

TB in EC:
The 1911 Tuberculosis Outbreak in Sawdust City

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Abstract

Tuberculosis, named for the bacteria *Mycobacterium tuberculosis*, is a terrible illness that can be traced back into the earliest parts of history. It still affects people all over the world today, including the United States where it is making an unfortunate resurgence. There are many academic works focusing on the large-scale effects of tuberculosis throughout history and today, but there are few that focus on one community. This study is focused on the substantial outbreak of tuberculosis in the city of Eau Claire in 1911. Using primary sources pulled from the archives at the Chippewa Valley Museum as well as past scholarship on the epidemiology of tuberculosis throughout history, specifically in the United States, this study will explore the treatments available, preventative measures undertaken by the Visiting Nurses Association and the Wisconsin Anti-Tuberculosis Association, and the implications of poverty and the future of public health in Eau Claire after this outbreak. It argues that despite the substantial public health efforts, all efforts to combat tuberculosis prior of the advent of antibiotics had a very limited impact. In the case of Eau Claire, the lack of a cure combined with the lack of resources and education meant that—despite the best efforts of local and state public health organizations—ultimately the outbreak ended with it burning itself out.

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Introduction

Tuberculosis (known by a variety of colorful names like consumption, phthisis, TB, and its binomial name *Mycobacterium tuberculosis*) is often considered a disease of the past by most. This is simply not true. It is still here and beginning to make a rebound in the public consciousness today, namely in developing parts of the world, though there have been outbreaks of resistant strains in various parts of the United States due to the over prescription of antibiotics. This bacterial disease is not a new disease either. Tuberculosis and the experimentation for it, go back as far as human recorded history.

However, there was not any real medical treatments until the 18th century, when doctors began looking at the bodies of those who died as a result of tuberculosis in order to gain some measure of understanding of the disease. Here, they discovered a specific indicator of infection: the tubercle, which is a hard, nodule that breaks down lung tissue. These tubercles, of course, paired with the already known symptoms: fever, cough that produces bloody phlegm, weight loss, and night sweats. Common treatments at this time were light exercise paired with a good deal of rest, a nutritious diet, and “medication” which often consisted of various natural herbs like licorice to soothe the cough.¹

In the 19th Century, the afflicted were subjected to much of the same treatments, though socially tuberculosis was romanticized quite heavily and became something of a fashion symbol as many big names of this era were stricken with it, like John Keats. It also influenced others, like Charlotte Brontë, who lost both of her sisters to tuberculosis.² This romantic view of tuberculosis reached its height in the Victorian Era, but the discovery that tuberculosis is a

¹ Helen Bynum. *Spitting Blood: The History of Tuberculosis* (Oxford: Oxford University Press, 2005), page 67.

² *Ibid.*, page 88.

bacterium by the German bacteriologist Robert Koch transformed the understanding of this disease into a subject of science. However, the treatments remained largely the same: fresh air, a nutritious diet, and minimal activity. It was not until x-rays became common in the 1930s, and even later, the discovery of antibiotics in the 1940s, that tuberculosis became truly curable. However, even those treatments we know today, the antibiotics specifically, are becoming increasingly less effective.

Wisconsin, namely the city of Eau Claire, has a storied history with the disease that no one has discussed in depth, at least not when it came to the study of the real people afflicted with tuberculosis and those that did all they could in a time when the disease was barely understood and there was hardly anything that could be done for the patients besides making sure they were comfortable. This paper focuses solely on the community of Eau Claire, WI. Of those afflicted however, many were from poor families with little access to proper care, forcing them to rely on a less than perfect public health system, then called a state health agency, that was only the eleventh founded in the country in 1876.³

The main public health groups working against tuberculosis at the time were the Visiting Nurses Association (VNA), a group of women who were on the front lines of trying to fight tuberculosis in the city of Eau Claire, and the Wisconsin Anti-Tuberculosis Association (WATA) who were integral in raising funds for materials and educating the public with traveling exhibits on the dangers of tuberculosis. Both organizations worked side by side, though there were no records of a direct partnership, to get the tuberculosis situation in Eau Claire under control as best they could.

³ Mary Ellen Stolder, "Consumptive Citadel: The Crusade against Tuberculosis in Eau Claire County, 1903-1917," *The Wisconsin Magazine of History* 77, no.4 (Summer, 1994): 264-294, accessed September 28, 2017, <http://www.jstor.org.proxy.uwec.edu/stable/4636514>.

The first-hand accounts from the VNA's home visits were integral to this study, as newspaper articles from the time detailing public response. Both provide insights into patients' lives and the kind of treatments provided to make said patients comfortable, as well as to prevent the spread of tuberculosis as much as possible. Secondary sources that delve deeper into the details of tuberculosis throughout history as well as how WATA was involved in Eau Claire round out the sources used within this study to create a framework based around three key topics: the failures of treatment, prevention, and finally what Eau Claire learned to combat other public health crisis if they arose in the city.

Regarding the tuberculosis outbreak in Eau Claire, public health efforts put forth by the city of Eau Claire and the state of Wisconsin, specifically the Visiting Nurses Association and the Wisconsin Anti-Tuberculosis Association, were ahead of their time and done to the best of their ability. However, there was not a successful conclusion to that narrative. Those efforts were simply not enough to combat the tuberculosis outbreak that struck the city. The lack of education and the lack of resources were fuel to the fire that eventually ended when the outbreak burnt itself out.

Secondary Literature

Scholars often addressed tuberculosis in very broad terms and rarely focused on the lives of the afflicted. Researchers also focus mainly on Europe, rather than America in their studies. Such is the case with *Burdens of Disease: Epidemics and Human Response in Western History* by J.N. Hays (2009). The book is an overview of many different epidemics that struck the world throughout western history. Tuberculosis only has a chapter devoted to it where Hays discusses how poverty plays such a significant role in its virulence from the early 19th Century before tapering off in the 20th Century due to increased public awareness and improvements in Western standards of living.

Hays' thesis revolves around key points of city living: congested homes, poor diet, and lack of knowledge about the disease.⁴ He discusses these things at length, offering a summary of the history of tuberculosis throughout the western world with them as a framework, though he does mention how tuberculosis' effect on more affluent populations led to better public health efforts. He also, spends a bit of that small chapter on the treatments and preventative measures taken to control the spread of tuberculosis through the 19th century and 20th century: notably the development of sanitariums to house the afflicted away from the rest of the population, strange remedies that sprang up every so often that claimed to be a cure, and the pasteurization of milk to lessen the transmission of *M. bovis* (bovine tuberculosis) to humans to name a few.⁵

Hays goes into public response briefly, with many short asides on the topics listed above, though he references the European more than the American public with these examples for the reason stated before—many academics tend to focus their attention on Europe rather than

⁴ J.N. Hays, *Burdens of Disease: Epidemics and Human Response in Western History* (New Brunswick: Rutgers University Press, 2009), chap. 8.

⁵ Hays, *Burdens of Disease*, chap. 8.

America when doing studies on tuberculosis. Hays refers to the growing problem with tuberculosis in the world today as well, but he does not connect how the fight against tuberculosis was or was not applied to other epidemics, nor does he mention the city of Eau Claire.

Spitting Blood: The History of Tuberculosis by Helen Bynum from 2005 offers an even more in depth look at tuberculosis, even though it still maintains a focus on Europe. Bynum focuses her attention on the United Kingdom (though America comes up very briefly) but the themes of poverty and industrialization she brings up are very reminiscent of Hays. Bynum also addresses the fact that tuberculosis is not an outdated subject, though it almost was due to the strong efforts to eradicate it in the late 20th century. These efforts unfortunately failed.⁶ With a whole book devoted to the study of the history surrounding tuberculosis, Bynum goes very in depth on treatments and preventative measures not only during the 20th century, but in earlier periods as doctors struggled to understand just what they were up against. She goes into detail on the epidemiology and the pathology of tuberculosis by using various reports from anatomists who studied the cadavers of tuberculosis victims.⁷

Though the early reports are not a focus of this capstone, having an idea of how this disease affected the body makes it even more tangible, as does the information of later chapters when Bynum focuses her attention on the 19th century and discusses the gritty reality that people were beginning to panic that they might become infected from something as simple as touching a library book. Preventative measures mentioned in Bynum's book extend to this paper as well,

⁶ Helen Bynum. *Spitting Blood: The History of Tuberculosis* (Oxford: Oxford University Press, 2005).

⁷ *Ibid.* page 50-53.

like increased public awareness through education and propaganda. Bynum's work falls short because it does not connect tuberculosis to the prevention of other epidemics.

The third academic work, *Living in the Shadow of Death: Tuberculosis and the Social Experience of Illness in American History* by Sheila Rothman (1995) offers a look at tuberculosis from a specifically American standpoint. Rothman takes a very personal approach with her book, discussing the illness through the personal journals of those suffering from Tuberculosis as well as archived materials from institutions who were trying to treat it. Like Hays, Rothman makes connections to poverty as a catalyst and accomplice for tuberculosis, which will also be touched on in this project as well.

She also discusses the romanticism surrounding "The White Plague" to an extent, though the American experience is much more involved with the idea of the Wild West and the romanticism surrounding that.⁸ Her thesis revolves more around the idea of tuberculosis being "beautifully tragic", at least for people at the time. This academic piece, as mentioned before, offers a glimpse at the topic of tuberculosis in America, and does so through the voices of those that suffered from the disease. However, this project does not aim to romanticize tuberculosis in any way, however, as that outlook on the disease tapered off in the early 20th century.

Narrowing the focus to Wisconsin, Harold Holand published "Twenty-Two against the Plague: The Founding of the Wisconsin Anti-Tuberculosis Association." in 1958 in *The Wisconsin Magazine of History*. His article offers a look at efforts by WATA, or the Anti-Tuberculosis Association of Wisconsin, after its inception in 1908 as well as the major players who helped get it off the ground and were integral to their fundraising efforts, which were quite

⁸ Sheila Rothman. *Living in the Shadow of Death: Tuberculosis and the Social Experience of Illness in American History* (Baltimore: John Hopkins University Press, 1995).

extraordinary for the time as well as for the state. This older still offers valuable information, especially as comparatively few studies focused on the history of tuberculosis in America.

Wisconsin, as Holand puts forth, is a very interesting case when it comes to trying to eradicate tuberculosis from the state because of how much money they were able to raise and the efforts they made to educate the public.⁹ Holand does not focus on the aspects of poverty and the effects of it on tuberculosis patients, which allows for a gap that needs to be filled by a study like this one.

Finally, the article “Consumptive Citadel: The Crusade against Tuberculosis in Eau Claire County, 1903-1917,” by Mary Ellen Stolder (1994) focuses solely on the efforts of WATA and the county to stop tuberculosis in Eau Claire County, by relying on propaganda, education efforts, various legislative endeavors, and the Mt. Washington Sanatorium. Stolder uses the epidemic as the backdrop for her thesis that Wisconsin was a leader for large scale public health efforts that are precursors for the ones we see carried out today around the world.¹⁰ This narrative goes along with the previous article by Holand, focusing more on main players in the various relief efforts instead of the effect on those afflicted.

Stolder’s study does not focus solely on the city of Eau Claire either, despite its title. In fact, the only thing that ties it to the city is the mention of the Mt. Washington Sanatorium. Stolder’s article leaves something to be desired, in that it fails to acknowledge that although the tuberculosis crisis was over by 1914, subsequent public health crisis, namely the Spanish Flu,

⁹ Harold Holand, “Twenty-Two against the Plague: The Founding of the Wisconsin Anti-Tuberculosis Association,” *The Wisconsin Magazine of History* 42, no. 1 (Autumn, 1958): 29-34, accessed September 28, 2017, <http://www.jstor.org.proxy.uwec.edu/stable/4633342>.

¹⁰ Mary Ellen Stolder, “Consumptive Citadel: The Crusade against Tuberculosis in Eau Claire County, 1903-1917,” *The Wisconsin Magazine of History* 77, no.4 (Summer, 1994): 264-294, accessed September 28, 2017, <http://www.jstor.org.proxy.uwec.edu/stable/4636514>.

would erupt only a few years later. The narrative of tuberculosis presenter-emerging as a major public health concern in the world today is also addressed in Stolder's article, a topic that this paper touches on very briefly.

The Outbreak

We may never know the exact numbers of those affected by tuberculosis in Eau Claire in 1911, as records, both medical and historical, do not offer many details for a variety of reasons. Tuberculosis at this time was also very difficult to diagnose and hence many of its victims were unaware they had the disease. It also does not cut down people quickly like a viral infection, unless there are other factors involved like an increased susceptibility from a weakened immune system or age for example. With that in mind, tuberculosis was still very much a problem in the eyes of the public judging by a few newspaper articles from the time calling for more public awareness and effort. These articles also give an idea of how many cases there were in Eau Claire, WI and where they occurred, making it easier to draw maps of the affected areas and understand the scale of the epidemic. One article from 1910, appropriately titled “The Tuberculosis Situation in Eau Claire” had this to say about the number of victims and where they were clustered in the city:

“[...] the average number of 17 cases per year or a death rate of 9.59 per 10,000. This is somewhat less than the state at large, which is 10.70 per 10,000. 57 cases have been uncovered in this survey. Doubtless however, there are many cases of tuberculosis in town that no one knows about. An estimate has been made that there are five times as many living cases of tuberculosis as deaths per year. [...] on the above basis there would be 85 living cases at the present time.”¹¹

With these numbers in mind, the outbreak was arguably not the largest in history, but it no doubt had a significant impact on the community of almost 19,000 inhabitants.¹² However, numbers and statistics are only one part of the story, and not the focus of this study which is the

¹¹ “The Tuberculosis Situation in Eau Claire”, *Eau Claire Leader*, October 21, 1910, accessed September 27, 2017, ACCESS Newspaper Archive.

¹² US Census Bureau, “Census of Population and Housing: 1910,” Statistics for Wisconsin. <https://www.census.gov/prod/www/dennial.html>.

people and the organizations that helped them. In the same news article, there is mention of where the outbreak is affecting the most people. “Eau Claire has two districts where the contagion or infection has been very bad. One of these districts extends from East Madison Street north, and the other is from Water Street north to Whipple.”¹³ In the map of Eau Claire’s neighborhoods below, these areas are outlined in red.

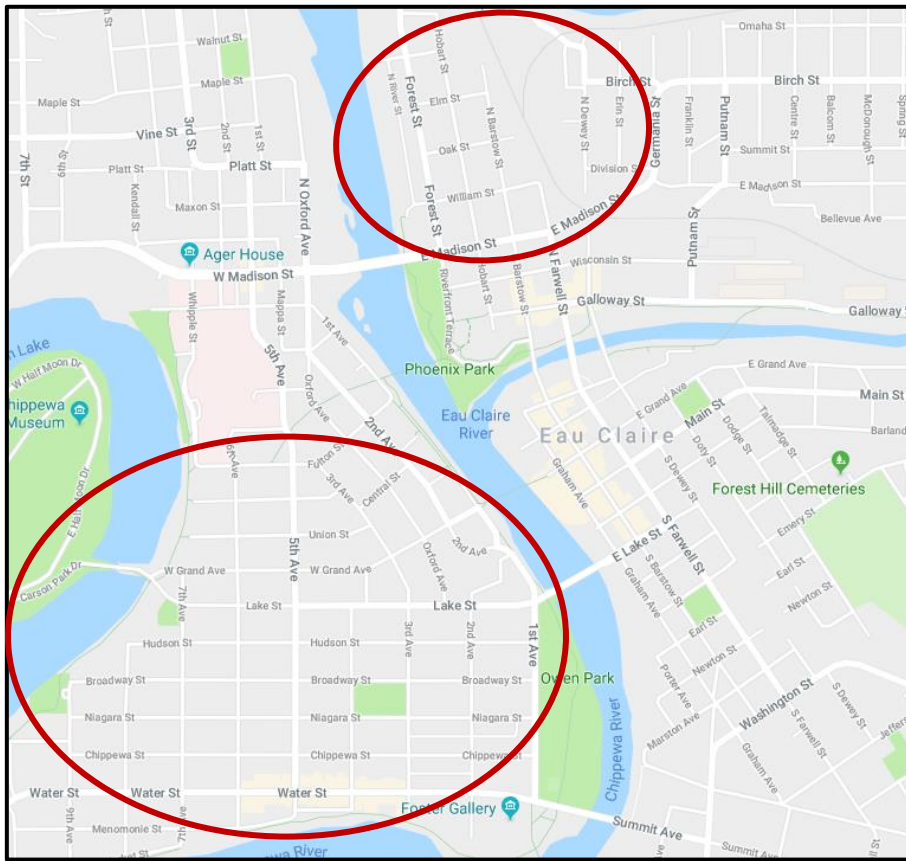


Fig. 1 Map of Eau Claire with outbreak hotspots outlined.¹⁴

Unfortunately, we may never know who patient zero was for the Eau Claire outbreak.

However, in another article from around the same time period, it was theorized by a VNA nurse

¹³ Ibid.

¹⁴ *Eau Claire, WI*. Map. Mountain View: Google LLC, 2017. Google Maps. Electronic, <https://www.google.com/maps/@44.8129829,-91.5041412,15z>. (accessed December 7, 2017).

that a few years prior, 25% of cases within the city could be traced to one case.¹⁵ Though it's never made public who this case was, it speaks to the virulent nature of tuberculosis more than anything, especially in a growing urban environment like Eau Claire, WI at that time.

The last matter of note regarding the outbreak itself is who was suffering from tuberculosis the most. Though tuberculosis has never spared a particular group throughout history, striking down the rich and poor equally, it became a growing problem within metropolitan areas as poor families were often forced to live in cramped, stuffy dwellings. This is true for Eau Claire as well, judging by VNA reports of areas in the city where people were living in terrible conditions, notably various apartment blocks on Water Street that had boarders and used rooms with no windows as bedrooms out of necessity even though they were breeding grounds for bacteria.¹⁶ Some of these apartments also used a nearby well, which was surrounded by garbage and other refuse.¹⁷

This part of Eau Claire, at the very least, was not the cleanest or safest place, the perfect location for an infectious disease that was incredibly hard to diagnose at the time. It was often too late before it was transmitted to the next victim when VNA nurses finally came calling and looked for the standard signs: fever, persistent cough, and lethargy. Thankfully, we have the technology today to catch this disease earlier than ever before, but education and the treatment thereafter still matter a great deal, which Eau Claire struggled with during this outbreak.

¹⁵ "The Fight on Tuberculosis" *Eau Claire Leader*, August 18, 1910, accessed September 27, 2017, ACCESS Newspaper Archive.

¹⁶ Nurse's Report of the Eau Claire Situation, April 1911, box 2, folder 2, Chippewa Valley Museum Archives, Chippewa Valley Museum, Eau Claire, WI.

¹⁷ Ibid.

Failure of Treatments

Before tuberculosis struck the city of Eau Claire, Robert Koch, a bacteriologist from Germany, made the discovery that tuberculosis was not a disease caused by heredity, which was the predominant thought for decades. Instead, Koch proved with his 1882 study that tuberculosis was caused by a bacterium, which is known today as *Mycobacterium tuberculosis*. Even with a cause established a little less than three decades before the outbreak in Eau Claire, treatments were still rather rudimentary, and most people did not understand how contagions' such as tuberculosis worked, or outright did not believe the theory. This can be corroborated, at least in one case, with a story from a VNA nurse's home visit record:

“Woman looks pale and delicate. Has had hemorrhage from the lungs twice. She said the cause was that she had caught a cold and was working too hard. Has a fairly good appetite and sleeps with windows open. Is living with a daughter that had TB, but they don't believe it is contagious.”¹⁸

As shown in this direct quote, there are some references to what kind of treatments a tuberculosis patient could expect if they were well enough to stay at home. Most were prescribed the simple remedy of keeping windows open to allow fresh air to circulate throughout a home and specifically the room where the afflicted was sleeping. This remedy was even prescribed during the frigid winter months. Families that could afford it even went to such lengths as erecting tents in their yards for family members to reside in all year round.¹⁹ Though, as always, not everyone was willing to go along with this, or simply did not have the means to do so as this snippet from a report on the situation in Eau Claire mentions. “There is scarcely a

¹⁸ VNA nurse, Nurses Files on Visitation of TB Patients at Home, June 14, 1911, box 2, folder 2, Chippewa Valley Museum Archives, Chippewa Valley Museum, Eau Claire, WI.

¹⁹ Mary Ellen Stolder, “Consumptive Citadel: The Crusade against Tuberculosis in Eau Claire County, 1903-1917,” *The Wisconsin Magazine of History* 77, no.4 (Summer, 1994): 264-294, accessed September 28, 2017, <http://www.jstor.org.proxy.uwec.edu/stable/4636514>.

house in Eau Claire without its storm windows and this means every window, even in the poorest house, at least have a few. [...] Most houses I have been in are hot and stuffy and the air is not as good as it should be.”²⁰

Unfortunately, there was not much else that could be done for those suffering from tuberculosis at this time, besides making sure they were comfortable—or as comfortable as they could get until the end finally came. Few, if they could afford it, would pay to stay in a sanatorium to get *proper* care: plenty of fresh air, light exercise, and a healthy, nutritious diet.



Fig 2. Elevated View of the Wisconsin State Sanatorium.²¹

In 1911, Eau Claire did not have a large-scale tuberculosis sanatorium within the city limits, forcing many to travel to other sanatoriums in the state, such as the Wisconsin State

²⁰ Nurse’s Report of the Eau Claire Situation, April 1911, box 2, folder 2, Chippewa Valley Museum Archives, Chippewa Valley Museum, Eau Claire, WI.

²¹ Wisconsin Historical Society, Creator Unknown, Tuberculosis Sanatorium, 37726. Viewed online at (<https://www.wisconsinhistory.org/Records/Image/IM37726>).

Sanatorium in Wales, Wisconsin, which was the first and often considered the best example for an institution of that type. Though it was somewhat falling out of fashion along with the idea of the untamed west, some did travel westward with the hope the fresh mountain air, or the dry desert air in contrast, would offer some sort of respite from tuberculosis. One person during the 1911 report on The Eau Claire Situation lists one patient as having checked into a sanatorium in New Mexico.²²

Most patients stayed at home, however, and relied on their families or on nurses from the VNA to make house calls. These reports have quite a bit to say about the conditions of homes like the report above, as well as the makeshift sanatorium in town known as the Montgomery Hospital which they labeled “a filthy place where cases are mixed indiscriminately” and where patients were not receiving proper care.^{23,24} In most cases, it was simply easier to stay at home where the patient’s family and hopefully a visiting nurse could help. VNA nurses did quite a lot besides just tending to the sick. Below is a list of some of their duties as outlined by the Eau Claire Situation Report:

“To a great extent the bed cases are being cared for by members of the family. The nurse should, however, follow up all cases and see that the physician’s orders are carried out and giving instruction in the care of the dishes and ventilation. She should report to the physician in charge when she finds anything wrong. She should do the dressing and bathe patients in need of it. She should visit at least once a week, keep track of removals, and report them promptly to the Health Department so that the house may be disinfected or placarded if necessary. She should assist in preparing the house for fumigation and see that it is properly done.”²⁵

²² Ibid., page 1.

²³ Ibid., page 3.

²⁴ VNA nurse, Nurses Files on Visitation of TB Patients at Home, April 7, 1911, box 2, folder 8, Chippewa Valley Museum Archives, Chippewa Valley Museum, Eau Claire, WI.

²⁵ VNA nurse, Nurses Files on Visitation of TB Patients at Home, April 7, 1911, box 2, folder 8, Chippewa Valley Museum Archives, Chippewa Valley Museum, Eau Claire, WI.

As mentioned before the VNA did so much for the City of Eau Claire and it is evident by the kinds of things these women were made to do for their patients, going far beyond what we think a nurse's duties are to try and help. However, even with the considerable number of members of VNA nurses operating around the city and their obvious dedication to the cause, a lot of people still perished from tuberculosis in Eau Claire. The deaths reflect the fact that the illness was not entirely understood as mentioned previously, even at that point in 1911, treatments were largely ineffective, and poverty among the afflicted population increased the death toll.

Hays mentions three of the most prominent ideas surrounding the possible cause of tuberculosis in *Burdens of Disease* (2009). "Tuberculosis was attributed to a variety of causes [in the 19th century]: bad air, bad habits, heredity."²⁶ Because these were the leading ideas of the day, efforts to combat tuberculosis focused on them, in Eau Claire as well as various other places around the world, even though these efforts were rarely effective.

The germ theory was just starting to take off only to be met with opposition because it was not considered a satisfactory answer to the problem in the public's eyes.²⁷ Views shifted as problems continued to rise, though they were slow to evolve. Compulsory notification on the part of doctors to state or national health agencies for all tuberculosis cases was especially unpopular. Life-insurance policies were at the center of this, because they were not forgiving and excluded tuberculosis as a covered ailment. This often left families impoverished when insurance companies refused to pay for a documented victim of tuberculosis. Wisconsin put compulsory reporting laws in place in 1905, and were met by the same resistance from

²⁶ J.N. Hays, *Burdens of Disease: Epidemics and Human Response in Western History* (New Brunswick: Rutgers University Press, 2009), chap. 8., pg. 167.

²⁷ *Ibid.*, page 160.

physicians, leading to discrepancies about the actual number of those who died from tuberculosis as Stolder mentioned in “Consumptive Citadel.” Stolder also notes that the deaths in Eau Claire numbered close to 270 from tuberculosis in the area between 1901-1911.²⁸

These circumstances led people to seek less than reliable “cures”, anything that could possibly help them. Hays mentioned this as a small aside in *Burdens of Disease*, offering that these remedies were offered by quack *and* some legitimate doctors while vaccines remained controversial.²⁹ These remedies were particularly popular with women, especially those who lived in poverty. In Eau Claire, a few patients being visited by VNA nurses were said to be visiting the local druggist rather than visit local physicians. The Eau Claire Leader did a small story on one of these “cures” and asked local doctors what they thought of the Friedmann Cure, a revolutionary treatment made from lung cultures of turtles. They were hopeful, but ultimately unconvinced of its efficacy.³⁰

The consequences of poverty also had dangerous costs for seeking proper treatment, especially in Eau Claire. Unfortunately for the congested masses living in rapidly growing cities across the nation and the world, beliefs centered on the idea that becoming ill with tuberculosis was entirely the fault of the person that fell ill IF they were impoverished. These views, as mentioned before, did nothing to really help those afflicted with tuberculosis, forcing many to rely on organizations like the VNA who relied on donations from local business to function.

²⁸ Mary Ellen Stolder, “Consumptive Citadel: The Crusade against Tuberculosis in Eau Claire County, 1903-1917,” *The Wisconsin Magazine of History* 77, no.4 (Summer, 1994): 264-294, accessed September 28, 2017, <http://www.jstor.org.proxy.uwec.edu/stable/4636514>.

²⁹ J.N. Hays, *Burdens of Disease: Epidemics and Human Response in Western History* (New Brunswick: Rutgers University Press, 2009), chap. 8., pg.172.

³⁰ “Local M.D.’s Doubt the Cure,” *Eau Claire Leader*, December 18, 1912, accessed September 27, 2017, ACCESS Newspaper Archive.

These circumstances culminated in a perfect storm that did not fare well for the afflicted in Eau Claire.

Failure of Prevention

The idea of tuberculosis prevention in and around Wisconsin was met with a bit more success than that of treatment, though efforts in this category were still a bit archaic as seen in the physical methods employed by organizations such as the VNA and families caring for sick relatives. In the case of organizations like WATA, whose prevention efforts were based on educating the public, they were rather innovative. It can be argued those kinds of efforts were effective as well. The biggest step forward, regarding the time, was the implementation of sanatoriums to separate the afflicted from the rest of society, though this was not always the most affordable or most comfortable option for tuberculosis patients as mentioned earlier. This section seeks to prove, that however innovative, most methods of prevention were not effective, at least during the 1911 Eau Claire outbreak.

The physical prevention methods for tuberculosis at the time were quite interesting to say the least and are somewhat still in use today, though under a very different context. First, there is the simple practice of using sputum paper, a special foldable container made of thin cardboard, which would be burned to keep the patient's bloody phlegm laden spit from getting everywhere and spreading the tuberculosis bacteria to family members or other patients depending on the setting.³¹ In Eau Claire, these materials were offered to them by nurses from the VNA, and the families were taught how to dispose of them properly along with the other tasks the nurses had to perform.

Many visitation records list sputum papers as one of the many supplies VNS nurses provided to patients in Eau Claire, as well as comments if the patients were actively using them

³¹ Helen Bynum. *Spitting Blood: The History of Tuberculosis* (Oxford: Oxford University Press, 2005), pg.117.

and disposing of them properly.³² This method of containing and disposing of sputum is still used today in a variety of capacities, whether it is in the form of paper, plastic, or metal cups, and disposable medical masks that can be used to contain the sputum/saliva that is expectorated during a cough. Many of these products are sold commercially today as well.

Even with this landmark mode of prevention, people still practiced unsafe habits, as some do for a variety of reasons, and the public started to latch onto the idea of germs and contamination thanks to media attention, creating a small hysteria, specifically around the possible contamination of library books, since anyone could access them, as Helen Bynum points out quickly in *Spitting Blood*, which added to the sensationalism surrounding germ theory.³³ This sensationalism resulted in a number of companies producing various disinfectant products, some that worked and some that did not whatsoever.

Besides the use of sputum paper and other receptacles, the most popular method of preventing the spread of tuberculosis was fumigation. This process happened in a number of ways, but more often than not it was done in residential homes after a tuberculosis patient died or moved out for any reason. This was usually carried out by someone from the Board of Health, though in Eau Claire's case, it was done most often by the undertaker, and "done rightly" as mentioned by one of the head VNA nurses in the Situation in Eau Claire Report of 1911.³⁴ Like most things overseen by the VNA in Eau Claire, the procedure for how to do so was very detailed. Here is some of what was written in the Situation in Eau Claire Report:

³² Nurses Files on Visitation of TB Patients at Home, box 2, folder 8, Chippewa Valley Museum Archives, Chippewa Valley Museum, Eau Claire, WI.

³³ Helen Bynum. *Spitting Blood*. pg. 118.

³⁴ Nurse's Report of the Eau Claire Situation, April 1911, box 2, folder 2, Chippewa Valley Museum Archives, Chippewa Valley Museum, Eau Claire, WI.

“Disinfection as done by the inspector of the Heath Department does not comply with the methods endorsed by the metropolitan health departments. In many cases the work is done rightly. The undertaker, [name is unable to be disclosed], from what I can learn, does much of the disinfection after death and does it properly. [...] the superintendent of schools uses the formaldehyde and permanganate of potassium method when whenever disinfection when necessary. In many cases, however, the De Pere Candle is used in preference to the regulation formaldehyde method. Some of the local physicians recommend it, citing the recommendation of the Michigan State Board of Health, as well as the fact that Minneapolis uses it largely. The liquid formaldehyde and permanganate of potassium, seems to have fallen into disuse. Through an accident resulting probably from careless application. Apparently, fumigation itself, as an effective means of disinfection, seems unfortunately to have fallen into disrepute locally, many believing soap and water sufficient.”³⁵

As seen above, the VNA was concerned with fumigation enough to warrant it being mentioned in a report, making it obvious how important of a procedure it was in the efforts to control and prevent the spread of tuberculosis in the city of Eau Claire. Fumigation with the chemicals formaldehyde and potassium permanganate was done regularly in other parts of the nation as well of the world, so much so that companies like Johnson and Johnson, of the BAND-AID® and TYLENOL® fame, mass produced fumigators for the public.³⁶ Companies also produced “candles”, which often referred to an apparatus that evaporated liquid formaldehyde or a true paraffin candle with formaldehyde contained within it.³⁷ The latter is the exact same method mentioned in the Eau Claire Situation report as a preferred method, though it was of dubious effectiveness. .

³⁵ Nurse’s Report of the Eau Claire Situation, April 1911, box 2, folder 2, Chippewa Valley Museum Archives, Chippewa Valley Museum, Eau Claire, WI. Page. 6.

³⁶ E. A. Gardner and M. L. Holm, “Formaldehyde Disinfection with Special Reference to the Comparative Value of Some of the Proprietary Products”, *The Journal of Infectious Diseases* 7, No. 5. (Oct. 25, 1910): 641-663, accessed November 14, 2017, <http://www.jstor.org/stable/30071856>.

³⁷ Ibid.

This fumigation method was to be used in a completely closed off room, with windows, doors, and any other possible crack or gap around the room sealed. Bedding and other materials such as books used by the afflicted were to be disinfected in this way as well. The idea that the undertaker would complete this process is not entirely out of place as formaldehyde has commonly been used to embalm the deceased.

The fact that these apparatuses and chemicals were sold commercially at this time, makes the distrust of this technique understandable to extent when looking at the dangers surrounding rampant improper handling procedures of these dangerous chemicals by the untrained public that we would not think twice about doing today. Formaldehyde is a dangerous chemical when ingested or inhaled, as is potassium permanganate. If people were not following directions to the letter, or in some cases, the product simply did not work properly, leaving tuberculosis bacteria or formaldehyde residue behind, more people would become ill and die. These instances surely resulted in people's distrust in the practice, leading to the unhealthy practice of only using soap and water. There was one case in particular noted in the patient reports that stated a family of six had all died from tuberculosis across the street from another house where another patient was living. This house was apparently not fumigated before another family could move in, and that next family had members suffering from tuberculosis.³⁸

For that reason alone, education of the public, by far, was the most important aspect of tuberculosis prevention. The Wisconsin Anti-Tuberculosis Association, or WATA, and their efforts were integral here. Through exhibits and legislation, those efforts of the WATA were

³⁸ Nurses Files on Visitation of TB Patients at Home, box 2, folder 8, Chippewa Valley Museum Archives, Chippewa Valley Museum, Eau Claire, WI.

revolutionary and unlike anything else in the United States at the time, especially when it came to how much money they were able to raise for the afflicted. They were able to raise these funds by selling Christmas Seals®, which were special stamps with anti-tuberculosis messages or imagery, notably the American Lung Association’s double cross logo on them.³⁹ They are still sold today on the American Lung Association website.



Fig 3. ALA 2016 Christmas Seal®.⁴⁰

The first iteration of this campaign in 1908 raised \$8,000, according to Harold Holand, and \$23,000 the year after.⁴¹ Counting for inflation, those totals would today be roughly \$200,000 and \$590,000 respectively. Through these massive profits, WATA was able not only

³⁹ Mary Ellen Stolder, “Consumptive Citadel: The Crusade against Tuberculosis in Eau Claire County, 1903-1917,” *The Wisconsin Magazine of History* 77, no.4 (Summer, 1994): 264-294, accessed September 28, 2017, <http://www.jstor.org.proxy.uwec.edu/stable/4636514>.

⁴⁰ “American Lung Association 2016 Christmas Seal®.” Digital Image. Christmas Seal® Gallery. 2017. Accessed December 7, 2017. <http://www.christmasseals.org/gallery/>.

⁴¹ Harold Holand, “Twenty-Two against the Plague: The Founding of the Wisconsin Anti-Tuberculosis Association,” *The Wisconsin Magazine of History* 42, no. 1 (Autumn, 1958): 29-34, accessed September 28, 2017, <http://www.jstor.org.proxy.uwec.edu/stable/4633342>.

able to help those afflicted with tuberculosis be housed in sanatoriums somewhere in Wisconsin or the United States, they were also able to fund a large-scale anti-tuberculosis education effort, sending free, large scale exhibits around the state filled with propaganda on the dangers of tuberculosis and what you needed to do to prevent catching and spreading it.⁴²

These exhibits were very popular and the VNA nurses even requested one be brought to Eau Claire in winter to warn people about the dangerous of an unventilated home. “Man is not a hibernating animal and needs fresh air quite as much in the winter as he does in the summer.”⁴³

The VNA and WATA worked together in one instance to help bring about the change in drinking foundations in the city’s schools, doing away with common drinking cups in favor of more hygienic “bubblers”—the drinking fountain design people often take for granted today.⁴⁴



Fig. 4 Anti-Tuberculosis Railway Exhibit.⁴⁵

⁴² Mary Ellen Stolder, “Consumptive Citadel”. Page 269.

⁴³ Nurse’s Report of the Eau Claire Situation, April 1911, box 2, folder 2, Chippewa Valley Museum Archives, Chippewa Valley Museum, Eau Claire, WI. Page. 6.

⁴⁴ Mary Ellen Stolder, “Consumptive Citadel”. Page 278.

⁴⁵ Wisconsin Historical Society, Creator Unknown, Anti-Tuberculosis Railway Exhibit, 40310. Viewed online at (<https://www.wisconsinhistory.org/Records/Image/IM40310>).

Besides these exhibits and the new drinking fountains in schools, WATA was largely involved in passing legislation about the pasteurization of milk because of the *M. bovis* bacterium, responsible for bovine tuberculosis, that could be transferred to humans through tainted milk. They were met with resistance from dairy farmers, even though their revolutionary tuberculin tests worked:

“The campaign for the elimination of tuberculosis among cattle had been going on since 1894, when Dr. H. L. Russell, the first bacteriologist of the state agricultural experiment station, had tested the thirty prize cattle of the College of Agriculture and had found, by tuberculin test and post mortem, that twenty-five were tuberculous.”⁴⁶

Newspapers around the Eau Claire area began to report on new measures to prevent tainted milk from being put on kitchen tables, making it unlawful to sell milk or dairy products without a proper license. They even printed the names of those that already applied for licenses to make it a more appealing venture for other dairy sellers.⁴⁷

Besides the commendable education and legislation efforts of WATA that certainly did some good for the city of Eau Claire, the advent of sanatoriums as a means of *treating* tuberculosis patients was another leap forward in the realm of tuberculosis prevention. Their original purpose was to heal the afflicted, offering them some respite from their lives. However, the treatment offered there was nothing special: plenty of ventilation, light exercise (at the discretion of physicians), and a nutritious diet. It makes more sense that sanatoriums would be considered a method of prevention instead of a method of treatment, though future iterations throughout the decades offered more options to treat patients.

⁴⁶ Harold Holand, “Twenty-Two against the Plague”.

⁴⁷ “Those Who Sell Milk Must File Statements”, *Eau Claire Leader*, April 15, 1911, accessed September 27, 2017, ACCESS Newspaper Archive.

The sanatorium, or sanatoria, came into vogue after Doctor Livingston Trudeau founded the first one at Saranac Lake in the Adirondack Mountains. Taking cues from Dr. Trudeau, sanatoriums began showing up all over the country and the world, offering tuberculosis patients a bit of relief. Wisconsin was no stranger to this; there were five county institutions in the state by 1911, in Milwaukee, Racine, Outagamie, Douglas (which was also an asylum), and Manitowoc, all of which offered the regimen of fresh air, light exercise, and a high-quality diet.⁴⁸ Eau Claire had plans to build one of its own during 1911 in response to the growing number of active tuberculosis cases. Unfortunately, the Mt. Washington Sanatorium was not finished until 1913, after many problems procuring bids that were reasonable. Even then, it could only hold around 25 people, and many were forced to wait for admittance because of that.⁴⁹ However, it was able to double its capacity in 1917 after receiving the go ahead to erect an addition onto the original building.⁵⁰

Sanatoriums were also being considered businesses by the directors since people were paying for a spot there. This created a great deal of issues for patients, especially those who were seriously ill. Some of these terminal patients were even being told to leave, because they were thought to be a discouraging presence for new patients.⁵¹ This does not mean such things occurred at the sanatoria of Wisconsin, though it is still important to take it into consideration, as well as the possibility patients would often check themselves out of their own regard, noticing

⁴⁸ Mary Ellen Stolder, "Consumptive Citadel". Page 275.

⁴⁹ Ibid., page 282.

⁵⁰ Ibid., page 282.

⁵¹ J.N. Hays, *Burdens of Disease: Epidemics and Human Response in Western History* (New Brunswick: Rutgers University Press, 2009), chap. 8., page 171.

that they were not getting any better, and preferring to die at home amongst their family instead of in an institution. Of this, there are at least a few instances written about by historians.⁵²

Eau Claire surely had the best of intentions with its efforts during the 1911 outbreak and onwards, but were they enough? One could make the argument that they were. WATA and the VNA did all that they could to raise money, provide education, and physically work towards preventing the spread of tuberculosis within Eau Claire. However, that help came a bit too late. If the city and the state were more proactive in putting together these education programs and providing resources to the afflicted, perhaps the outbreak could have been shortened. An article from the Eau Claire Leader in 1910 where various citizens were asked what they thought should be done lay out Eau Claire's issues rather well, "Wisconsin was spending \$100,000 a year .to protect game, and hardly anything for the 'health of the people.'"⁵³

Compared to the amount of money being raised by WATA, imagine what they could have done with \$100,000? Or for that matter, what the VNA, who often relied on the donations from businesses, could have done with it? Perhaps with a bigger budget more people could have been educated or persuaded to practice safe habits? Unfortunately, this was not so, and the city suffered for it, namely those that languished in the poorest districts within the city, unable to do anything but ask for help from organizations like the VNA, if they even did so at all. Better prevention methods such as early detection from X-Rays as well as vaccination would not be around until long after the outbreak of 1911. Overall, it was the of lack of public knowledge, lack

⁵² Mary Ellen Stolder, "Consumptive Citadel: The Crusade against Tuberculosis in Eau Claire County, 1903-1917," *The Wisconsin Magazine of History* 77, no.4 (Summer, 1994): 264-294, accessed September 28, 2017, <http://www.jstor.org.proxy.uwec.edu/stable/4636514>. Page 282.

⁵³ "The Fight on Tuberculosis" *Eau Claire Leader*, August 18, 1910, accessed September 27, 2017, ACCESS Newspaper Archive.

of resources for these small organizations, and a general lack of understanding that made the failure to prevent and control tuberculosis within the city inevitable.

The Future of Public Health Crises and Response in Eau Claire

The 1911 tuberculosis outbreak that struck Eau Claire was a tragedy that left everyone, not just those trying to help the afflicted, reeling, but it could not prepare the city for what was about to come. In 1917, the United States entered world war one, and everyone quickly forgot about the woes of the home front, focusing more on the horrors of what was happening to American soldiers in Europe. Little did anyone know, one horror in particular—Spanish Influenza—followed American soldiers home and quickly grew into a pandemic the likes of the world had not seen since the bubonic plague centuries before. Tuberculosis and the failures surrounding its containment and treatment in Eau Claire were struck from people’s minds as the community scrambled to find a solution to keep more people from becoming the flu’s next victims as it tore through the country without resistance.

In another senior thesis done on this very same topic, the author goes into detail about the various measures taken to ensure the spread of the Spanish Flu remained well under control within the city as compared to others within the state:

“[...] it should be classified as one of the reportable diseases within the county as well as be quarantinable. The requirement of physicians to report all cases had been mandatory since at least 1916 – as well as the requirement of all teachers to report any child ill from school so as an investigation could be done to see what ailment the child was suffering from and whether or not that ailment was communicable. This type of containment procedure has a very high success rate in keeping the spread of an epidemic down.”⁵⁴

The author also goes on to say that travel bans were enacted and various public spaces within the city, such as schools, churches, and movie theatres were closed to prevent the possible spread of the Spanish even more that it already was, keeping numbers of infected down as much

⁵⁴ Hollie Thompson, “How Location and Response Influenced the Spread and Containment of Spanish Influenza in Wisconsin: Comparing Milwaukee and Eau Claire” (senior thesis, University of Wisconsin-Eau Claire, 2009), 28.

as they could, very different from how the city dealt with tuberculosis only 7 years before. Not once did the Board of Health make a large-scale statement to the citizens of Eau Claire during the outbreak of 1911. They small asides about the triumphant sale of Christmas Seals by WATA and how it won the city a new public drinking fountain, but there were no advisories to speak of on their behalf.⁵⁵

The people of Eau Claire during this outbreak of Spanish Flu were also more vocal in their worries and dissent to the regulations being imposed on them, whereas there was hardly any public outcry to tuberculosis in 1911, besides doctors speaking against the Friedmann's Cure of the ordinances put into place on selling unpasteurized milk. This makes the instance of the Spanish Flu in Eau Claire all the more interesting. It is as if the entire city somehow pulled together to fight off the pandemic. Even WATA was involved, not only in Eau Claire but around the state providing classes on how to combat this new super virus that was sweeping the country, eventually leading to mortality rates being far lower in Eau Claire than other cities around Wisconsin.⁵⁶

Though the Spanish Flu burnt itself out as well, for reasons we still do not understand, the increase in active response as well as the active preventative measures that were seen in the years 1918 and 1919 after the virus came to Wisconsin, and Eau Claire, is a definite victory for public health organizations and those who funded and support them. But the question remains: why was it such a success when the tuberculosis outbreak that struck the city was such a failure?

⁵⁵ "Eau Claire's Part Against Tuberculosis", *Eau Claire Leader*, October 29, 1911, accessed September 27, 2017, ACCESS Newspaper Archive.

⁵⁶ Hollie Thompson, "How Location and Response Influenced the Spread and Containment of Spanish Influenza in Wisconsin: Comparing Milwaukee and Eau Claire" (senior thesis, University of Wisconsin-Eau Claire, 2009), 22.

The question is not easy to answer, and has implications today in other parts of the world where tuberculosis is still occurring in very high rates. Eau Claire was clearly more prepared. Organizations like the VNA and WATA had been around for some time and had been actively raising money and providing education to people, whereas in 1911, they were still just starting for the most part, without the budgets or the numbers.

The technological advances of the time certainly helped. People could be prescreened for tuberculosis with new x-ray technology and gone were the worries that one would lose life insurance benefits if they were diagnosed. Overall, Eau Claire learned from its mistakes rather quickly and the organizations involved with the valiant, but failed, handling of tuberculosis in the area were able to redeem themselves after the end of World War One and save the city with the help of new technology and more funding.

Conclusion

Tuberculosis remains a terrible disease that continues to ravage the world today. Thankfully, we have come a long way in our understanding of how to deal with it, and how to help those afflicted with it, not relying on quack science or the notion that because they have tuberculosis it is somehow their fault. In 1911, organizations and the city of Eau Claire faced the disease without the advances we take for granted today and did all that they could to help those afflicted and their families through a variety of means, whether it was education, actively caring for the sick, or raising funds to allow the most unfortunate some sort of respite from their lives in a sanatorium.

Unfortunately, their efforts could not stop tuberculosis from taking the lives of numerous citizens because science did not advance enough to deal with it and would not be for many years thereafter. Another blow came with the nation's attentions were overtaken by what was happening elsewhere in world. After World War One, Eau Claire was faced with another daunting task that seemed almost impossible—another widespread illness. Despite how impossible it seemed, the city was able to rally together and use innovative technology, knowledge, and resources to curb the mortality rate of the Spanish Flu.

If there is anything else to be gained from this study, it is that education and the setting aside of resources for relief efforts is extremely important. It may seem costly at first, but being prepared to proactively respond to disease and other disasters in the world should be something the world needs to consider. Tuberculosis may not be in the front of everyone's mind, nor what happened to Eau Claire, Wisconsin in 1911, but it things like have happened and will continue to happen around the world if nations do not take the time to establish those efforts to help their people and other nations that cannot help themselves.

Another topic of note to add to the significance of this study are the ‘what ifs’ surrounding antibiotic resistant bacteria, which are the main cause of a number of infectious diseases re-emerging as major health concerns, including tuberculosis. As a society, we over-prescribe antibiotics which leads them to being less effective, in turn allowing populations to become ill with these infections. According to the CDC, “[each year in the United States, at least two million people become infected with bacteria that is antibiotics and at least 23,000 die each year as a direct result of these infections.”⁵⁷ We as a society are then constantly made to play catch-up, trying to develop new antibiotics to counteract these diseases.

Tuberculosis is especially tricky to treat in this case, according to the CDC, because drug-resistant TB (XDR TB) is resistant to most drugs used to treat it, and the ones that it isn’t resistant to are often very expensive and have unsavory side effects.⁵⁸ If nothing else is learned from this study, at least one question needs to be considered. How long will it be until we end up back where we were in 1911 Eau Claire, Wisconsin, without a proper way to deal with diseases like tuberculosis? Considering the health crises in the U.S. and globally today, the past may become present sooner than we think.

⁵⁷ “Antibiotic/Antimicrobial Resistance,” *Centers for Disease Control and Prevention*, last modified August 8, 2017. <https://www.cdc.gov/drugresistance/index.html>.

⁵⁸ *Ibid.*

Bibliography

Primary Sources

“Ask New Bids for Sanitarium.” *Eau Claire Leader* (Eau Claire, WI), December 18, 1912.

The building of the new sanatorium in Eau Claire was delayed as the bids were too high, leading the city to ask for new bids. This article offers a look at the challenges of finding a way to deal with TB, especially in a town like Eau Claire that was still growing then.

“Eau Claire’s Part Against Tuberculosis.” *Eau Claire Leader* (Eau Claire, WI), October 29, 1911.

This article talks briefly about “The Crusader” a pamphlet from the Wisconsin Anti-Tuberculosis Association as well as the various things they’ve done for the city and planned to do in the future, including the selling of Christmas seals (collectable stamps) to raise money as well as the establishment of local chapters around the state. This article helps to tie in Mary Stolder’s article on the overall narrative of fighting TB in Eau Claire.

“The Fight on Tuberculosis.” *Eau Claire Leader* (Eau Claire, WI), August 18, 1910.

Article on current initiatives happening in Eau Claire to help stop the spread of TB. This article is from before the epidemic of 1911, showing that efforts were already happening to prevent more outbreaks.

History of the VNA of Eau Claire, 0977-0001-1980, Box 2, Folder 13, The Visiting Nurses Association of Eau Claire Collection, Chippewa Valley Museum Archives, Eau Claire, Wisconsin, United States.

History of the Visiting Nurses Association of Eau Claire Wisconsin. Provides a bit of background for the women on the front lines of the epidemic, the roots of their organization, and key figures within the community.

Holm, M. L., and E. A. Gardner. "Formaldehyde Disinfection with Special Reference to the Comparative Value of Some of the Proprietary Products." *The Journal of Infectious Diseases* 7, no. 5 (1910): 641-63. <http://www.jstor.org/stable/30071856>.

This is a study from 1910, measuring the effectiveness of different disinfectant products, most that were also used in the city of Eau Claire, during the tuberculosis outbreak there. This is important to know for background context, especially when VNA reports mention fumigation and formaldehyde being used as a preventative measure.

“Local MDs Doubt the Cure.” *Eau Claire Leader* (Eau Claire, WI), December 18, 1912.

As TB was still prevalent in Wisconsin, there were still people looking for a cure. One such cure was being developed by Dr. Friedmann, though local doctors were hopeful, as this article states, they had their doubts. This is another interesting look at what was going on in the world of preventative care for TB.

Patient Records – Visitations of TB Patients at Home, 1911, 0977-0001-1980, Box 2, Folder 1, The Visiting Nurses Association of Eau Claire Collection, Chippewa Valley Museum Archives, Eau Claire, Wisconsin, United States.

Records of visitations, including handwritten notes from nurses involved in the Visiting Nurses Association in Eau Claire. This provides a first-hand account of health care workers involved with the TB epidemic of 1911.

Patient Records – Reports of TB Follow up nursing services, 1905-1931, 0977-0001-1980, Box 2, Folder 2, The Visiting Nurses Association of Eau Claire Collection, Chippewa Valley Museum Archives, Eau Claire, Wisconsin, United States.

Records of visitations, including handwritten notes from nurses involved in the Visiting Nurses Association in Eau Claire. This provides a first-hand account of health care workers before and after the TB epidemic of 1911, showing the changes made to care for those suffering with TB.

“The Sanatorium May Be Built.” *Eau Claire Leader* (Eau Claire, WI), March 17, 1911.

In accordance with other counties around the state, Eau Claire sought to build their own sanatorium, though it was still up in the air at the point of this article. It is interesting to know that plans started for Mt. Washington as early as 1911, the same year that the city was struck by the epidemic.

“The Tuberculosis Situation in Eau Claire.” *Eau Claire Leader* (Eau Claire, WI), October 21, 1910.

An updated article from the last one, speaking more in depth at the current situation of the disease at the time, offering statistics as well advice for citizens to stop the spread of TB. Also from 1910, this article shows the need for something to be done within Eau Claire, even before the epidemic took place.

“Those Who Sell Milk Must File Statements.” *Eau Claire Leader* (Eau Claire, WI), April 15, 1911.

Because of the prevalence of bovine TB, Eau Claire started to put sanctions in place for anyone selling milk because people were starting to recognize why they were getting sick, at least in one sense. It’s an interesting look at recognizing at least one possible cause for the epidemic in 1911.

US Census Bureau, “Census of Population and Housing: 1910,” Statistics for Wisconsin. <https://www.census.gov/prod/www/dennial.html>.

Report from the census bureau on the population statistics within Wisconsin during 1910. This offers a look at the populations of the various districts within Eau Claire as well as give an idea of where the hotspots of TB were happening.

“Visit to New Tuberculosis Sanatorium.” *Eau Claire Leader* (Eau Claire, WI), November 16, 1913.

After another year, Mt. Washington finally opened, and was on the route for tours, included on the list with the asylum and poor farm in the city, for the county board members to look at and discuss possible changes to be made. This article offers great information on the number of patients, not only for Eau Claire, but for the state as a whole, as well as how much money was to be put aside for WATA’s efforts.

VNA Monthly Reports, 1911-1934, 0977-0001-1980, Box 2, Folder 8, The Visiting Nurses Association of Eau Claire Collection, Chippewa Valley Museum Archives, Eau Claire, Wisconsin, United States.

Records of the monthly goings on for the Visiting Nurses Association. It gives insight to the number of people affected by TB and other illnesses in Eau Claire as well as what the VNA was doing during those times.

Secondary Sources

“Antibiotic/Antimicrobial Resistance,” *Centers for Disease Control and Prevention*, last modified August 8, 2017. <https://www.cdc.gov/drugresistance/index.html>.

This webpage and the one’s associated with it, offers information on antibiotic resistant infectious disease which add to the significance of this study, because we could end up back at square one if we do not solve this problem soon.

Bynum, Helen. *Spitting Blood: The History of Tuberculosis*: Oxford, Oxford University Press, 2005.

An exploration of Tuberculosis’ extensive history throughout the world, dismissing the strange romanticism associated with it whilst looking at the people who experimented with it. Though by an English author, it offers an in depth look at the larger history of the disease rather than focusing on a small case study.

Hays, J.N. *The Burdens of Disease: Epidemics and Human Response in Western History*: New Brunswick, Rutgers University Press, 2009.

An exploration of various epidemics throughout the world and history, focusing on the victims, and the relationship between power, poverty, and disease. Similar to *Spitting Blood*, this academic text offers more background information on epidemics as whole.

Holand, Harold. "Twenty-Two against the Plague: The Founding of the Wisconsin Anti-Tuberculosis Association." *The Wisconsin Magazine of History* 42, no. 1 (1958): 29-34. <http://www.jstor.org.proxy.uwec.edu/stable/4633342>.

The history of a major player in the war on tuberculosis in the state of Wisconsin. Though an old source, it helps to understand a few of the news articles used later in the reading, offering an in depth look at the causes of TB in Wisconsin as a while telling the story of the Anti-Tuberculosis Association.

Rothman, Sheila M. *Living in the Shadow of Death: Tuberculosis and the Social Experience of Illness in American History*: Baltimore, John Hopkins University Press, 1995.

This academic text offers a look at the history of tuberculosis, specifically within the boundaries of the United States, from the perspective of those who had the disease. This source offers a more in depth look at the rise of the sanatorium system in America for the treatment of tuberculosis, and the problems associated with it.

Thompson, Hollie J. "How Location and Response Influenced the Spread and Containment of Spanish Influenza in Wisconsin: Comparing Milwaukee and Eau Claire." Senior thesis, University of Wisconsin-Eau Claire, 2009.

This senior capstone is a comparison between the efforts of Milwaukee and Eau Claire during the Spanish Flu pandemic. The reason it's being referenced here is to gauge the difference between the response to tuberculosis only seven years prior, vs. the Spanish Flu.

Stolder, Mary Ellen. "Consumptive Citadel: The Crusade against Tuberculosis in Eau Claire County, 1903-1917." *The Wisconsin Magazine of History* 77, no. 4 (1994): 264-94.
<http://www.jstor.org.proxy.uwec.edu/stable/4636514>.

An Eau Claire, Wisconsin specific look at the history of tuberculosis, the care for patients and the steps taken to keep the public informed on the illness that had remained a mystery for so long. This source ties a lot of the other ones together, offering an overarching story for them and providing a basis for a historiography.