

Rates of Tuberculosis Mortality in Urban and Rural Areas of New York State Before the Age of Antibiotics

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Abstract

From the late nineteenth and early twentieth century industrialization changed many aspects of American life. Mortality rates in the pre World War I era (1838 and 1930) changed due to many improvements of public health. The creation and emphasis over vaccinations, sewage systems, inspections of foods, and overall improvements in living and working conditions improved public health outcomes in all parts of America, in both rural and urban areas. As the changes occurred, tuberculosis mortality rates declined. This study explores death rates of tuberculosis in rural and urban areas, as well as the general population of Rochester, in the nineteenth and early twentieth centuries in New York State, before the introduction of antibiotics. The purpose of this study is to connect the change in mortality rates with improvements in public health across the state. Tuberculosis mortality rates from poorhouses are also being compared to the general population in Rochester, as represented by the data collected from Mt. Hope Cemetery. Due to public health improvements over the end of the nineteenth century and beginning of the twentieth century, mortality rates of communicable diseases like tuberculosis declined over time.

Objectives

The objectives of this directed study were to discover the mortality rates of tuberculosis during the late nineteenth century and early twentieth century. To reach these goals, data was analyzed from the Mount Hope Cemetery records available online and compared to data around New York State. The ultimate goal was to compare mortality rates of tuberculosis in urban and rural areas of New York State. This study explores how the infectious diseases tuberculosis spread in urban and rural areas. It is predicted that tuberculosis spreads in urban areas quicker than in rural areas due to more frequent and closer person-to-person contact. During the late nineteenth and early twentieth centuries the public health, especially in urban areas, was poor and unsanitary compared to today's standards. Vaccinations were beginning to develop along with sanitation improvements like sewage systems and food and beverage inspections. Since urban areas were more populated than rural areas, it is predicted that such public health measures affected those in urban areas more than those in rural areas. Also this study investigates the rates of rural mortality rates and why they were lower than the tuberculosis rates in urban areas of New York. Although, with less direct person-to-person contact in rural areas, this study explores the possible outcomes of these public health improvements. It's predicted that these improvements helped the decline of the spread of the diseases in the twentieth century throughout both rural and urban areas.

Methods

For several weeks transcriptions of online death records from Mt. Hope Cemetery in Rochester, New York, between the years of 1837 and 1939 were made. There were a total of 8,835 transcriptions completed. The transcriptions included data on the name, age and cause of death of the person, along with the date of death and residency of death. After a few weeks of compiling information, data sets and graphs using Microsoft Excel were made out of the compiled data. Since the transcriptions were filed from Mt. Hope Cemetery in Rochester, New York, they were used to represent an urban sample of the population. The total number of tuberculosis mortality rates were compiled. Deaths under the common names for tuberculosis, such as: phthisis, scrofula or consumption were also included in the compiled data. A graph that represented the mortality rate of the infectious diseases per decade starting with 1840 going all the way to 1929 was created. The decades 1830-39 and 1930-39 were excluded due to relatively small sample sizes that did not include the full decade range. The graph (Figure 1) represents the total number of tuberculosis deaths per decade via Mt. Hope Cemetery per decade.

To collect rural data on tuberculosis mortality rates data collected by Conrad and Crimmins (1978) was used to gather information regarding tuberculosis mortality rates in New York from the years 1890 until the turn of the 20th century. The graph (Figure 2) compares the mortality rates of tuberculosis between urban and rural areas with the tuberculosis mortality rates in urban and rural areas in the years 1890 and 1900. It was difficult finding rural tuberculosis mortality rates throughout the late nineteenth and early twentieth century in specific rural areas of New York. However the data collected by Conrad and Crimmins (1978) put into perspective the mortality rates in rural areas of New York between 1890 and 1900. The data reveals the drop in infectious disease mortality rates, such as tuberculosis, began as public measures were being implemented amongst the public. It is important to mention that many public health measures were not implemented until the turn of the century.

Results

The data Conrad and Crimmins (1978) collected show the tuberculosis death rates in urban areas of New York in 1890 totaled to 308.8 while in rural areas there were 148.8 deaths. Conrad and Crimmins (1978) also had data representing the overall tuberculosis death rates in urban areas of New York in 1900. The urban deaths totaled at 220.3, while there were 138.7 deaths in rural areas of New York. The data reveals that there was a 28.7% decrease in urban areas from 1890 to 1900 and a 7.3% decrease in rural areas between 1890 and 1900. Out of the total transcriptions, 8,835, there were 773 deaths due to tuberculosis. This revealed that out of the sample, 8.75% of the people died due to some form of tuberculosis. There were a total of 111 phthisis deaths, 9 scrofula deaths, 198 tuberculosis deaths and 505 consumption deaths recorded in the transcriptions. However, the decades 1830-39 and 1930-39 were excluded because the sample sizes were relatively small and the decade ranges were not completed. In 1840-49, out of the 406 transcriptions, there were 81 (19.95%) deaths from tuberculosis. In 1850-59, out of the 559 transcriptions, there were 74 (13.24%) deaths from tuberculosis. In 1860-69, out of the 738 transcriptions, there were 93 (12.60%) deaths from tuberculosis. In 1870-79, out of the 944 transcriptions, there were 112 (11.86%) deaths from tuberculosis. In 1880-89, out of the 905 transcriptions, there were 110 (12.15%) deaths from tuberculosis. In 1890-89, out of the 1396 transcriptions, there were 114 (8.17%) deaths from tuberculosis. In 1900-09, out of the 1403 transcriptions, there were 85 (5.94%) deaths from tuberculosis. In 1910-19, out of the 1364 transcriptions, there were 95 (6.69%) deaths from tuberculosis. Lastly, in 1920-29 out of the 656 transcriptions, there were 19 (2.90%) deaths from tuberculosis.

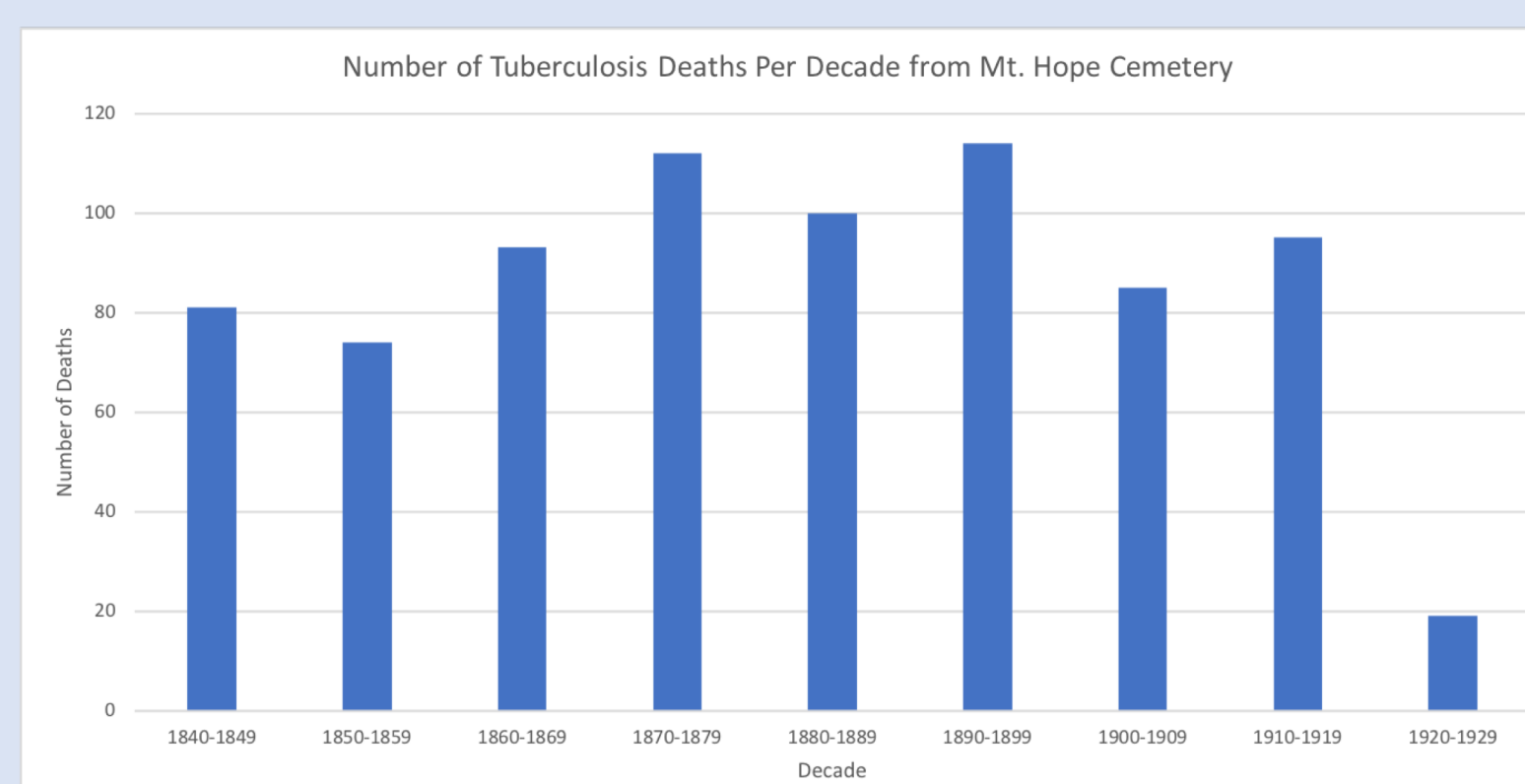


Figure 1

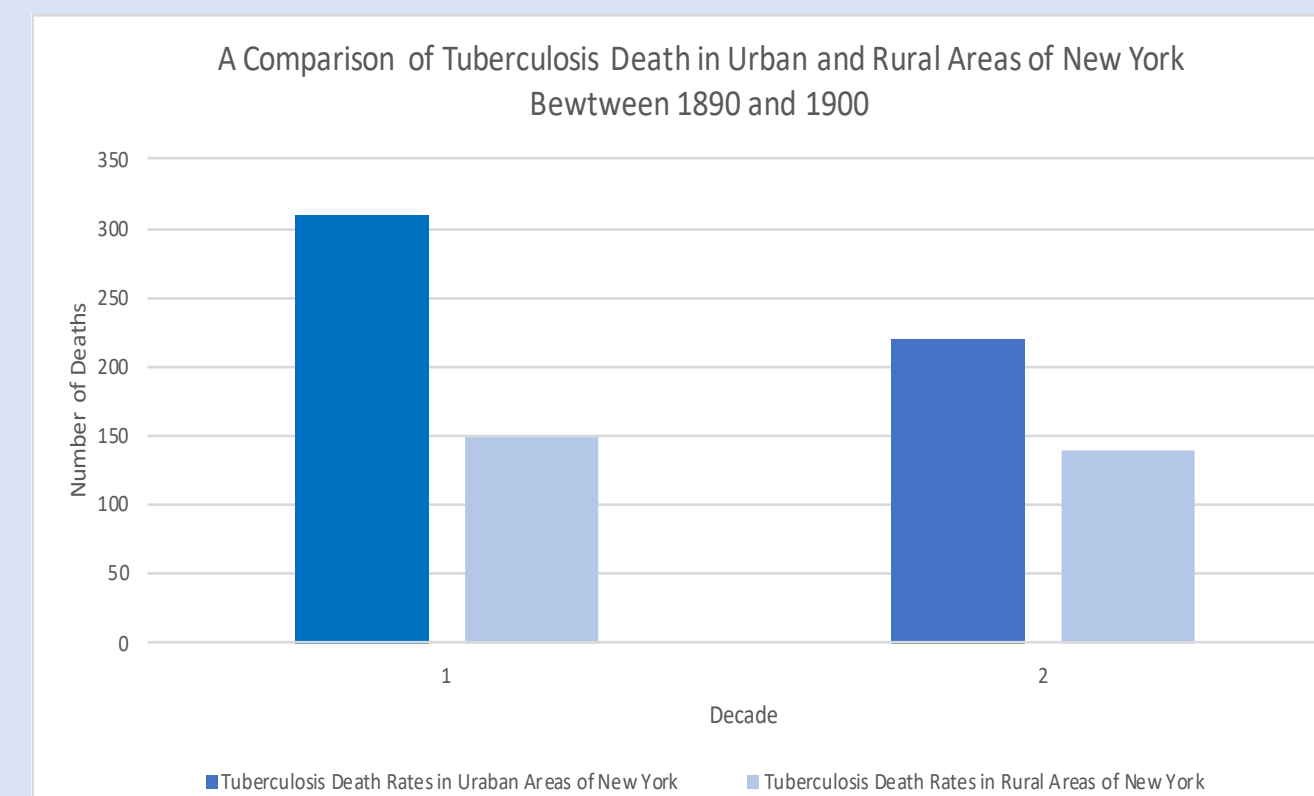


Figure 2

Conclusion

Tuberculosis mortality rates in urban areas were much higher than in rural areas of New York in the late nineteenth and early twentieth centuries. At this time urban areas were living in what we today would consider poor living conditions. Vaccinations were not implemented to the public yet, food and beverage inspections did not exist, people were living in close contact to one another, and there were no proper sewage systems yet. This is where infectious diseases like tuberculosis thrived. However, after the turn of the century, when public health measures were being implemented and taken more seriously, mortality rates due to infectious diseases declined rapidly in urban areas of New York. However, those in rural areas did not experience such high mortality rates due to infectious disease like tuberculosis in both the late nineteenth and early twentieth century. People in rural areas did not die of infectious diseases because they did not live as close to each other like those in urban areas. Hence, infectious diseases did not spread as easily to them.

References

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