number 3 (Fall, 2001). http://www.jstor.org/stable/30234471

2. "Ecology, Epidemics and Empires: Environmental Change and the Geopolitics of Tropical America, 1600-1825." By J.R. McNeill. From *Environment and History*. Volume 5, Number 2 (June, 1999). http://www.jstor.org/stable/20723099

3. "Globalizing the History of Disease, Medicine, and Public Health in Latin America." By Mariola Espinosa. From *Isis*. Volume 104, Number 4 (December, 2013). http://www.jstor.org/stable/10.1086/674946
   And "The 'Globalization' of Disease? India and the Plague." By I. J. Catanach. From *Journal of World History*. Volume 12, Number 1 (Spring, 2001). http://www.jstor.org/stable/20078880

4. "The Black Death: End of a Paradigm." By Samuel K. Cohn, Jr.. From *The American Historical Review*. Volume 107, Number 3 (June, 2002). http://www.jstor.org/stable/10.1086/532493
   And "Rats, Communications, and Plague: Toward an Ecological History." By Michael McCormick. From *The Journal of Interdisciplinary History*. Volume 34, Number 1 (Summer, 2003). http://www.jstor.org/stable/3656705

5. "Lecture 1: A History of Modern Public Health: Introduction." From *JHSPHOpen Courseware*. Listen to all lecture clips under Lecture 1. http://ocw.jhsph.edu/index.cfm/go/viewCourse/course/HistoryPublicHealth/coursePage/lectureNotes/
   And "The Development of American Public Health, a Commentary: Three Documents That Made an Impact." By Warren Winkelstein, Jr. From *Journal of Public Health Policy*. Volume 30, Number 1 (April, 2009). http://www.jstor.org/stable/40207221

Primary Sources

"Plague and Public Health in Europe, with Special Reference to Sixteenth-Century England: An Introduction to Orders thought meete by her Maiestie ..., 1578." From University of Virginia. http://historical.hsl.virginia.edu/plague.html

Suggested Reading:

The Emperor of All Maladies: A Biography of Cancer Paperback. By Siddhartha Mukherjee (Scribner, 2011).

America's Forgotten Pandemic: The Influenza of 1918. By Alfred W. Crosby (Cambridge University Press, 2003).

Health, Civilization and the State: A History of Public Health from Ancient to Modern Times. By Dorothy Porter (Routledge, 1999).

Suggested "classics":

Rats, Lice and History. By Hans Zinsser (Blue Ribbon Books, 1935).

Plagues and Peoples. By William H. McNeill (Anchor, 1977).

Discussion:

1. How did smallpox develop? How was it spread globally and what historical developments led to its increased spread?

2. Compare the responses different societies developed toward major diseases before modern times, using specific examples.

3. What role did disease play in European colonization of the Americas? How did disease impact the independence movements in the Americas?

4. What is meant by the "globalization" of disease? How does viewing diseases globally impact scholarship on the subject?

5. What long term impacts did plagues and disease have on populations? What cultural changes did they influence?

6. What historical developments led to the birth of public health campaigns? What role did they have in society?

7. How did disease patterns change in world history from the Agricultural Age to the modern era?