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Comparing and Contrasting Social, Political, and Medical Reactions to 19th Century Cholera Epidemics in
London and New York City

by
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Introduction

Cholera is an infectious and fatal disease, which first appeared in India in 1817. It spread through Asia and the Middle East in the 1820s, to Moscow and Europe in 1830, and by early 1832, the disease had reached London and Paris. In June 1832, cholera crossed the Atlantic Ocean and traveled down from Quebec to New York City arriving on June 24 of that year. Four primary pandemics arose in 1831, 1848, 1853, and 1866 in London and New York City, which produced various methods to control the disease.

Both Londoners and New Yorkers sought to contain the epidemics, yet the medical profession initially lacked the resources to classify the cause of the disease, and neither nation had developed a public policy procedure to successfully fight epidemics. Cholera proposed a severe challenge to medicine due to its obscurity. Its mode of transmission was ambiguous, methods of treatment used by one practitioner could rarely be duplicated with successful results, and the disease departed on its own as quickly as it arrived. In 1838, physician Robley Dunglison explained, “Epidemic cholera affords a difficult problem for its solution, we are justified in adopting the following summary: Anatomical characters, insufficient; causes, mysterious; nature, hypothetical; symptoms, characteristic; treatment, doubtful.”¹ Many questions surrounding the nature of cholera were ambiguous; however, 19th century medical professionals correlated the onset of the disease with insanitary living conditions. Rapid population growth, overcrowded housing, sanitation problems, and water contamination contributed to the disease patterns of cholera in both London and New York City in mid-19th century.

When studying the effect of cholera in metropolitan centers, historians, such as Christopher Hamlin, have often credited the disease with inspiring sanitation reform in the late 19th century. Hamlin argued that, “Cholera benefited humanity by calling attention to

deficiencies in basic systems and services that need to be corrected. The horror of cholera drove the sanitary revolution throughout the industrialized world.”² The rapid urbanization experienced during the 19th century highlighted the insufficient methods for disposing of waste in metropolitan centers. As described in 1852 by the *New York Daily Times*, “we need nothing but noses to know that there is something rotten in the street.”³ Many historians have therefore credited the largest change that cholera produced with being the sanitation measures that followed each epidemic.

Edwin Chadwick was a social reformer and sanitarian in London during the 19th century and is most often associated with the British sanitation attributed to the cholera epidemics. Chadwick was formally educated as a lawyer and in 1832 became an assistant commissioner of the Royal Commission of Enquiry on the Poor Laws. When the Poor Law Act of 1834 passed he was appointed as secretary to the new commission. Throughout the rest of the 19th century, Chadwick was a leading supporter of the poor and environmental sanitation. By 1848, Chadwick was the Sanitary Commissioner of London and worked in conjunction with John Snow to clean the city sewers. He instituted new policy to flush the sewers regularly into the Thames River. When researching the history of cholera, it is most often associated with the advancement of public sanitation policy as led by Chadwick in London, who demonstrated this when he informed a reporter of the *Weekly Dispatch* in 1890, “I cannot tell you how strongly I believe in soap and water as a preventive of epidemics.”⁴

The cholera epidemics, however, were also instrumental in establishing public medicine. This thesis examines the increasingly efficient response to cholera throughout the 19th century and suggests that the medicalization of public health policy was as important as sanitation reform, in allowing both British and American reform to contain cholera epidemics.

Cholera is a disease produced by the bacterium, *Vibrio cholera*, which generates an acute infection of the small intestine of its victim. This cause however, was unknown to 19th century physicians and politicians when the disease first developed in London. Cholera produces diarrhea, draining the body of nutrients and fluids, which leads to dehydration, kidney failure, and death, often within a few hours of onset of the disease. Today, cholera is easily treatable by rehydration, reducing the mortality rate to less than one percent for those receiving therapy.⁵ However, what makes cholera a severe and rapid killer is *V. cholerae*'s ability to spread through water sources. The disease is typically transmitted through drinking water that is contaminated by feces carrying the bacteria. Without a medical knowledge of cholera, the 1832 British and New York authorities were unable to combat the disease. It was not until 1883 when the German bacteriologist Robert Koch was able to detect the micro-organism under his advanced microscope as the source of cholera.⁶ Upon the disease's entrance into London and New York in 1831-1832, scientists had, not yet classified the source of cholera's deadly symptoms or produced a system of treatment, containment, and prevention. The medical world failed to accept the injection of saline solution as a plausible treatment while politicians failed to see infected water supplies as the carrier of the epidemic.

The purpose of my research is to compare and contrast the 19th century social, political, and medical reactions to the cholera epidemics in London and New York City to show the successful application of public health policy over more than three decades. My first chapter studies the effects of cholera in London. When cholera first affected the city in 1832, medical practitioners were unable to classify, prevent, or treat the disease. In the 1849 epidemic, however, Dr. John Snow was able to construct a successful theory of its causation, based upon statistics, which enabled public health organization to combat the disease. By 1854, the British Parliament

applied Snow's theory of water contamination to successfully diminish the impact of the disease and prevent further spread. Londoners first reacted to the epidemics by blaming the mortality of the poor as the cause of disease. However, with advancements in the application of science and statistics, the public, political, and medical factions of British society united to produce the revolutionary medicalization of health and public policy.

The second chapter studies New York's response to the cholera epidemics. There was no established public health policy in 1832 and the city was, thus, unprepared for the onset of cholera. New Yorkers, like Londoners, attributed the disease to poor morality, because outbreaks clustered within the poverty stricken sectors of the cities. Specifically, Irish immigrants were regarded second class Americans and their vice was considered a contributing factor to their high mortality rates. Americans saw neither poverty nor wealth as accidental conditions. The affluent classes viewed success as testimony of their virtuous habits and poverty as a product of vice, idleness, intemperance, and immorality. In New York City to suffer from cholera was to suffer from the socially inexcusable "poor man's plague."⁷ Only after reform movements in conjunction with scientific improvements suggested a bacteriological origin of the disease were New Yorkers able to overcome this prejudice and create effective public health policy.

The third chapter demonstrates how the New York government was able to create effective public health policies to better prevent, treat, and end cholera epidemics in the 1866 epidemic, which led to permanent establishment of the Metropolitan Board of Health. To achieve this success, New York had to turn to empirical hands-on medical professionals who had been on the bottom rung of the early 19th century medical hierarchy. Public health reform was only achieved after scientific knowledge of the human body and disease suggested the benefits of implementing new public policy to combat disease. Finally, inspired by European blueprints,

New York City established proper boards of health that were not comprised of political appointees but rather of medical men trained for public health work. With these new policy structures in place, New York succeeded in overcoming the 1866 cholera epidemic.

The achievement made by New York's 1866 Metropolitan Board of Health was a significant development in public health policy. In 1832, the government did not regard public health as a civic responsibility but rather regarded it as an individual matter, concerning only a patient and his private physician. At the onset of the cholera epidemics, the government established informal and disposable public responses, with no permanent solution to prevent, treat, and remove disease. New Yorkers blamed the government's inadequate response to cholera as the cause of the high mortality rate. Political cartoons depicted politicians as welcoming the disease into New York to illustrate the failure of public response and the inefficient sanitation policies that plagued the city (Figure I). Throughout the cholera epidemics, however, medical advancements allowed the politicians to move beyond blaming the disease on lower classes morality to recognizing the larger social problem of ineffective sanitation as the transmitter of cholera. Following the 1866 epidemic, cartoons illustrated a celebration of effective prevention measures by the newly established Board of Health to greatly reduce the transmission of disease (Figure II).

The success in development of the 1866 New York Board of Health in response to the cholera epidemics served as an exemplar for permanent national public policy. Many other states quickly followed suit: Massachusetts – 1869, California – 1870, District of Columbia – 1871, Minnesota – 1872, Virginia – 1872, Michigan – 1873, Maryland – 1874, Alabama – 1875, Wisconsin – 1876, and Illinois – 1877. Congress then created the National Board of Health in 1879.⁸ The cholera epidemics, thus facilitated the creation of public health policy which

combined policy planning with medical knowledge. Drawing on international models, particularly those unveiled first in London, New Yorkers began to address some of the root causes of disease. With improvements in city sanitation, public hospitals, and health education, the New York City government took on the responsibility of caring for the public wellbeing of their residents.

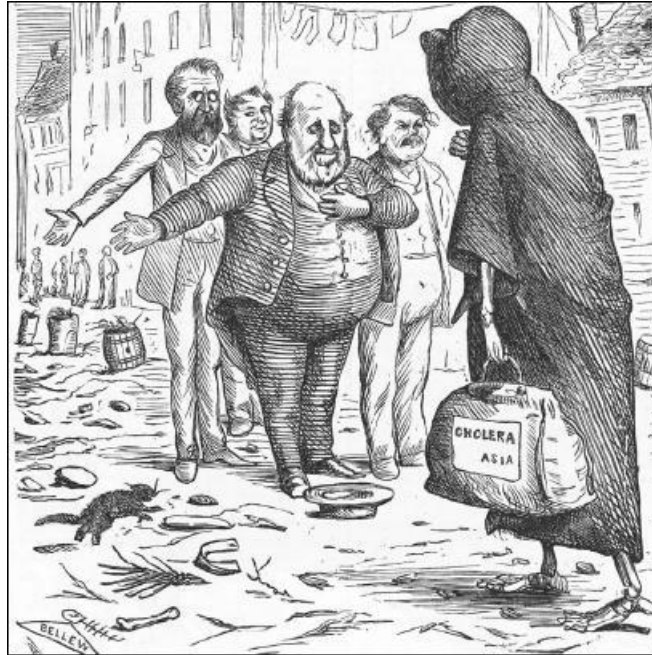


Figure I. A political cartoon from 1832 that illustrates the unsanitary conditions of New York City when the Public Works Commissioner welcomes cholera into the city. Photograph, from "Infectious Diseases." Science Clarified. <http://www.scienceclarified.com/everyday/Real-Life-Biology-Vol-2/Infectious-Diseases-Real-life-applications.html> (accessed April 30, 2015).

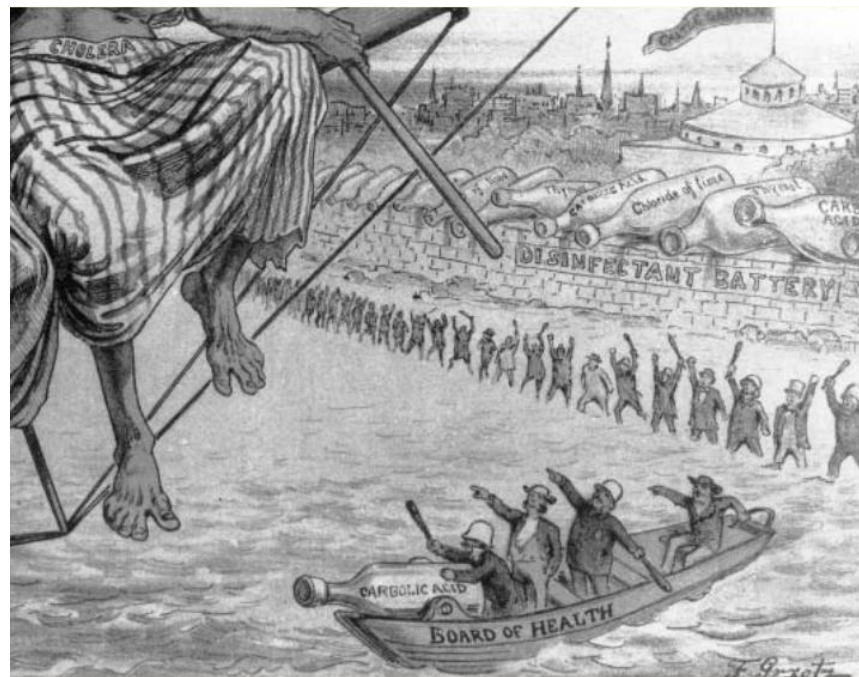


Figure II. A political cartoon of the Board of Health defending New York from cholera in 1866 through new sanitation measures including a bottle of carbonic acid. Photograph, from Frieden, Thomas R. "Protecting Public Health in New York City: 200 Years of Leadership." The New York City Department of Health and Mental Hygiene. <http://www.nyc.gov/html/doh/downloads/pdf/bicentennial/historical-booklet.pdf> (accessed April 30, 2015).

Chapter 1
The Medicalization of Public Health Policy as a Result of the 19th-Century British Cholera Epidemics

Without the knowledge of cholera's mode of transmission or effective treatment, the disease created a public health crisis in 1832 when practitioners first attributed the cause of death as "common" or "English cholera." This was everyday dysentery and food poisoning that was frequent during the warm summer months; today this would be called gastroenteritis. Both cholera and extreme gastroenteritis produce the same symptoms including a sudden loss strength, violent internal pain from cramps of the abdominal muscles, fever, in addition to vomiting and diarrhea. Thus, when cholera first developed in London in 1831, practitioners diminished the need for medical agency to take action, because they assumed this was the simple "common cholera" traditional to Britain.

As cholera swept through the countryside and attacked London, the medical attitude toward the disease changed. The severity of the symptoms and deaths indicated this epidemic was more than the common dysentery. The first form of treatment was to bleed the patient. Bleeding was a technique of humoral pathology, a belief an imbalance of body fluids, developed in the Middle Ages. Patients were cut with lancets and then leeches were used to purge the body of "bad blood" and illness. William Twining, a member of the Royal College of Surgeons, supported this common belief when he published his recommendation for cholera's treatment in 1831. He argued, "Nothing relieves the spasms of the early stage of febrile Cholera, so effectually as the lancet." Thus, in the early stages of the cholera epidemic doctors relied on traditional medical practices that aimed to rid the body of impurities by draining the system.

When these traditional methods of treatment failed to thwart cholera, other practitioners sought to counter-act the effects of dysentery. Draining the body of blood, although unknown at

the time, actually hastened the onset of death. Bleeding also dehydrated the victim as well as reducing one's temperature and pulse. When patients continued to die when treated with lancets and leeches, alternative physicians argued instead in favor of stimulating fluid flow and the body's heart rate. They did this through various counter methods such as prescribing laxatives, opium, in addition to hot and cold water baths. However, these treatments also failed to thwart the onset and transmission of disease, as articulated when the *Edinburgh Medical and Surgical Journal* warned that, "No such treatment had made any impact on death rates." Within the 1832 epidemic, the medical world could not generate an effective treatment for cholera because they could not determine what produced dehydration and instead contributed the contract of disease to immoral living conditions.

In the early 19th-century, London was a political and administrative metropolitan center, composed of two and a half million people in thirty-mile circumference. It housed an elite aristocratic upper class consisting of a royal court and gentry who lived in the suburbs of the city or in distinct neighborhoods like the West End. The poor resided in areas such as the East End, which were characterized by cramped tenement housing including dirt, smog, dust, and squalor. These factors increased the transmission and occurrence of disease and led Londoners to comment on poverty and immorality as the cause of contagion. The *London Gazette* attributed cholera to, "the poor, ill-fed, and unhealthy part of the population, and especially those who have been addicted to the drinking of spirituous liquors, and indulgence in irregular habits."⁹ The poor more commonly contracted disease and this was typically attributed to their immoral living conditions.

This idea was further articulated in community meetings that predicted, "The lower orders will suffer most severely from want of employment and their poverty will be another

cause of the increase of sickness and render them turbulent and riotous.”¹⁰ The upper class believed that cholera only affected the poor, because the highest occurrence of death occurred among their class.

Some reformers argued against the morality theories surrounding the transmission of cholera. The *Edinburg Medical and Surgical Journal* argued that it mostly affecting the lowest class but this was not because of their morals; instead, it was simply because they represented the majority of London’s population living in the most unsanitary conditions. One would expect the onset of disease to be proportional to the size of a particular class, since the poor were a larger class than the wealthy, one would expect the largest number of sick people from the poor class.

At the time of the 1832 cholera epidemic, there was no stable system of public health policy. When the first mass epidemic affected the lower class, the upper classes were forced into action. Leaders like Edwin Chadwick of the 1830s examined this system of an administrative centralization, in which, “Property had its duties by the poor as well, as its rights over them. The four main assumptions of society are that is organic, pluralistic, authoritarian, and hierarchical.”¹¹ He argued that it was both the government’s power and responsibility to protect their people, just as a landowner his property. The government had no rights to make laws to manage the poor without providing for them at the same time.

The upper class responded to the poor’s need for aid in the cholera epidemics paternalistically. Edward Hart, editor of the *British Medical Journal* claimed, “European serviced shape a shared scientific culture and a common ideal of scientific service to the empire as a patriotic and paternalistic duty.”¹² Through science and sanitation measures, the elites regarded the poor as unknowledgeable in their ability to fight cholera, and as such, the upper class took the responsibility to make these decisions for the poor. They enforced mass cleansing

of streets, whitewashing houses, removing nuisances, and setting up hospitals and isolation centers without incorporating the opinions of the poor in these matters, such as which streets needed to be cleaned the most.

As cholera made its way further into the depths of London society, upper and middle class reform took on new vigor as the disease spread into their own cohorts. For example, in June of 1832, a local reporter articulated, “The ingress of the disease, which threatens, with a stealthy step, to invade the sanctity of the domestic circle, whose entrance wealth cannot bar, and luxury invites, this is an event which ensures the anxious attention of every order of society.”¹³ As the disease spread through all orders of society, elites now experienced a terror and that gave them empathy for the poorer cholera victims. From the bottom to the top of the social ladder, Londoners now pressed their government for a wide scale city public health reform bill.

The priority of The Cholera Bill, proposed in 1832, was first to raise money for poor relief. In an address to Parliament in February of 1832, Lord Athrop argued that that such a bill needed immediate passing to allow the Privy Council to raise funds from Poor Guardians for local Boards of Health to set up hospitals.¹⁴ When the bill passed on June 7th, it succeeded in producing containment measures because the Central Board of Health now sent men to supervise work of local boards, advise, report cases, administer cleansing, and quarantine suspects. They aimed to help in places where the medical profession was over stressed and under qualified.¹⁵ The Cholera Bill ensured a more uniform response to a disease that had been haphazardly before.

(i)

The onset of cholera resulted in a unique development of British public health policy. At the time of its arrival in 1831, Britain lacked the medical structures to classify, contain, and eradicate this disease. The profession could not distinguish the disease and could only try to

alleviate the symptoms. William Anderson, a surgeon, stated, “In the treatment of this disease, we must combat its influence to produce a contrary effect. In the present state of our knowledge all we can do is combat the symptoms.”¹⁶ In 1831, the medical profession did not have the experience or knowledge to classify, contain, and without effective means to prevent the disease, the Board could only sanitize the city and try to lessen the spread of the epidemic in London.

Moreover, the medical world was rooted in a system of a professional hierarchy that negatively affected its ability to treat disease. The highest class of medical practice was the physician, who was the aristocrat of medicine. He was a member of the Royal College that was dominated by Fellows. These Fellows graduated from Oxford and Cambridge Universities, but did not have a scientific empirical education.¹⁷ Following the physician in the hierarchy was the surgeon, who followed the orders of the physician and had practical hands on experience with the human body. Lastly, the apothecaries and local medical men had to wait for direct orders from the physician before prescribing medicine, although they often had the most empirical medical knowledge. Most apothecaries worked as general practitioners, mixing and selling drugs without the physician knowing.¹⁸

This difference in power and practical knowledge produced tension between the apothecaries, surgeons, and doctors. The entire system of the medical world was weakened by their lack of effective organization such that practitioners and members of the Central Board were not respected by society. For example, Britain established the Board of Health and sent representative liaisons to aid parish surgeons and apothecaries in poorer sections of the nation in the early onset of cholera. These two groups, however, did not support or trust each other’s credentials and methodologies. The local informally educated physicians based their work on empirical knowledge, in contrast to the upper class echelon. Informal local medical men thought

that state-sent doctors presumed the locals were inferior physicians because they lacked a higher education.

In 1831, the public also possessed little respect for the Board. When the Board produced carefully researched publications to direct the containment of cholera, their recommendations were not sent to the general public because they lacked the funds to do so.¹⁹ The Board was unfinanced since they were dependent on local ratepayers; as such, they allocated their authority to parishes that had the means to finance sanitation measures. The Board issued circulars and gave advice to parochial Vestry Committees, who were responsible for the precautionary measures taken within their own parishes. These groups cleared nuisances from their own parishes and public streets, however, could not create mass reform in private buildings and tenements. The *Poor Man's Guardian* described how these homes remained unsanitary and disease ridden, “The low houses are all huddled together in close and dark lanes and alleys, presenting at first sight an appearance of non-habitation, so dilapidated are the doors and windows: in every room of the houses, whole families, parents, children and aged grandfathers swarm together.”²⁰

The development of public health policy was further hindered by disparities between the reading levels of Londoners. The cholera epidemics of 1831 occurred within transitional period after the rise of mass communication, but before the emergence of specialized medical research papers. Many of the poor were illiterate, while educated Londoners looked toward common newspapers and magazines for advice. These publications primarily consisted of advertisements for patent-medicine manufacture quacks. For example, *Cobbett's Weekly Political Register* described, “False reports that the Asiatic Cholera has reached London come from a set of half-starved doctors, apothecaries' clerks, and jobbers in the parish funds have endeavored to frighten

the nation into a lavish expenditure.”²¹ *The Lancet*, the leader of Britain’s medical journals, published many physicians’ scholarly articles, however, these were intermixed with the everyday notes of nurses, patent medical quacks, and armchair chemists trying to sell concoction remedies.²² In 1832, the British newspapers consisted of both scholarly and unreliable articles concerning cholera remedies such that there was no clear advice for Londoners to follow.

The Victorian medical tradition was inhibited by a lack in the development of a research based scientific community. Instead, practice was based on single trials of simple cause and effect rather than multiple scientific experimentations that led to an overall theory of disease. Practitioners regarded themselves as natural philosophers rather than as scientists.²³ In the 18th-century physicians were not researching specimens, microscope studies, or post-mortem care. However, cholera infiltrated London at about the same time as medical research began to develop. Practitioners aimed to determine the cause and transmission of the disease, which correlated with an increase in the development of the medical scientific community. This community began synthesizing empirical research into their epistemology, and with this new fact based knowledge they pressured public legislation to revolutionize their public health policy in order to classify, treat, and contain cholera.

In particular, the 1832 Anatomy Act helped develop the empirical scientific knowledge base that advocated for increase in public health policy. Doctors were dissatisfied with the failure to achieve new scientific methods to stop the future spread of cholera beyond simply curing the current cases. Medical schools needed more information about the human body and how it responded to disease. As the epicenter of the mass epidemic, London possessed both the largest concentration of specimens to study and the medical universities to sponsor the post-mortem dissections. The Anatomy Act gave physicians, surgeons, and medical students legal access to

use corpses of people who had died in prison or workhouses, and allowed a person to donate his own or next of kin's corpse in exchange for a burial paid by the city.²⁴ Doctors now used these specimens to further their research to attribute the cause of the epidemic and to thwart cholera's influence altogether. "The dissection of corpses was the raw material of new empirical teaching methods in the science of morbid anatomy. In the early years of the nineteenth century dissection was fast becoming an imperative prerequisite to the furtherance and the legitimation of medical science,"²⁵ argued Historian Allan Lloyd Smith. Following the 1832 epidemic in conjunction with the Anatomy Act, doctors and scientists hoped to construct new conceptions of the body organs and systems to be better prepared to fight and prevent disease.

(ii)

The development of the pathological school of medicine in the mid 19th-century, exemplified more detailed studies of the body's interworkings, which helped increase the medical knowledge surrounding cholera. The pathologists traced symptoms to their organ sources in the body. This was derived from empirical models that broke down sickness to specific diseases identified by the organs they affected.²⁶ Following the 1832 epidemic, Dr. Thomas Latta of Leith, a chemical pathologist, proposed the use of injecting saline fluid into the veins of a cholera patient to counteract the dehydration of the disease. Contrary to traditional cause and effect single trials that characterized medical practice of the 1832 epidemic, Latta based his theory on many trials. He succeeded in stopping the onset of death for numerous patients, which led to his rehydration theory.²⁷ In his letter to *The Lancet*, Latta celebrated the success of his remedy. He described, "The poor patient, who but a few minutes before was oppressed with sickness, vomiting, and burning thirst, is suddenly relieved from every distressing symptom; blood now drawn exhibits on exposure to air its natural florid hue."²⁸ Dr.

Latta's theory, however, was not widely accepted in the medical world because he came from a background of little authority in a profession that was dominated by a hierarchy of elites.

The medical community did not accept Dr. Latta's hypothesis for numerous reasons. First, to propose such a theory one had to come from the highest rungs of medical aristocracy. Latta was an obscure man, not from London, but rather a small town of Leith, where he was unable to establish the professional connections of medical societies that one needed in order to gain prestige.²⁹ Furthermore, his theory was based on a new radical chemical analysis that countered the traditional bleeding methods. When other physicians trialed Latta's injections they did not achieve his successful results because, although, the rehydration was a successful remedy, medical practitioners did not use sterile technique. Many patients died from infection rather than the failure of saline solutions; however, practitioners did not know this at the time.³⁰ One traditional physician, George Johnson, who tested Latta's theory in his own practice found that, "Of 156 patients injected, only twenty-five recovered, a result which can scarcely be considered satisfactory."³¹ Lastly, Latta's technique required the use of two operators and various assistants to inject the solution. Cholera attacked the city at rapid rates and there were not enough practitioners or time to dedicate to each victim.³² The medical society, therefore, dismissed Latta's theory because his method required advanced equipment and increased resources, which the physicians did not have the availability of this era of mass epidemics.

(iii)

In addition to the various means to treat cholera, there were also two distinct models regarding the mode of its transmission. Contagionist theory argued that the disease spread from direct person-to-person contact from the sick to healthy, while non-contagionist miasmatic theory argued disease spread through the spontaneous influence of a vapor or miasma.³³ These two

models presented different arguments on how to classify, contain, and treat the cholera epidemics. With no pressing support for either the contagionist or miasmatic model, and a lack of governmental agency, most local Health Boards elected to counteract cholera by means of passively whitewashing and fumigating the dirty sectors of London. This was much less expensive than whole scale sanitation of all streets, factories, and overcrowded buildings.³⁴ Due to a lack of political efforts to eradicate the disease, doctors and scientists turned to answer the debate of which mode of transmission cholera was passed through. Once physicians provided politicians with the evidence regarding which mode of transmission cholera followed, the government could then control the spread of disease. Cholera, therefore, affected British society by calling for an increase in scientific knowledge to promote public health policy.

Each model would have required the government to take various prevention and sanitation policies. First, if cholera was deemed a contagion, this would have required quarantine policy to exclude and restrain the disease. However, this would have negatively affected trade, economics, and commercial dislocation increasing poverty and unemployment.³⁵ Quarantine of incoming ships was unpopular with merchants, ship owners, and seamen because this would prevent them from selling their products abroad and in addition to restricting workers from jobs that they heavily relied on as a source of income. This anti-contagionist and anti-quarantine argument was illustrated by riots in the silk industry. When shipments could not be sent and the looms were stalled, one mob attacked their overseer's house because he did not provide them aid while the quarantine was in place.³⁶ The government would have also had to mass cleanse the city if they acknowledged the presence of a contagion. These sanitation measures would have placed an additional financial burden on London.

When cholera approached London in 1832, the British were hesitant to embrace containment policy. Many small towns attempted to use containment policies to thwart disease, however the only visible effects of such action was economic depression. For example, a reporter sent to the small fishing villages of Footdee and Collieston found, “All work was suspended; since the villagers had been prevented by public authorities from entering towns with their fish for sale, shops were shut, several thousand people fled and scarcely an individual was met within the street.”³⁷ These villages faced economic downturn in addition to unsuccessful containment, and therefore, Londoners were hesitant to shut down their factories, industries, and shipping departments.

The second model of transmission that medical practitioners used to study cholera was miasmatic theory, which originated in the Middle Ages and argued that diseases were caused by the presence poisonous vapors in the air. These suspended particles of decaying matter led to the city’s foul smell.³⁸ The poorest sectors of London were overcrowded, dirty, and stank from the amount of debris; therefore, one can see how some practitioners correlated cholera with miasmatic theory. The contagionists, however, countered miasmatic theory by applying new methodologies from the social sciences that included census records and statistics, to study the nature of disease transmission.³⁹

In an effort to determine the mode of transmission of cholera as either contagion or miasmatic, Haslewood and Mordey conducted a study the town of Sunderland in the late 1830s. In their community study, Haslewood and Mordey described the local topography and occupations of the inhabitants. They quoted, “Only by a separate examination and cross-examination of the patient, relations, and neighbors that the true particulars of the origin of any individual case can be correctly learned.”⁴⁰ By creating a table of infected individuals based on residence, trade, and

drinking habits, they concluded the cholera arrived by contagion rather than miasmatic vapors. Haslewood and Mordey's careful analysis and presentation of evidence furthered the scientific community to give greater attention to new statistical evidence in support of the contagionist model.

(iv)

After the 1832 epidemic, cholera was not seen in London again until 1848. When it returned, the location, occupation, and living conditions of its victims followed similar statistical patterns to those observed in 1832. This time changing attitudes in public health and science brought the nation to recognize the same disease affected society in 1848 as the one that rampaged in 1832. This time practitioners knew the ailment was not common dysentery but something that required much faster attention and required containment policies. They also incorporated the results from research and applied statistical studies that developed from the 1832 epidemic response in hope to contain the epidemic. For example, in 1848 Dr. John Snow was inspired by Haslewood and Mordey's statistical research to study the nature of cholera in London. These scientific developments allowed the government to produce effective sanitation measures in the 1848 epidemic in order to stop the spread of disease that were not seen in the 1832 epidemic.

Dr. Snow succeeded in tracing the source of a cholera outbreak in Soho, London from an infected water pump. By mapping the spread of cholera throughout London, he was able to determine cholera spread through contaminated waterways, which produced the zeitgeist for improved city sanitation. Unlike Latta, who came from obscurity, Snow's theory was widely accepted because he had authority in the British medical hierarchy. Snow presented a success story of a man whose passion brought him from a peasant childhood, through a formal medical

education at the University of London, to achieving a thriving medical practice in the 1830s. In his early career, he gained his authority in the medical area through his revolutionary introduction of anesthesia as pain medication. Snow also published his research on chloroform, which had raised him to a new echelon in the London medical profession. By 1841, Snow was a leading researcher and lecturer when he was invited to join the prestigious Westminster Medical Society.⁴¹

When cholera attacked in 1848, Snow first linked the disease to trading routes. He determined the disease came with the arrival of the German ship *Elbe* in London. The boat departed from Hamburg, which was on the main continent that contained cholera. Snow then traced the travel of a crewmember John Harnold to the lodging house where he died. The next guest to stay in the room, Blenkinsopp, contacted the same disease and also died. Snow observed that, “The cause of cholera was a living organism of a distinct species, which was taken by the act of swallowing it that multiplied in the intestine by self propagation.”⁴² Through his study, Snow held the evidence to determine the disease followed the contagion model.

Once Snow knew which model the disease spread by, he sought to determine what the source of its transmission in London was. With his statistical models, he concluded the death rate was three times higher south of Thames than in comparison to the central city.⁴³ Snow conducted empirical research by mapping outbreaks on Thomas Street and connecting it to their shared drainage method. When a mother washed her infected baby’s diaper in the Broadstreet Pump well this introduced cholera into the water system.⁴⁴ Once Snow had this evidence he could promote governmental action and reform to prevent and eradicate the disease altogether.

Snow was able to determine why cholera affected the poorer classes more harshly than the wealthier. He argued, “The history of these maladies furnished abundant proof that a

crowded population, poverty, filth, foul air, unwholesome food, and especially bad water, powerfully predispose to the reception of these diseases and increase their mortality when received.”⁴⁵ Snow argued that the disease did not correlate with moral values but rather with environmental living conditions. In 1854 in London, there were over two and a half million people living within a thirty-mile circumference. The government could not manage such a high population density, especially in regards of what to do with their population’s waste so they dumped it into the sewers. The sewers led to the water pumps, which introduced the disease from infected people’s feces to the drinking water of their neighbor.⁴⁶ The dilemma was not the immorality of the poor but it was the problem was the social disparities in their sanitation. The only way to prevent disease would be through governmental whole scale sanitation measures to improve the standard of London’s living conditions.

In order to prevent the onset of recurrent cholera epidemics, the city government first had to improve sanitation measures by altering the traditional European waste removal model. From the early 19th century through the 1848 epidemic, the government paid night soil men to collect waste from cesspools at night. This was an undesirable occupation, so with a low supply for workers in a job of high demand, the laborers asked for high wages. For the London government the financial cost of removing their environmental waste, therefore, exceeded the environmental cost of letting it accumulate in the sewers. London sewers remained a cesspool of rotting material, characterized by the emission of methane gas from the abundance of bacteria decomposing organic matter.⁴⁷ The bacteria thrived in the undisturbed sewers and created the ideal living conditions for disease, specifically water born vectors like cholera, began to develop.

The problem of the sewers was further complicated from the development of the modern water-closet. Between 1824 and 1844, installations of these toilets increased ten-fold, yet, there

was no sewage system and the closets emptied directly into the cesspools. In Snow's study of the water sources, the highest concentration of victims was around the Broad Street Pump, which held the reputation for being the most reliable and coldest source of water. Londoners often chose to walk further distances to use the pump over closer sources.⁴⁸ By drawing upon these studies, Snow called for political action to reform and sanitize London water sources, specifically regarding the shared drainage system and Broad Street Pump.

Snow produced the argument for the new collaboration of medicine and public policy. He gained the support of both the medical community and the British politicians because he possessed the authority that others, like Thomas Latta, lacked. He gained this through his many theories supported by a plethora of evidence. Snow succeeded in linking his prestige to advance and legitimize his work and was able to institute effective change through his direct and specific proposals, for example in the *London Medical Times*, Snow reported,

The result of the inquiry, then, is, that there has been no particular outbreak or prevalence of cholera in this part of London except among the persons who were in the habit of drinking the water of the above-mentioned pump well. I had an interview with the Board of Guardians of St James's parish, on the evening of the 7th inst (7 September), and represented the above circumstances to them. In consequence of what I said, the handle of the pump was removed on the following day.⁴⁹

Snow's empirically and statistically based findings presented the factual grounds for sanitation reform, which produced a new network conjunction of science and politics not seen in the 1832 epidemic.⁵⁰ Due to the legislative reform movements to follow, Britain was able to eradicate cholera from the city because the government created new public health policies.

The first major piece of legislation passed in direct response to the cholera epidemics was the Cholera Bill, formally known as the Nuisances Removal and Diseases Prevention Act of 1846. These early efforts to reform legislation came from physicians and Parliament. On April

23, 1839, Henry Ward and Benjamin Hawes proposed the first attempt at sanitary reform. Their bill aimed to improve the past deficiencies of the Tudor legislation by enabling an overall government authority of the Metropolitan Court of Sewers to create standards, which would require buildings to be connected to sewers.⁵¹ The Court would be comprised of both members of Parliament and members of the Royal College of Physicians and Surgeons.

The bill failed to pass because the Court would have had more political power than Parliament in regard to sanitation measures. The medical profession, however, further pressed for health care reform to prevent disease and promote the general health of the city. In 1840, the Report of the Select Committee on the Health of the Towns exposed the squalid conditions in many industrial areas and recommended the institution of district boards of health. They argued, “The principal duty and object of these boards of health would be precautionary and preventive, to turn the public attention to the causes of illness, and to suggest means by which the sources of contagion might be removed.”⁵² These district boards represented a compromise between the physicians and politicians concerning who should hold authority in public health measures by turning their attention to the ultimate goal of caring for the citizens. Rather than a domination of legislative men, slowly the medical field gained support from the politicians in order to establish a balanced system between the two.

Medical professionals were able to gain more authority such that by 1848 they were equals with the politicians the development of public health. By collaborating, doctors and legislative members more quickly eradicated cholera in 1848 compared to the 1832 epidemic. The 1844 Metropolitan Buildings Act illustrated this development. The act called for “the better regulation of buildings of the metropolitan district and to provide for the drainage thereof.”⁵³ However, this act only affected the construction of new buildings and not pre-existing ones. To

resolve this problem, the Town Commission, composed of medical professionals, responded by publishing the Final Report of the Health in 1845. They called for the creation of a new government department and that the arrangements for drainage, paving, cleansing and water supply should come under one administration of both medical authorities and politicians. This revised Act would create wide scale reformation on both old and new buildings.

The Report described the extent of overcrowding, called for a central inspectorate of housing, and recommended that local authorities should be able to demand that landlords clean and repair properties dangerous to public health.⁵⁴ The Report led to the Cholera Bill of 1846 and the Public Health Act 1848. These enabled the British Privy Council to, “issue any such new rule or regulations as to them may appear necessary or expedient to prevent disease.”⁵⁵ This act created procedures for the more speedy removal of nuisances, was certified by two medical practitioners, and empowered the Privy Council to make regulations for the prevention of contagious diseases. Throughout the 1848 epidemic, the General Board of Health successfully used this act to compel property owners to clean and whitewash pre-existing and new buildings in addition to making connections of all establishments with sewer systems. By increasing the scope of buildings that new sanitation measures affected, London was able eradicate cholera more efficiently and quickly in the 1848 compared the 1832 epidemic.

London was also more effective in the 1848 epidemic through a second collaboration of health and medicine, exemplified by the 1848 Metropolitan Sewers Commission. This body was comprised of 23 members including six members of Parliament, three doctors (one was the Queen’s physician), the proprietor of *The Times*, in addition to an assortment of others.⁵⁶ This body was a consolidation of educated medical and professional men, who on November 4, 1849 published their first annual report demanding better housing drainage, improved water supply,

control of offensive trades, and cessation of intramural burials, slum clearance and regular house inspections.⁵⁷ The scientific sector successfully united with the politicians to improve the living conditions for all of London's inhabitants.

The 1848 Cholera epidemic further legitimized the role of science, medicine, and public health policy in the political sector of London. William Farr had studied medicine and was respected for his knowledge of statistics. As the onset of the 1848 epidemic arose, Farr was appointed by the Register-General's office to serve as the first chief statistician for London, compiling census, birth, and death records.⁵⁸ Farr used his position as a respected medical leader to campaign for improved sanitation and reform measures within politics. His accounts supported the contagion theory and reasons for the difference in mortality rates between classes as attributed to disparities between their living conditions.

In reaction to the 1848 epidemic, legislature extended the powers of the Nuisances Removal and Diseases Prevention Act in addition to the Public Health Act to create state burial grounds under the supervision of the inspectors of nuisances to properly bury cholera victims. In conjunction with Farr's advocacy for reform by using statistical evidence, the Committee for Scientific Enquiry into the Recent Cholera Epidemic was created in 1854. Their purpose was to compile statistics on mortality of the disease for the government. They determined that the medical sector was correct in emphasizing the Thames as a source of disease when they correlated the lower elevation of an affected area to the higher the rate of mortality, due to the system of water draining.⁵⁹ Like Snow, Farr used his medical prestige to advance his political aims.

The cholera epidemics, therefore, produced a unique cohesion of medicinal and political factions of society. The medical world pushed the politicians for reform, and once the legislation

was passed and enforced, the nation was able to treat, contain, and prevent cholera. In the first epidemic of 1832, the nation failed to pass legislative reform and public health policy because they lacked the scientific evidence in support of containment or miasma transmission. Without the legislation to promote public health and policy, the disease returned in a more deadly wave in 1848, with 14,000 deaths in London compared to the 6,000 deaths in 1832. Medicinal leaders like John Snow and William Farr studied this epidemic and provided legislatures with the factual evidence for legislative reform to prevent further epidemics. Following 1866, there were no reported cases of typhoid or cholera in London and by 1896 cholera was classified as “exotic disease.”⁶⁰ When politicians complied, the London was able to eradicate the disease and prevent recurrent cholera epidemics.

The success of the 1848 political reform was a result of Britain’s previous experience and subsequent fast recognition of cholera. Advancements in the medical system such as a reduction of practitioner hierarchy, increased medical inspections, and improvements in post mortem research, technology, and statistics produced political changes. When medical men joined political courts and boards, they were able to influence government agencies by applying their prestige to legitimize their theory. The 1848 Public Health Act and Nuisance Removal Act exemplified these improvements in public health policy by displaying a network conjunction of science and politics not seen in 1832.

In conclusion, the medicalization of public health policy demonstrated the positive advancements made in both the medical and political sections of London society. Following the onset of cholera, London politicians were now looked for other means of health reform to benefit the wellbeing of their city and nation. New legislative measures, not seen before the cholera epidemic, included the 1862 Lunacy Acts Amendment Act, which set out conditions and

regulations for the establishment, management and inspection of county asylums. The 1867 Metropolitan Poor Act provided for the establishment of hospitals for the sick, infirm, insane and other classes of the poor. Lastly, the 1875 Public Health Act consolidated and amended previous acts and directed responsible authorities, sanitary provisions, local government districts and their procedures. The act empowered local authorities to create hospitals in addition to providing medicines and medical assistance to the poor. The Public Health Act expressed the culmination of the effect cholera had on the establishment of public medicine in the Victorian era.

The cholera epidemics inspired new public health policy in order to classify, contain, and eradicate cholera from London. The success of creating a revolutionary new system of public health was exemplified in Queen Victoria's 1897 Diamond Jubilee. An editorial in *Public Health* described the event, "of all the achievements of the Victorian Era ... history will find none worthier of record than the efforts made to ameliorate the lives of the poor, to curb the ravages of disease, and to secure for all pure air, food, and water, all of which are connotated by the term 'sanitation.'"⁶¹ The cholera epidemics, thus, instigated a new public health policy that integrated British medical insights with active government response to infectious disease.

Chapter 2
Understanding New York's Reaction to Cholera

In each of the American cholera epidemics, 1832-34, 1848-49, 1849-1854 and 1866, the disease first originated in Europe, spread to London and then traveled to the U.S. in warmer summer months.⁶² In London, transmission declined or remained stagnant in winter but returned in spring. As temperatures increased and people began to travel across the Atlantic, cholera spread with them to New York.⁶³ Here the disease attacked, and was most destructive in the summer, when cholera flourished in the warmer temperatures of the waterways. Moreover, as the temperatures rose, people were enticed outdoors, which resulted in greater contact between infected and healthy people.⁶⁴

In each epidemic, patterns of American social response were similar. When cholera first presented itself in Europe, Americans were concerned, but still reluctant to initiate preventive measures, since the disease had not yet crossed the ocean. As Americans observed the spread of the disease, they undertook mild sanitary responses, like cleaning some but not all streets, in preparation for the onset of cholera. The greatest containment policies, like quarantining New York to Canada, however, were not taken until the disease had hit American shores in late June. Cholera had already infected New York in May; these measures were taken too late. With each epidemic, however, New York City was increasingly successful in creating public health policy to eradicate cholera.

Initially, Americans regarded cholera as an infection of the Irish and were reluctant to take public health measures to control a disease associated with immorality. Once New Yorkers looked beyond problems of morality, but rather to inadequate living standards they were able to successfully prevent the onset of a mass epidemic. They accomplished this by reassessing the

social inequalities of living conditions that led to heightened mortality rates, facilitated by the development of a new Board of Health. This Board was permanent and led by physicians instead of political appointees. Attempting to prevent cholera by sanitizing New York, the 1866 Board inspired permanent boards of health to be created throughout the nation. The achievement of 1866 Metropolitan Board of Health had historical significance in development of American public medicine, which ultimately enabled the United States to eradicate cholera.

(i)

To understand the ways in which New Yorkers responded to the cholera epidemics, one must understand the growing and diversifying social structure of New York prior to the onset of disease. New York was the largest city in America in 1832 with about 250,000 residents. The city thrived economically as a port of trade since the 18th century, especially after the completion of the Erie Canal in 1825.⁶⁵ New York was a metropolitan center of economic opportunity and the first point of contact on the East coast for European immigrants in search of jobs, housing, and resources in the new country. From 1830 to 1850, the foreign-born population of New York City increased from 9% to 46%, with many immigrants coming from Ireland, Britain, and Germany.⁶⁶ The city's population was expanded rapidly, while immigrants settled into neighborhoods based on ethnicity and place of origin.

The largest cohort of immigrants were Irish laborers seeking an escape from poverty, famine, and political oppression. In New York, they settled in and around the Five-Points neighborhood where they faced many social stigmas from nativist groups like the Know-Nothing Party, which sought to restrict foreign immigration. Due to these derogatory stereotypes, the Irish were often forced to scrounge for whatever low-paying work they could find. It was a common occurrence for employers to post signs that read, "Irish Need Not Apply;" these signs were

placed next to others which stated, “No Dogs Allowed.”⁶⁷ The Irish were restricted to the bottom rung of New York’s social hierarchy and forced to remain in the poorest neighborhoods.⁶⁸

Immigrant neighborhoods were distinguished for their filth and disease. Jacob Riis described the immigrant living conditions, in his 1890 *How the Other Half Lives*, noting that “Crazy old buildings, crowded rear tenements in filthy yards, dark, damp basements, leaking garrets, shops, outhouses, and stables converted into dwellings, though scarcely fit to shelter brutes, are habitations of thousands of our fellow-beings in this wealthy, Christian city.”⁶⁹ These crowded conditions, found in the lower regions of Manhattan, were perfect incubators for diseases like cholera.

Not only were these areas overcrowded with people, but lower Manhattan was also populated by freely roaming swine.⁷⁰ The streets were a mess with waste from tanneries, slaughterhouses, and distilleries, while the human waste festered in large outhouses. The toilets were often shared by more than a dozen families and thus were typically overflowing.⁷¹ Due to such conditions in lower Manhattan, the onset of disease was frequent.

The lower class regions of New York City vastly contrasted with the more affluent neighborhoods. While the poorest individuals were wage laborers, the middle class consisted of hardworking mechanics, merchants, and artisans, and Jewish immigrants. The upper portion of society were wealthy businessmen, politicians, physicians, and self-made men.⁷² The middle and upper class residents lived in uptown neighborhoods, on clean streets, free of industrial byproducts. They had ample ventilation because their homes were further apart. Most importantly, the wealthier regions imported their water from New York state reservoirs. The first water supply system of New York was the Manhattan Company, which served only 2,000 homes through 25 miles of piping in uptown. Lower Manhattan, by contrast, collected their water

from public pumps or peddlers selling water on the street.⁷³ New York officials aimed to distinguish their city with the virtues of cleanliness, regularity and morality that they compared favorably to European cities such as London, but paid little attention to the plight of poor inhabitants living in the Five-Points.⁷⁴

Greenwich Village, located between the Hudson River and the East River, was comprised of estate farms owned by wealthy families who purchased tracts of land. These were developed in the colonial period and were reminiscent of the European countryside, with hills, trees, rocky outcroppings, streams, and uncultivated areas of land. These landowners were wealthy European-Americans like Peter Stuyvesant III, a descendent of the last Dutch leader of New York. His land developed into Bowery Village and subsequently Greenwich Village whose buildings follow European architectural models.⁷⁵ Using a European blueprint the village was a modeled city center that fostered improved ventilation and sanitary conditions in their open countryside.

The upper classes believed that their economic prosperity resulted from superior mortality and virtue. They regarded neither poverty nor wealth as an accidental condition. Instead, they viewed prosperity as a testimony of a person's habits and regarded the vices of intemperance, immorality, and impiety as the cause of poverty. In America, one's wealth was not necessarily determined by inheritance, as many immigrants and middle class members of society were able to pull them self up though the social economic ladder through hard work. The upper class, therefore often regarded the poorest as lazy and undeserving of municipal aid.⁷⁶ In the era of the cholera epidemics, leading citizens attributed poverty and disease to the moral failings of the poor. Disease itself was commonly regarded as a consequence of sin, correlated with the immoral and dissolute behavior of the poor.

While the upper classes recognized cholera as a disease that disproportionately affected the poor, they regarded filth and poverty as a product of sin and therefore regarded cholera as a disease of morality. In 1832, wealthy New Yorkers, blamed the cholera epidemic on the moral failures of the poor and called cholera the “poor man’s plague.”⁷⁷ Because cholera did not affect affluent uptown neighborhoods as badly as in lower Manhattan, the upper class believed it must be the physical and moral conditions of the poor Irish, which attracted the disease. According to John Pintard, a respected civic leader who wrote many letters during the epidemic, cholera and syphilis were “scourges created to bring retribution to the transgressor of moral law.”⁷⁸ In a time when the transmission of communicable disease was not understood, genteel New Yorkers viewed cholera as further proof of the moral depravity of the working class.

Despite attributing cholera to morality, the upper classes had the good sense to flee when cholera attacked New York City. They had the financial means to leave for the countryside where there was plenty of fresh air, ventilation, and unpolluted water sources. In the early months of June 1832, the affluent packed their carriages and left the city in droves. *The New York Evening Post* reported that, “The roads, in all directions, were lined with well-filled stagecoaches, livery coaches, private vehicles and equestrians, all panic-struck, fleeing the city, as we may suppose the inhabitants of Pompeii fled when the red lava showered down upon their houses.”⁷⁹ By the end of the summer and first epidemic more than 100,000 people, nearly half the city's population, had fled to the countryside. The lower sections of society, however, did not have the financial means to flee. Instead, they were forced to remain and hope for survival, further concentrating the spread of disease in the poorer regions of the city where people remained.

Because there was no treatment for cholera, few people survived once they contracted the disease. Even if the sick went to hospitals, these were not treatment centers because there was no remedy for cholera. Dr. Valey and Dr. Gull, two leading hospitalists, reported that cholera was “only contagious when persons came in contact with those who are sick already. Cholera was transmitted when people breathed the air which cholera victims exhaled.”⁸⁰ Recommending ventilated environments to avoid contraction, the doctors sought to quarantine infected people in Cholera Hospitals, however most died within the first hours following contraction. With no effective treatment, research, or means of containment spurring from the hospitals, they instead were emergency centers created at the onset of disease and disassembled at the end of the epidemic.

A death in a cholera hospital was like death in a London almshouse, because the victims were the poor inhabitants of the slums.⁸¹ If an individual contracted disease, it was generally believed that it came from the person’s decision to live with vice. The cholera hospital was thus an institution for those who could afford no better and represented a life misspent, which reinforced the stigma of cholera, which like poverty, was as a moral condition. George Johnson, a doctor of the first and second epidemics described, “As we have seen, cholera involves in its causation, human violation and moral conditions, these are absolutely inseparable from the Cholera Hospital.”⁸²

The cholera epidemic raised the level of public awareness surrounding the failure of public health policy in New York. In 1832, the city government did not regard itself as having a responsibility for public health. Prior to the first epidemic, the city government viewed health as a private matter. For example, there were no permanent institutionalized public hospitals because city officials did not regard these as part of their municipal responsibility.⁸³ Instead, quarantine

hospitals were disbanded following the disease. Furthermore, there was no framework for a Board of Health in New York City. Instead, only a small Common Council existed to care for the wellbeing of the metropolitan center.

Prior to the outbreak of cholera in 1831, a Board of Health of three men held the responsibility for the wellbeing of one third of a million people. In response to the outbreak of yellow fever, the Common Council, the legislative branch of New York City government, created the Board of Health in 1805. The Board met infrequently and organized only in times of crisis. It consisted of Mayor De Witt Clinton and a committee of city aldermen, as such; the board was based on political connections rather than scientific knowledge. The New York committee consisted of a Port Health Officer, whose responsibility was to enforce quarantine regulations, a City Inspector who was in charge of administering statistics and enforcing regulations, and a Resident Physician who was in charge of diagnosing and reporting the occurrence of communicable diseases.⁸⁴ The Resident Physician's decisions affected his social reputation and job security. His decisions, therefore often had political motives, which took priority over public health.

The yellow fever epidemics demonstrated the ineffective political structure of the Board. From July to November 1798, yellow fever killed 2,086 people in what was known as the "great epidemic" in New York City. When the fever returned in 1822, it was the Resident Physician, Dr. Malachi Treat's responsibility to announce the arrival of disease. The public, however, in denial and fear, ridiculed Treat, claiming he wrongly diagnosed the disease. Treat was used as a scapegoat and in position based on public opinion, he lost his job.⁸⁵ This exemplified the problem of creating a Health Board staffed by political appointees. Following Treat, resident physicians were hesitant to declare the arrival of disease because they did not want to scare the

public. Furthermore, the initial Board was unsuccessful in stemming epidemics because it disbanded unless contagion was rampant. From 1822 to 1832, the New York City Board of Health remained inactive and unconcerned with the general health of the city.⁸⁶

As in to the case of yellow fever, New Yorkers were unprepared for the onset of disease and created response through political connections rather than medical practitioners. Officials heard of the distant crisis affecting Europe in 1831, however, Americans remained distanced from the epidemic. It was only after cholera crossed the Atlantic that the United States began discussing the arrival of disease. Yet, New York's Board of Health remained a political institution, and in 1832 it had no physicians on staff. As cholera arrived, the Board established a Special Medical Council that consisted of seven prominent doctors appointed to advise an appropriate municipal response. City council members, rather than physicians, however, were appointed as "health wardens" to enact the Board policies in their respective districts.⁸⁷ These wardens were advised by the doctors, yet the wardens made the final decisions on which streets to clean and ones to leave festering.

The Board was not only slow to respond to epidemics, but their responses were also minimal when they took negligible action to clean the streets and slums. Streets in the Five Points region were cleaned, however, most within lower Manhattan remained packed with living animals and the remains of the dead.⁸⁸ The Board relocated residents from the most overcrowded areas to equally crowded city poorhouses, demonstrating the Board's inability to understand the mode of contagion that led to the spread of cholera. Poorhouse residents were more likely to contract the disease due to the overcrowded and unsanitary conditions. Overall, over 3,000 people perished in the summer of 1832 in New York City in the cholera epidemic.⁸⁹

In the 1832 cholera epidemic, the Medical Board also suffered from tensions within the public and private medical communities, leading to an ineffective response to the disease. The Medical Society, a private organization created to encourage communication between medical professionals, blamed the disastrous mortality rate on the inability of Board health wardens to respond to the disease and argued that the city should have been preemptive in their sanitary measures when they recognized the European epidemic. The health wardens responded that the Medical Society was premature in their desire to announce the arrival of cholera. The wardens, furthermore, accused the Medical Society as an unwarranted private health organization that tried to usurp the city government's power.⁹⁰ As a result, there was no collaboration between public and private medical knowledge. This tension hindered the success of the Board's policies and reduced their credibility in New York. Many of these tensions developed from the financial burdens, which expand in the time of crisis.

The onset of cholera presented a financial crisis for the city because epidemics require attention, money, and co-operation between the government, physicians, and citizens. New York had neither the framework nor the funds to address such an issue. For example, the Board had to appeal to the City Council for the money required to build the emergency hospitals, pay physicians, hire street cleaners, and purchase medications.⁹¹ These efforts were countered by the upper class belief that the poor were undeserving of aid due to their idleness. As a result, the 1832 Board of Health's actions were short lived due to the disparity between the need for effective sanitation and the public's lack of benevolence. By the conclusion of the cholera epidemic in the fall of 1832, the Board of Health returned to meeting irregularly. The question of morality – of whose responsibility was it to care for the sick - medical professionals or the government, remained unanswered.

(ii)

The second cholera epidemic occurred in 1849 when poverty increased with the waves of Irish immigrants arriving in New York. The population of the city had risen vastly to over three million inhabitants, many of whom arrived from Ireland between 1845 and 1852, seeking refuge from the mass starvation during the Great Famine. Throughout the Famine years, 75 percent of the Irish coming to America landed and stayed in New York City where they were brought to the boarding houses of Lower Manhattan. The Irish lived in single rooms with eight to ten other immigrants, paying prices three or four times higher than what they had been told to expect on the ship. Often unable to pay their rent, immigrants were thrown out to the streets, where they were regarded as filthy, homeless, wanderers.⁹² Overcrowded tenements and a growing homeless populace swelled the population of New York's poorer districts necessitating the creation of three new wards by the City Council in 1855.⁹³ These districts became the focus of anti-Irish sentiment as established New Yorkers associated Irish immigrants with vice, disease, idleness, and immorality.

Most Irish immigrants could not afford to leave the city and lived in small ethnically homologous communities, which were predominately Catholic and Gaelic speaking. Because Irish immigrants were often unskilled, illiterate, and did not speak English, assimilation proved difficult and the Irish remained poorly paid at the bottom of the social hierarchy. The slums in which they lived were viewed as rife with vices like idleness, prostitution, and drunkenness. Stereotypes of the Irish in both political cartoons and newspapers cast them as ape-like, animalistic, and racially inferior from the New Yorkers.⁹⁴ James Redfield, a 19th century author, characterized the Irish as dogs; "Bloody Irishman is a term applicable to the Irish in general, but particularly to that variety that resembles the bulldog. He is alive to fun and frolic not playfulness

merely, like that of the cat, but something absolutely droll, ridiculous, and absurd. The dog is the lowest, the most ignorant, the most stupid.”⁹⁵ The Irish, along with Africa Americans were cast into the lowest position of the social hierarchy. Both groups were regarded as racially inferior, full of vice, and living within the dirtiest and most immoral areas of the city, already associated with the prevalence of disease.

As the city grew and diversified, the medical and governmental health boards remained small and inefficient, unable to meet the challenges of cholera in 1849. The conditions of the New York streets and living quarters remained deplorable. Throughout the 1840s, the only effective street cleaners were the scavenging pigs that roamed the city who also contributed to its squalor. With the impending attack of cholera, some city reformers aimed to create a program to drive swine from the city, yet this was met with resentment from the lower classes because to them the pigs were cheap bacon and ham to fill their hungry stomachs with. When streets were cleaned the debris was often dumped into rivers and trenches, which further polluted water sources.⁹⁶ Sydney Taylor, who wrote about life on the Lower East Side, observed that, “There was no running brook in which children might splash on hot summer days, But there was the East River. Its waters stretched out wide and darkly green, and it smelt of fish, ships, and garbage.”⁹⁷ Without evidence that the filth and waterways were the carrier of cholera, the lowest class often became victims of their unsanitary living conditions.

As in 1832, affluent New Yorkers fled the city in 1849 after the onset of cholera that summer. The places where cholera attacked most disastrously were in the close quartered and unsanitary tenement houses. Jacob Riis described a cholera epidemic that scarcely touched the clean wards, “the tenants died at the rate of one hundred and ninety-five to the thousand of population; which forced the general mortality of the city up from 1 in 41.83 in 1815, to 1 in

27.33 in 1849. There are numerous examples of tenement-houses in which are lodged several hundred people that have a pro rata allotment of ground area scarcely equal to two-square yards upon the city lot, court-yards and all included. The tenement-house population had swelled to half a million souls by that time, and on the East Side, in what is still the most densely populated district in all the world, China not excluded, it was packed at the rate of 290,000 to the square mile, a state of affairs wholly unexampled.”⁹⁸ Irish immigrants primarily inhabited the tenement houses and forty percent of the deaths from cholera in 1849 were among those of Irish descent.⁹⁹

Anti-immigrant sentiments led to the continuation of a social stigma against the Irish, who, as the primary victims of cholera, did not have the financial or political influence to demand better treatment. The Board of Health had not established any permanent city hospitals since the 1832 epidemic. When cholera plagued the city in 1849, New York was once again ill equipped and short of public hospitals since none had been established since the 1832 epidemic. City officials struggled to find buildings to be converted to makeshift emergency departments due to the stigma attached to cholera and its victims, little was done. While the Board looked to schools to provide buildings for temporary hospitals, school boards resisted because they did not want their facilities or children infected with the disease.¹⁰⁰ “The stigma of having once served as a cholera hospital could never be erased,” argued the Trustees. “The disease and filth of the victims will remain. Children cast from schools will lose interest in school and be exposed to the temptations of idleness and vile companions. They would only serve to increase the number of those exposed to cholera.”¹⁰¹

Without the City government providing substantial public health relief, the Irish, instead, united to help one another. The Sisters of Charity were a Catholic order whose mission was educating and administering nursing to the poor.¹⁰² With limited options and disease spreading,

almshouse owners appealed to Catholic Bishops for aid. The Bishops then recruited the Sisters to care for the sick. Various churches lent their facilities to serve as temporary hospitals and with no permanent public hospitals, St. Vincent's Hospital was permanently established on November of 1849 by the Sisters to provide urgent care and treatment to victims.¹⁰³

Bishop Kenrick commented on the heroism of the volunteers “displaying an example of heroic fortitude, with certain peril to their lives, the Sisters took charge of the pest-stricken patients in that Hospital . . . priests proved their character and their strong virtues, caring for the sick in the exercise of their ministry; while non-Catholic ministers generally fled from the city.”¹⁰⁴ As a result, there was a reduction of anti-Catholic sentiment and a new respect for the Catholic clergy, who risked their lives in the epidemic.

Without any scientific advancement toward understanding the nature of cholera or its transmission from the first to second epidemics, the disease took a total of 5,071 lives in New York City.¹⁰⁵ The Board of Health made no progress in establishing public health policy, opening public hospitals, or implementing effective means of sanitary reform. Throughout the 1849 epidemic, the Board remained passive and lethargic, blaming the Irish for the occurrence of disease. A few progressive New Yorkers, however, began to rethink the correlation between morality and disease, looking instead at sanitation, rather than immortality, as the explanation for the spread of cholera among the poor.

This group of reformers included prominent residents like Peter Cooper and Hamilton Fish in addition to physicians such as John Griscom, Elisha Harris, Willard Parker, Stephen Smith, and James Wood.¹⁰⁶ Cooper observed the Five Points neighborhood, noting that the area “had not improved in cleanliness or mortality between the two epidemics, 1832-1849, yet cholera went on remission even though intemperance, vice, cesspools, and manure heaps

remained.”¹⁰⁷ As such, reformers now reassessed the belief in that cholera was attributable to moral failings, instead associating vice with poverty and examining the social factors behind the spread of cholera. George Collins a prominent physician of the mid-1800s wrote, “The presence and fatality of cholera can be greatly diminished by adopting proper social, moral, and sanitation reforms, the value of human life can be wonderfully enhanced.”¹⁰⁸ While reformers began to make headway in 1848, a development of effective medical policy was not fully perfected until the 1866 cholera epidemic.

(iii)

In 1866, New York City was able to apply the social and scientific advancements made during the 1848 cholera epidemic to develop a successful public health program. The city’s population, once again, increased in number and density, which widened the gap between the rich and the poor. New York’s wealth had risen during the Civil War because government spending led to a swelling of banks’ investments, stock values, and trade. As a result, the affluent had become wealthier and a new class between the middle and elite developed with the creation of stock traders and speculators.¹⁰⁹

The conclusion of the Civil War occurred within an era of new reformers who believed that the poor were impoverished due to their social circumstances. The wealthy class felt more sympathetic to the Irish after they formed the all-Irish 69th New York Regiment. Even though the Irish originally opposed conscription in the Draft Riots, these actions were overshadowed by their bravery in the battles of Bull Run, Antietam, and Gettysburg.¹¹⁰ Vices that once had been attributed to poor Irish morals were now attributed to their living conditions. Even though tensions arose between African Americans and Irish in the Five Points neighborhood, these squabbles were no longer correlated to a lack of morals but rather tensions arising from

competition for resources in overcrowded living conditions. This prompted many wealthy citizens to join the reform movement because they now regarded the tenement environment as a contributing factor to mass violence.

In this reform-minded environment, a group of New York City physicians began to assess the living conditions of their city in 1864. Their attention to such matters inspired the creation of the Citizen's Association, which was a voluntary group of wealthy New Yorkers who were concerned with city governance.¹¹¹ The leader of the Association was Dr. Stephan Smith, an American surgeon and public health reformer. He realized the need to gather clear and extensive facts to present to state legislators who were against wide scale sanitation reform because these were a financial burden for the city.¹¹² The Citizen's Association called for a sanitary survey of New York in 1864, which resulted in the creation of a Council of Hygiene.¹¹³ This government body assessed the living conditions of the city poor and drew attention to the deplorable state of the lower classes' sanitation conditions. They reported,

It is true that the rate of crowding of the population in particular districts of this city is already unparalleled and still increasing; and this renders the necessity of a comprehensive and effective system of Sanitary Government the more urgent; but there certainly ought to be no insuperable obstacle in the way of providing for an industrious and free people all the fresh air, sunlight, pure water, and wholesome food that human beings require; and certainly it is as possible as it is necessary for the proper authorities to enforce cleanliness and the observance. These are the essential requirements and conditions of domestic hygiene and public health.¹¹⁴

The Council's report to the city was the first success in the development of New York's public health policy. Smith took a systematic and mathematical approach toward studying the metropolitan center, surveying sanitary conditions ward by ward, with the final report consisting of over three hundred pages. The report argued that New York's moral and economic prosperity was tied to its residents' physical well-being.¹¹⁵ According to Smith,

We, the citizens of Lower East Manhattan, declare that this city is unsuitable for human development, child development and moral development. We, citizens of all classes, have suffered from deadly diseases such as cholera, tuberculosis, small pox and pneumonia at the hands of public officials who scoff at our sufferings. We believe that housing, politics, morals and health are all intertwined and without one, we would be quite at a loss.¹¹⁶

Smith's report concluded that if the city did not reform their sanitary policies recurrent health crises were to occur. City officials felt greater pressure from their wards to improve sanitation and called for more preventative actions to reduce the number of deaths from diseases such as cholera.

In response to the need for improved sanitation New York passed "An Act to Create a Metropolitan Sanitary District and Board of Health Therein" on February 26, 1866. This act created the first permanent, full functioning, and more authoritative Board of Health in New York City.¹¹⁷ This board consisted of a president, four police commissioners, a health officer, and four other commissioners of which at least three had to be physicians.¹¹⁸ The Health of New York City was no longer under the sole control of politicians.

The new Board of Health held significantly more power than the previous one and was able to take a more definite stance against cholera in 1866. Led by the Board President, Jackson S. Schultz, the Board challenged the politics undermining the sanitation regulations of the city. In 1863, Tammany Hall nominated City Street Inspector Francis I. A. Boole for mayor. Under his duties, Tammany Hall was responsible for the sewage and welfare in New York City. However, reformers and Board members discovered Tammany Hall paid street cleaners below minimum wage and forced workers to sign contracts that gave half of their paycheck to Boole.¹¹⁹ With a sanitation system embedded in corruption, the Board produced public awareness to call for immediate action to provide street cleaners with fair wages and as a result, the streets sanitation standards improved.

Additionally, the Board was effective in producing massive sanitation reforms, using police officers to enforce their new sanitary regulations. Other influential members were physician-investigators who monitored each individual ward and responded to the particular complaints within. By the end of March, the Board had taken action to investigate each grievance of local health nuisances. By the following month in April, they succeeded in issuing over seven thousand orders to remove piles of horse manure, rotting animal carcasses, and debris from the streets.¹²⁰ The city was therefore cleaner in the few months following the Board's creation than it had been in the time between the 1849 epidemic, demonstrating how the Board was more prepared for the onset of cholera in the summer of 1866.

When the first cases of the disease were reported, prearranged plans were set in motion to thwart the spread of disease. In April 1866 as predicted, the first ships entered the harbor carrying those infected with cholera. A quarantine station was set up on Staten Island and all incoming ships were examined for infection. This forestalled cholera from entering the city and help keep the infected at bay.¹²¹ When the first case was reported on May 1, the Board took immediate action. They dispatched sanitary crews with chloride and lime to each ward where the infected lived. The Board acted on new scientific evidence that cholera was transmitted through the excreta and bedclothes and thus inspectors burned the clothing, beddings, and belongings of the sick. They quickly relocated the diseased to emergency hospital tents for observation, while also providing food and clothing for families of cholera victims.¹²² Due to the Board's swift and planned response, cholera remained controlled in the sectors where it first developed, as opposed to spreading throughout all wards of New York City.

New York City officials developed an effective plan of public health and by taking a combative response to the spread of disease, which greatly reduced the scope of the 1866 cholera

epidemic. The Board transformed the Battery Army Barracks into a hospital and made room in storage spaces for disinfectants in addition to training a group of soldiers in the methods of emergency medicine.¹²³ The death toll of cholera fell over ninety percent, with only 1,137 deaths from cholera in the 1866 epidemic, despite New York's larger population.¹²⁴ This reflected lower overall infection rates and a lower death toll among those infected. The Board's marked effectiveness in organizing civic action made them the established protector of public health for the city's future.

The Board drew upon their new blueprint of epidemic control to continue to produce sanitary reform following the conclusion of the epidemic to prevent further reoccurrences of disease. The Board organized itself into four bureaus including Sanitary Inspection, Records and Inspection, Street Cleaning, and a Bureau of Sanitary Permits.¹²⁵ The permanent and more highly organized Board also took more measures to keep the city clean after the epidemic. For example in 1869, they determined that "neither hogs nor goats could run at large in our city within its jurisdiction, neither could they be kept within 1,000 feet of any residence or business without a permit from the Board of Health."¹²⁶ The Board knew that the streets needed to remain cleaner than they did in 1865 to reduce the reoccurrence of disease. The Board further ordered for the removal of 160,000 tons of manure from vacant lots, 4,000 yards to be cleaned, and 6,418 privies to be disinfected.¹²⁷

In conclusion, between the years of 1849 and 1866, the population of New York had greatly increased, however, only a tenth of cholera deaths occurred in 1866 as compared to 1849. This was due to increased public support for improved sanitation and a new municipal Board of Health. As such, the 1866 cholera epidemic resulted in a few scattered cases of cholera without the panic or widespread infection that characterized the 1832 and 1849 outbreaks. The city was

only able to accomplish this progress with a monumental shift in perspectives regarding the urban poor. Once New Yorkers looked beyond cholera as a moral condition of the Irish immigrants and instead treated it as a social condition resulting from appalling sanitary standards they were able to overcome the disease. The development of a new permanent Board of Health lead by physicians instead of political appointees took more preventive and permanent action to sanitize New York and inspired permanent boards of health nationwide. The achievement of 1866 Metropolitan Board of Health was significant in development of American public medicine and helped thwart the spread of cholera in urban centers.

Chapter 3
The Influence of European Medical Practice on United States Cholera Treatment to Drive Public Health Policy

The establishment of the 1866 Metropolitan Board of Health revolutionized the development of American public medicine to prevent, treat, and end epidemics by following the model that British reformers employed to eradicate cholera. Europeans established a more advanced medical system earlier than Americans did by creating public hospitals to serve both the public and to drive scientific research. Londoners were able to use factual evidence regarding the transmission of cholera to overcome class stigmas that originally surrounded the contraction of disease. Once Americans adhered to a British model of scientific advancement, they too were able to look beyond cholera as a moral problem but rather one of ineffective sanitation.

Prior to the cholera epidemics of the early 19th century, American medical practice was dominated by a system of rationalism and humoral theory. The language of medicine was Latin, making it inaccessible to the public and necessitating that one had to be part of elite community to understand it.¹²⁸ The medicinal professionals were called “regulars” who in the 1830s rooted their allopathic medicine in rationalism.¹²⁹ “From a 20th-century viewpoint, early American medicine was anything but scientific.” Notes historian Charles Rosenberg, “Isolated observations of disease and treatment outcome were generalized, in what now seems a most arbitrary manner, into universal 'theories' of disease.”¹³⁰ They interpreted cases through a universal ancient speculative system of disease rather than bedside empiricism.

In contrast to modern medicine that relies on evidence, allopathic theory dominated the American medical profession of the 19th century. It was often referred to as “heroic medicine” because of the extreme measures, such as bloodletting, used to treat specific symptoms. Allopathic medicine functions through “opposites treating opposites,” meaning that if a patient

retained water a diuretic would be prescribed, if a patient had a cough a cough suppressant would be prescribed, if a patient was constipated a laxative would be prescribed.¹³¹ In the case of cholera, since an unknown disease entered the body, practitioners aimed to remove it through bloodletting. Allopathic remedies of cholera were largely unsuccessful because the disease produced diarrhea that dehydrated the victim, by removing blood, this only further dehydrated the victim and led to death. The nature of cholera, however, was unknown to practitioners in the 19th century and they aimed to combat the disease through their allopathic tradition.

In this authoritative allopathic system, regulars felt little need to justify or explain themselves to the public. Instead, they centered their knowledge on their predecessors' testimonies, which were based on past facts rather than the regular's own empirical practices. They applied ancient allopathic systems of bloodletting and use of calomel dosing to remedy most ailments, which was based on humoral theory of the body from the Middle Ages. This system, "attributed disease to an imbalance of four humors (i.e., blood, phlegm, and black and yellow bile) and four bodily conditions (i.e., hot, cold, wet and dry) that corresponded to four elements (earth, air, fire, and water). Physicians following the Hippocratic tradition attempted to balance the humors by treating symptoms with 'opposites.' For instance, fever (hot) was believed due to excess blood because patients were flush; therefore, balance was sought by blood-letting in order to 'cool' the patient."¹³² Humoral theory dominated medical practice throughout the 19th century until European physicians were able to create a new body of scientific knowledge from the development of technology and research.

The cholera epidemic of 1832 undermined public faith in the regulars' allopathic theory. The arrival of cholera in the United States occurred during a time of reassessment that promoted a revolution in medical practice. Cholera produced high mortality rates causing allopathic

doctors to be criticized for their inability to treat the disease. One leading practitioner, James Stewart, argued that,

Allopathy's stance that the use of any medicine must, as a general rule, be regarded as injurious, as the object of medicine is but to create a temporary disease for removal of another; and only applicable when the disease demanding it is itself the greatest source of danger.' This expressed the old fallacy contained in the choice of the lesser of two evils, except that in this case one chooses both evils. The theory that a serious disease can be removed by creating a temporary and less serious one must have been invented in a mad house.¹³³

Throughout the era, traditional medical epistemology was called into question as new alternative professionals developed more empirical research to challenge the humoral allopathic medicine. New European methodologies including the establishment of public hospitals and scientific studies were explored in the United States. The cholera epidemics led to a new era of preventive medicine in conjunction with a revolution in scientific medical theory through the discovery of the bacteriological agents responsible for causing infectious diseases. These advancements allowed for the development of successful public health policy.

(i)

The 1832 cholera epidemic produced a wide range of reactions that challenged elitist medical tradition, which created a contest between the regulars and the new alternative professionals. The first new development came from Samuel Thomson, who appealed to the egalitarian anti-elitist sentiments of Jacksonian America in the 1830s. Thomson challenged the licensed doctors and their methods, such as bloodletting and instead, presented an alternative system that allowed each individual, including members of the working classes, to administer their own treatment using natural products.¹³⁴ In his 1822, *New Guide to Health*, he argued “knowledge should be available to all and that every person was to become his or her own physician.”¹³⁵

Thomson appealed to both traditional allopaths and new revolutionary alternative professionals, which led to his success by presenting a compromise between the two extremes. He also appealed to the public by adhering to the conventional belief in the allopathic system of illness.¹³⁶ By advocating for the use of homeopathic remedies, he also dismissed the role of the physician. He argued,

Much of what is at this day called medicine, is deadly poison, and were people to know what is offered them of this kind they would absolutely refuse ever to receive it as a medicine. This I have long seen and known to be true; and have labored hard for many years to convince them of the evils that attend such a mode of procedure with the sick; and have turned my attention to those medicines that grow in our own country, which the God of nature has prepared for the benefit of mankind. Long has a general medicine been sought for, and I am confident I have found such as are universally applicable in all cases of disease, and which may be used with safety and success, in the hands of the people. After thirty years study and repeated successful trials of the medicinal vegetables of our country, in all the diseases incident to our climate; I can, with well-grounded assurance, recommend my system of practice and medicines to the public, as salutary and efficacious.¹³⁷

Therefore, Thomson appealed to the public, while endorsing natural remedies and individual agency. He did not see the need for a physician, but instead stressed common sense and the common man as able to understand everyday medical practice. Thomson also contrasted the elitist Latin tradition by spreading his knowledge to the commoner through his books (*Boston Thomsonian and Lady's Companion*), stories, popular lectures, and poems that served as mnemonic devices to help individuals practice medicine without need of doctor.¹³⁸

Thomson was skeptical of the abilities of the regulars and attributed the high mortality of the 1832 cholera epidemic to the monopolistic power of the regular professionals. He argued that they were ineffective because they represented a small elitist group who remained distant from the population and failed to utilize empirical methods.¹³⁹ Thomsonian medicine called upon every man or woman could be a doctor to his or her own family. He opposed the “king-craft,

priest-craft, lawyer-craft and doctor-craft” ideal and he himself did not desire monolithic power within the medical field. Thomson believed that, “the people are certainly capable of judging for themselves, whether what is done for them, removes their complaint or increases it.” Removing the dominant role of the practitioner in medicine Thompson argued, “demonstrated to the satisfaction of many that the capacity of Americans to survive between 1630 and 1760 without a medical profession had not been an accident, that a separate class of medical men was a luxury incompatible with sound reasoning or democratic practice.”¹⁴⁰ Thomsonians represented a developing anti-intellectual cohort, who did not necessarily come from medical schools, but rather used their traditional and natural remedies. Thomson himself was born in rural New Hampshire and never attended college, but rather learned from local root doctors.¹⁴¹ Without the established intellectual background, many Thomsonians were unable to gain the respect of the public.

In addition to new Thomsonian ideologies, homeopathic theory also challenged traditional allopaths to reconstruct American medical practice. Homeopaths offered a compromise between the regulars and more radical Thomsonians. They argued that society should uphold the role of physician accompanied with a new public access to knowledge led by rigorous empirical investigation of physical manifestations (symptoms) and reactions of the body, akin to the Thomsonians.¹⁴²

The public accepted the homeopaths because they were less radical and more formally educated than the Thomsonians. William Channing, the founder of homeopathic medicine in America, was a leading physician in the 1832 epidemic. Channing graduated from Rutgers College and was a member of New York County Medical Society for the establishment of the recorded and public examination of doctors.

Channing argued that the medical system required reformation because the regular's tradition needed more empirical evidence from new observations. Channing experimented with using homeopathic remedies of camphor, veratrum and cuprum instead of traditional bloodletting and calomel. He empirically tested these methods in the cholera hospitals and reported his findings in the *Commercial Advertiser*.¹⁴³ Through his studies, he accepted homoeopathy as a principle and argued that a failure to cure it did not disprove the laws of medicine, but showed a lack of knowledge in the practitioner. He argued,

Men are accustomed to view a scientific theory, conventionally stamped "a law of Nature," as an original principle established by the fiat of Omnipotence; and he who has the hardihood to examine its validity, is charge with profanely questioning the order of Nature itself. There is a prevalent error pervading the ranks of science. The facts of nature, not the theories of man, are the only infallible tests of the verity of alleged discoveries. Thus, to contradict past experiences, an indubitable mark of fallacy; to go beyond it, is the very essence of genuine discovery.¹⁴⁴

William Channing was successful in his public trials of camphor, veratrum, and cuprum in the 1832 cholera epidemic, which he developed from the German physician Samuel Hahnemann. Together, they established homeopathy in New York as an alternative to traditional toxic and aggressive treatment with more gentle methods. Homeopaths argued for a holistic theory of medicine and considered the physical, mental, and emotional symptoms to assess balance and imbalance in one's health to optimize homeostasis. By looking at the larger picture of how the symptoms relate they aimed to alleviate the overarching problem, rather than the regulars who simply aimed to suppress specific symptoms.

Channing exemplified of the influence and growth of the homeopaths and the appeal of alternative medicine from traditional allopathy following the 1832 cholera epidemic. Statistics indicated that the death rates in homeopathic hospitals were one-half to one-eighth of those allopathic medical hospitals. In Cincinnati, Ohio only 3% of the 1,116 homeopathic patients died,

while between 48-60% of those under traditional allopathic treatments passed away.¹⁴⁵ Overall, both the Thomsonians and homeopaths challenged the medical tradition by developing more diverse medical epistemologies and spreading public medical knowledge.

(ii)

Throughout the 1832 cholera epidemic in New York, debate regarding the origin, transmission, and treatment of cholera greatly increased. Channing, for example, suggested that cholera might not be specific to the poor and their unsanitary habits, but rather may be transmittable to all classes. “If the cholera had no other means of communication than those which we have been considering it would be constrained to confine itself chiefly to the crowded dwellings of the poor, and would be continually liable to die out accidentally in a place, for want of the opportunity to reach fresh victims.”¹⁴⁶ This belief that cholera was not confined to certain populations was supported by developments in germ theory. Dr. Simon, a leading medical official stated, “that cholera propagates itself by a ‘morbid matter’ which, passing from one patient in his evacuations, is accidentally swallowed by other persons as a pollution of food or water; that an increase of the swallowed germ of the disease takes place in the interior of the stomach and bowels, giving rise to the essential actions of cholera, as at first a local derangement; and that ‘the morbid matter of cholera having the property of reproducing its own kind must necessarily have some sort of structure, most likely that of a cell.’”¹⁴⁷ Simon argued that a cholera germ transmitted the disease from one person to another while other professionals continued to debate how cholera was spread. Although the germ passed through infected waterways, some practitioners believed that “the geographical distribution of cholera in New York, belong less to the water than to the air.”¹⁴⁸

Between the first and second epidemics, the medical practitioners debated the transmission of cholera, yet, presented no unified theory since doctors did not have sufficient evidence to support one theory or another. “To speak of the Medical Profession as a body of jealous quarrelsome men who chief delight is in the annoyance and ridicule of each other,” suggested a Harvard doctor, Oliver Holms, “If the whole of material medica, as now used, could be sunk to the bottom of the sea, it would be all the better for mankind – and all the worse for the fishes.”¹⁴⁹ Without substantial theory on how to prevent and contain cholera, the government remained ineffective in producing public health policy throughout the 1832 and 1849 epidemics.

As discussed in the previous chapter, the 1832 and 1849 epidemics were similar in New York, because both were marked by ineffective medical and governmental response. The 1849 epidemic in Britain, however, did make progress toward public health sanitation. Londoners began a new system to visit all the houses district-by-district to track the number of diarrhea cases to predict the spread of cholera. James Campbell from District 7 reported, “Before the commencement of household visitation no cases were seen except those which had passed to cholera. The number of these was about 100. Most of them had diarrhea some days and passed into at hour the hour of midnight or mid-day. After the visitation system commenced, in one day, 27 cases of diarrhea were detected, which would have passed into cholera. The visitation system, have been, under the blessing of God, the means of saving many and valuable lives.”¹⁵⁰ Throughout the two decades in between epidemics, the epistemic debate continued and gained some insight to the basic questions regarding cholera, such as its correlation to diarrhea as an early symptom. The contesting groups, however, still disputed the role of the practitioner, the function of medicine, and goals of public policy.¹⁵¹

Because Americans remained attached to their allopathic tradition New York was at a stalemate between traditional elitist allopathic and modern homeopathic and empirical methodologies within the first two cholera epidemics. These medical factions debated with one another as opposed to collaborating to increase their scientific knowledge of cholera. Europe, however, made many advancements in medicine throughout this era. Because of their lack of progress, New York turned to European inspiration to create their own successful model of medical theory. From 1820-1861 more than 700 American doctors traveled to Paris and London to supplement their education, in what was known as the “French Period” of American medicine. By 1700, Europe had approximately 105 universities and colleges while North America lagged behind with only 44.¹⁵²

Europe had more successful medical practices for two particular reasons. The first was that physicians and medicine did not exist in isolation. The second reason why Europe was more advanced in medical study was because of their development of the hospital.¹⁵³ Europe had created a tradition of establishing and running many state sponsored hospitals for the public, while those in America were often private and for the upper echelon of society. In Europe, hospitals were established to deal with the migrant population attracted to urban centers during the Industrial Revolution. Peasants flocked to London and Paris and often became sick with acute infectious and chronic diseases such as tuberculosis and typhoid fever. Often the emigrating peasants did not have families and when they became ill, they sought out the city hospitals.¹⁵⁴ The European hospitals became crowded and presented physicians with a plethora of opportunity to study disease. For example, in 1830 Paris had over 30 hospitals containing 20,000 patients, with the Hôtel-Dieu containing 1000 beds alone.¹⁵⁵ Therefore, American physicians were provided with a larger pool of patients and cadavers when they studied abroad

because these countries had already faced industrial revolutions and need to establish hospitals.¹⁵⁶

American physicians also often stressed the empiricism they observed as critical to the European success. In 1843, physician George Doan stated that, “It was overwhelmingly the promise of practical experience that drew them to Paris. They crowded in every private lecture room to witness intellectual vigor and science. London and Paris are the great centre of medical attraction to give the student confidence in the science of medicine.”¹⁵⁷ New Yorkers aimed to emulate the empirical knowledge gained in the European hospitals and anatomical lectures to adopt these principals into their own practices.¹⁵⁸

Londoners stressed a systematical physical examination of patients aspired to correlate the signs and symptoms to the illness they presented. These practitioners wanted to erect a body of knowledge built on a foundation of empirical evidence that aimed to penetrate superficial symptoms to the find root of disease. Their underlying goal was to dissipate false notions of physiology and pathology.¹⁵⁹ In addition to providing American physicians with a bounty of patients, Europe presented new and developing technological advancements to build scientific knowledge including autopsy, forms of specula, ophthalmoscope, microscope, endoscope, and laryngoscope. Through these tools, physicians created their new model of medicine based on facts, which Americans adapted and brought to New York. For example Dr. Daniel T. Jones, the President of the Medical Society of the State of New York argued, “The science of medicine has been aptly likened to an ant-hill, in its slow but steady growth, no one individual adding but a mite to the mass of facts which compose this hill of science.”¹⁶⁰

Lastly, European homeopaths also expanded their medical epistemologies by introducing statistical models. The homeopaths gained inspiration to utilize statistics from European leaders

such as London's John Snow. Many European homeopaths followed his model to present data tables that compared the mortality ratio to the different systems of medical practice used to treat cholera. For example, Jules John Mabit, a French physician, studied the mortality rate of cholera in both allopathic and homeopathic practices. He concluded that in Bordeaux from 1796 to 1837 the allopathic mortality rate was 49% of those infected and the homeopathic mortality rate was only 7.5%.¹⁶¹ Mabit's tables were circulated worldwide and with the momentum of support he received from his own homeopathic cholera treatments, he founded a Homeopathic Hospital in Bordeaux, France.¹⁶² Mabit exemplified the successful application of statistics to help study cholera remedies and increase medical knowledge.

The time between the first and second cholera epidemics marked an era of continuing debate regarding what mode of practice and type of practitioner would be most efficient in stemming cholera in New York City. New York was less developed than their medical counterparts in Europe, who made advancements through their expansion of public hospitals and medical knowledge through empirical practice. American physicians flocked to Europe to adopt their methodologies and returned home to selectively embraced parts of the European model to fit their professional needs. They adapted radical empiricism from the observations gained through sensory input, in addition to beginning to use statistical models to study the path of disease. New Yorkers increased their scientific and medical knowledge, which allowed them to more effectively create public health policy.

(iii)

Once American physicians adopted and adhered to European modes of medical practice and knowledge, the medical establishment of New York was able to increase their comprehension of cholera's transmission in the 1866 epidemic. This led to the establishment of

an effective public health policy in America. First, in order to apply scientific advancements to public policy, New York had to overcome their political hierarchies and corruption. Only by doing so were the city planners able to successfully prevent subsequent cholera epidemics following the 1866 outbreak. From 1859 to 1866 medical men continually tried to introduce sanitary bills only to be defeated by the Democratic political machine at Tammany Hall. This was because the bills needed a large budget, but the New York government had a small three percent tax, which was inadequate to finance wide-scale city sanitation. Traditionally, small local town health committees were funded by charities, but the metropolis required a much larger budget to sanitize the entire city.¹⁶³ Charles F. Chandler, a professor of chemistry at Columbia University, directed a Department chemical laboratory that examined water, milk, and food supplies. As the Health Commissioner in 1863, he worked for more than a decade to sanitize the city by was constricted by an inadequate budget. He had to appeal to wealthy benevolence but the businessmen were hesitant to contribute their money. They rather invested for their own profit than to help cholera victims in an epidemic that only occurred every decade or two.¹⁶⁴ The largest challenge for public health reformers to overcome were thus constrictions within the political system.

Reformers advanced the status of the medical professionals to create an effective movement to revise the politics of medical practice. In the 1850s the New York Academy of Medicine used sanitary reform as a leading platform to achieve their overall goal of advancing the status of the medical profession. By pressing the need for sanitary reform, the Academy represented a group of qualified individuals seeking a claim in public health from the politicians. They placed emphasis on removing incompetent men from the decision making process in medical matters and instead gave responsibility to qualified medical men as the only

professionals who should be entrusted with authority in supervising sanitation.¹⁶⁵ The Academy also aimed to raise their professional standards to limit entrance to qualified, knowledgeable, and experienced physicians in the 1850s.

The New York Academy of Medical Advancement (AMA) was founded by Nathan Davis in 1847. In 1844, he was elected to serve in the New York Medical Society, but he viewed their system of licensure flawed because many physicians used toxic remedies like bloodletting to treat cholera. He aimed to improve medical education and licensure, and in 1848, Davis introduced a resolution endorsing the establishment of a national medical association to “elevate the standard of medical education in the United States.”¹⁶⁶ The Academy created a Code of Ethics in 1848 in order to identify and eliminate irregular physicians. This Code addressed three fundamental concerns: the duties physicians and patients owe each other, physicians’ duties to each other and the profession at large, and the reciprocal duties of the profession and the public. The authors argued that medicine was a moral undertaking centered on mutual responsibilities, which patients, physicians, and the public must collaborate in to serve the public.¹⁶⁷ The Code entrusted the ethics of medical practice not to lawmakers, the courts, or hospital executives, but rather to the conscience of each physician. The Code, furthermore, emphasized the moral grounding required in the medical professional in order to separate it from the era’s corrupt politics.

A physician should practice a method of healing founded on a scientific basis; and he should not voluntarily associate professionally with anyone who violates this principle. A physician shall continue to study, apply and advance scientific knowledge, make relevant information available to patients, colleagues and the public, obtain consultations, and use the talents of other health professionals when indicated.¹⁶⁸

Reformers used the media to push for political reform through the mid to late nineteenth century. For example, the *New York Times* printed numerous exposes that blamed the sanitation

problems on political corruption. One article from 1865 entitled “The Tyranny of the Lower Classes – The Better Classes to Blame for It,” argued,

You cannot depend on most rich or influential men attending any committee-meeting; they will spend no time or energy for any public object. They cannot bear to leave their families or dinners, or country-places, for distinctively public and disagreeable duty. In the present movement, in a sanitary point of view, the most momentous for the city ever commenced -- that of the Hygienic Council and other citizens to prepare for the cholera, and to pass the Health Bill, we understand the great difficulty is to get any leading and wealthy citizens to act.

Cholera when it comes, though it begins among the wretched masses whom these vile leaders leave to their filth, will, by no means, confine itself to tenement houses. Gentlemen who are profoundly indifferent to "meetings for sanitary reform," or to schemes of "reform of the city government," will find themselves not at all beyond the pestilence. The loss of life and the loss of business will reach thousands who never raised a finger to improve the administration of this city. When Spring comes, our wealthy classes will suddenly wake up with indignation, and discover that the Health Bill had been either passed over or eviscerated, and then we shall all growl at "the tyranny of the lower classes." We bespeak from some of our moralists and preachers, a few words now on the sins of the richer classes.¹⁶⁹

The 19th century was marked by a heightened public awareness to reassess tradition and to call for reform. Specifically, this came from an increase in political involvement, which was heightened by the media that publicized the political corruption. Papers, like the *Times*, argued that cholera was to arrive in the spring, and without political reform to create public health policies, disastrous results of the epidemic were to come. This shift in public opinion correlated with the advancements in medical knowledge. In 1849, Dr. Snow proposed the transitional mode of cholera, and tested it in the 1854 London outbreak. Through his statistical studies, he was able to determine that cholera was transmitted through the waterways. Finally, science was able to begin answering the central questions regarding the disease. Cholera was not new, it was transmitted in water contaminated with feces, and could be treated with rehydration therapy. More importantly, cholera epidemics could be prevented through sanitation measures. Finally, by the arrival of the 1866 epidemic, New York had the scientific statistical evidence arguing for the

need to create cooperation between the medicine and political factions in order to overcome the epidemic.

New Yorkers pressured their politicians to reorganize their structures and eliminate corruption in order to create new effective public health policy with the aid of scientific advancements. The 1866 Board of Health marked a shift to new a social conception of disease. Reformers were effective in creating new public health policy because the 1865 medical and scientific survey was presented to the public of New York City at large through *The New York Times*. As such, the topic of health reform became one of general debate. The public pressured their politicians for reform and were answered when the New York City legislature passed “An Act to Create a Metropolitan Sanitary District and Board of Health Therein” in 1866. The success of this Board came from the fact that it was not a decidedly medical organization or decidedly political, but rather a coalition of community members and relevant professionals committed to sanitary science.

By using the media, reformers created and celebrated the development of effective political reformations. Political cartoons depicted a Board of Health protecting the city from the impending epidemic in comparison to cartoons of the first epidemic in which artists argued politicians essentially welcomed the disease into the city due to their lack of concern and planned response.



Figure III. Photograph, from Puck, 1866. From: PBS.org, <http://www.pbs.org/wgbh/nova/body/short-history-of-quarantine.html> (accessed April 26, 2015).

The image above illustrates a planned defense against cholera led by the Board of Health who yielded a bottle of carbolic acid, a disinfectant, to keep cholera at bay. These cartoons demonstrated how the Board had increased its scientific knowledge and prevention of disease by means of effective sanitation to treat cholera. They were prepared for the onset of infection which resulted in a more controlled and contained epidemic.

Newspaper articles also celebrated the Board of Health's success. On April 25, 1866 *Harper's Weekly* quoted, "The Board of Health has gone to work in earnest, and has therefore undoubtedly discovered what a task it has undertaken. When we lay in our civic misery and filth, helpless and hopeless, and saw the cholera making ready to fall upon us, the news of the appointment of the Board was like a voice of succor."¹⁷⁰ These articles presented the success of New York public health policy and satisfaction of the citizens for their increased responses to the onset of the cholera epidemics.

The Board of Health itself also produced many more publications in the 1866 epidemic to help prevent the onset of disease. They posted notices throughout the city alarming residents that cholera had arrived and provided advice of how to avoid disease and death.

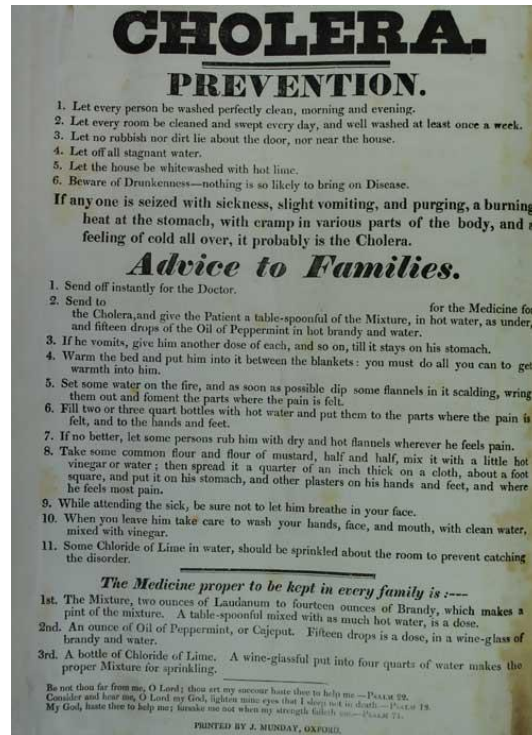


Figure IV. Photograph, from, Sanatory Committee, 1866. From: New York Historical Society. http://www.museumofthecity.org/wpcontent/uploads/2014/03/DSC_0493CholeraNotice500px.jpg (accessed April 26, 2015).

In order to prevent cholera these notices told New Yorkers to wash themselves twice daily, clean and sweep rooms daily, let no rubbish fester by the house, remove all stagnant water, and whitewash the house with lime. If cholera was to arrive, then the notice advised people to call immediately for the doctor, send for medicine, and how to administer this medicine with caution to avoid the further spread of disease. The Board enabled citizens to better prevent the onset of infection in their houses and what plan of action to take when it arrived. The success of the Board to educate their citizens led to the successful reduction in the mortality rate of the 1866 cholera epidemic.

The 1866 Metropolitan Board of Health revolutionized the development of American public medicine. The Board was able to create this nationwide change to better prevent, treat, and end cholera epidemics by following the British model. To reach this success, New York had to decentralize America's elitist medical epistemologies to more diversified ones that were open to newer alternative professionals. Public health reform was only able to be achieved after scientific knowledge of the human body and disease increased to provide the facts to argue in favor of public policy. Finally, inspired by European blueprints for proper boards of health that were not comprised of political appointees, but rather of medical men trained for public health work, New York succeeded in overcoming the 1866 cholera epidemic.

Conclusion

The 1832, 1849, and 1866 cholera epidemics spurred the development of permanent and effective public health policy in both London and New York City. Broad scientific and medical advancements allowed both metropolises to move beyond issues of morality to the larger social problem of ineffective sanitation as the transmitter of disease. Knowing the source of cholera and the symptoms it produced, scientists were able to develop effective treatment.¹⁷¹ By the 1880s doctors concluded that cholera was easily treatable through rehydration therapy, which today has reduced the mortality rate to less than one percent for those receiving treatment.¹⁷²

An important result of this research project is to illustrate the social historical trend in which fear of unknown disease often results in mass panic that isolates the victims. In London, it was the poor, working classes, near the Broad Street pump who whose lack of morality was blamed for the onset of disease. In New York, it was the Five Point Irish immigrants. In both locations, the elite upper echelon regarded cholera as the “poor man’s plague.” The prevalent attitudes associated disease with depraved personal habits, such as idleness, drunkenness, and prostitution.

It was not until research and statistical analysis discovered the path of the disease that the doctors were able to explain the cause and treatment for cholera. Like the AIDS epidemic of the 20th century, cholera was a disease that further stigmatized an already marginalized group. When the first cases of AIDS arose in 1981, the victims were almost all white homosexual men. Dr. David D. Ho, a biomedical scientist at Rockefeller University and founding chief executive of the Aaron Diamond AIDS Research Center argued, “It was a repeat of the cholera experience. The cause of the disease was unknown, and it affected a subset of the population. It was easy to brand the victims and blame the disease on their lifestyle.”¹⁷³ During this time homosexuals were

feared, alienated, and treated as outcasts. Both homosexuals in the 20th century and immigrants in the 19th century were treated the same way because the medical field was unable to classify the diseases that affected them.

In the AIDS epidemic, medical professionals were able to move beyond these moral stereotypes to reclassify the disease by drawing upon the experiences of the cholera epidemics. Science made many advancements throughout the 19th and 20th centuries to more rapidly identify, classify, and understand disease. New enlargements in entire fields of science, such as biochemistry, allowed doctors to discover the mode of transmission of AIDS. As such, scientists were able to quickly and effectively isolate the virus that caused AIDS in 1983 to demonstrate that it was not confined to homosexual men, but rather is rampant in developing countries, particularly in Africa.¹⁷⁴ Both epidemics, cholera and AIDS, illustrate that when the cause of disease is unknown and affects a marginalized population, society's reaction is often to brand the victims and blame the disease on their lifestyle. With technical advancements and changes in medical theory, scientists were able to more quickly identify the source and transmission of disease in the AIDS epidemic to move beyond stereotypes to more effective prevention and treatment than compared to the cholera epidemics.

The 19th century cholera epidemics in both London and New York City precipitated the development of permanent public health policy. In 1832, the government did not regard public health as their responsibility but rather regarded it as a private matter between the individual patient and his physician. The cholera epidemics challenged politicians to revise their traditional reserved role in public health and to take on the responsibility of providing for the wellbeing of their populations. In conjunction with the revolution of medical theory and practice, the cholera epidemics produced new local and national boards of health, which celebrated for their

successful prevention of epidemics and served as exemplars of national responsibility for public health, regardless of the victim's morality or position in society. Cholera was instrumental in modernizing the relationship of the government to medical practice in Britain and America, facilitating safer and cleaner cities where the health of the population was regarded as a duty of the government.

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