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Institutional Tuberculosis:

Tuberculosis Incidence and Mortality in Turn of the Century American Correctional Institutions

Introduction

Since the late 19th century, population and medical censuses have been used by demographers to study family, employment, and migration; these have inspired large-scale surveys of urban disease and living conditions and promoted clearer and consistent record keeping in medical institutions. In the case of the American prison, medical records are important to understand the demographics of an understudied population and institution. The records of Minnesota State Prison offer a demographic perspective of health and disease in American correctional institutions at the turn of the century. Using the disease case study of Tuberculosis, I will show trends in infection, mortality, diagnosis, and treatment within the prison. Between 1883 and 1885, tuberculosis related deaths accounted for 35% of all deaths in the prison. After 1886, after the exercise routine was implemented by the prison physician tuberculosis related deaths increased to 45% of total deaths in the prison, a statistically significant increase in mortality. This increase mortality was likely due to the treatment regime created and implemented by the prison physician.

Study Population

This study uses inmate records from the Minnesota State Prison at Stillwater between 1850 and 1930. This predominately male inmate population was characterized by an ever-increasing number of admissions per year. For example, as described in Figure 1, in 1880 there were 155 admissions to the state prison. Thirty years later in 1910, admissions nearly doubled to 332. Additionally, the rise in admissions was not accompanied by a similar rise in discharge, so the total resident population increased rapidly. Between 1850 and 1930, the prison inmate population of Minnesota increased from 22 to 1,330. The inmate total peaks in 1930, at the height of prohibition in the United States and a period where definition of crime was therefore expanded. The resident population at the State Prison peaked in 1956 with a total of 4, 878 inmates. The population of the prison was predominately male, making up at least 90% of the inmate population of Minnesota between 1860 and 1920, at which time a separate facility for women was created. Between 1850 and 1930, the prison population was over 99.1% male.

Materials and Methods

This paper uses 5804 inmate files from the Minnesota State Prison at Stillwater between 1850 and 1930. This includes inmate medical case files, entering and exit inmate records (recorded by the physician), sick call records, and hygienic inspection records. These data were collected from the Minnesota Historical Society archives and integrated using inmate number. These records include information relating to age, sex, temperance, height, weight, religion, occupation, offence, sentence, sickness complaint, sickness diagnosis, treatments, physical exam records, family medical history, and inmate medical history. This material was originally collected by the physician at the Minnesota State Prison. Entering and exiting inmates received physical exams, performed by the physician, as well as Bertillon measurements. In addition to these records,

sick/call hospital records were recorded by the physician daily. Each day, convicts who were ill reported themselves unfit for duty and were allowed to remain in their cells until sick call. At that time, they were sent to the dispensary for examination and treatment. The very ill were sent to the on-site "hospital," the less ill went back to their cells, and those who were ill but fit for duty went back to work. The physician's report of these incidences is reported in the hospital sick call register.

In addition to quantitative records, qualitative records, including physician's notes, clinic and hospital records, physician's notebooks, private papers from the private practice of each physician, and annual reports of prison administrators, and the prison newspaper (written and edited by inmates) will be used to interpret changes in diagnosis and treatment trends of Tuberculosis between 1880 and 1930.

Tuberculosis Incidence and Mortality

Tuberculosis was present at Minnesota State Prison was present from its creation in 1851 through the mid-20th century. The first tuberculosis death recorded at Minnesota State Prison was a white male, Inmate No. 19, who died in 1851 at the age of forty. Inmate No. 19 was the first of over 1000 patients diagnosed with tuberculosis in the prison between 1850 and 1930, and one of hundreds of deaths from the disease.

On March 15, 1885, 25 inmates visited the prison physician at morning sick call complaining of "weak lungs." The prison physician diagnosed these patients with tuberculosis and sentenced them to an exercise treatment regime. 19th century physicians believed that exercise treatment expanded the lungs and size of the chest, thus improving respiratory health. Regular exercise was often coupled with "outdoor exposure," according the prison physician. In 1886, an indoor exercise facility was built on the grounds of Minnesota state prison to facilitate these exercise treatments. The gymnasium had enough space and equipment for six inmates and included machines and chest weights for exercise. The exercises included resistance strength training and stamina building. The room had windows along the exterior facing wall, which offered two additional treatment forms: sunlight and fresh air.

The prison physician believed the exercise regime was improving the health of the infect inmates. In 1887, he writes, in his personal notebook: "A study of the inmates treated through the year shows many most pleasing results. In those infected the disease was retarded in progress, and for a time, decided physical improvement was noticeable in the increase of weight and lung expansion. Without exception the convicts expressed themselves as much benefited." The death rate does not suggest such improvement. Between 1880 and 1885, tuberculosis related deaths accounted for 35% of all deaths in the prison, a significant increase ($p > .05$). After 1886, after the prison physician implemented the exercise routine, tuberculosis related deaths increased to 47% of total deaths in the prison.

This increase in death rate may have been due directly to the exercise regime implemented by the prison physician. For example, exercise causes a rise in body temperature that can induce a fever in already infected patients. The physician also noted in a number of patient files that "hemorrhaging" occurred during exercise time. Additionally, the physician noted many deaths

that occurred within hours of partaking in the exercise treatment at the prison. This occurs in 1 out of 3 tuberculosis deaths during these years. It appears that the exercise treatment may have served to further agitate the already fragile conditions of the tubercular patients at Minnesota State Prison.

The death rate from TB decreased after 1912, the year the Minnesota State Prison at Stillwater moved to a new location and had more space for inmates and a separate hospital for treating patients, which included a separate quarantine ward for tubercular patients. Overcrowding in the prison made for perfect conditions for tuberculosis to spread among inmates—multiple inmates in cells encouraged the spread of the disease. The new prison location was on top of a hill overlooking the St. Croix River. The higher elevation and facing windows promoted better ventilation in cellblocks and workspaces at the new prison site. Additionally, the new prison included a separate hospital building for the treatment and care of inmates, which included a ward for infectious disease. While it was not limited to only tubercular patients, they remained the majority on the ward.

In 1912, examination and treatment for tubercular inmates also began upon entry to the prison. All prisoners were examined, as occurred since the creation of the prison, upon entry. Those exhibiting any pulmonary weakness were assigned to outdoor work assignments. Additionally, they were assigned a special diet, weighed weekly, and given weekly physical examinations. Beginning in 1911, these patients were also subject to regular sputum tests. If diagnosed with tuberculosis, an inmate was sent to the infectious disease ward of the new prison hospital. On the ward, the inmates lived in isolation and were except from work.

Table 1.
Characteristics of the Sample: Inmates at Minnesota State Prison, 1850-1930

| Year | # of Inmates |
|-------------------------|--------------|
| 1850 | 22 |
| 1860 | 98 |
| 1870 | 385 |
| 1880 | 509 |
| 1890 | 754 |
| 1900 | 834 |
| 1910 | 982 |
| 1920 | 890 |
| 1930 | 1330 |
| Total N = 5804 | |
| Sex (of overall sample) | % of inmates |
| Male | 97.4 |
| Female | 2.6 |
| Birthplace (by area) | % of inmates |
| Northeast | 19.0 |
| Southeast | 18.9 |
| Upper Midwest | 25.5 |
| Lower Midwest | 15.5 |
| International | 21.1 |

Table 1 (continued)

| Occupation (top 3) | % of inmates |
|--------------------|--------------|
| Farmer | 26.6 |
| Laborer | 18.1 |
| Craftsman | 10.2 |

Table 2.

Tuberculosis Incidence at Minnesota State Prison, 1850-1930

| Incidence | | |
|-----------|----------------------------|---------------------------------------|
| Year | % of all medical diagnosis | % of total inmate population infected |
| 1850 | 25 | 19 |
| 1860 | 31 | 20 |
| 1870 | 49 | 23 |
| 1880 | 42 | 29 |
| 1890 | 49 | 34 |
| 1900 | 46 | 31 |
| 1910 | 31 | 21 |
| 1920 | 22 | 14 |
| 1930 | 12 | 8 |

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