

The Plague Among Children, by Alan F. Rumrill



In recent weeks we have shared stories of epidemics of the past as a way of comparing the local medical and public response to those historic outbreaks with the response to the coronavirus pandemic. Previous stories have described the smallpox epidemic of the 18th century and the Spanish flu that affected the city of Keene in the early 20th century. This week we will touch on an outbreak that occurred here in the 19th century. The young city of Keene was the site of a diphtheria outbreak in the year 1889.

Diphtheria is a bacterial infection, unlike COVID-19 which is viral. The diphtheria bacteria secrete a powerful toxin that can damage body tissues. Early symptoms can include sore throat, loss of appetite, and fever. As with the current coronavirus, all people are not affected the same by this disease. In severe cases the bacterial infection seriously affects the mucous membranes of the throat and nose. The resulting growths on those membranes may impair breathing and the toxins can spread to muscles and organs elsewhere in the body. These frightening symptoms caused alarm among our ancestors when diphtheria outbreaks occurred in their communities.

We now know that the diphtheria infection is usually transmitted through respiratory droplets that enter the air when an infected person coughs or sneezes. Indirect transmission can also occur. If an infected person touches a surface, bacteria that are left behind can remain viable.

Diphtheria was long a major cause of illness and death among children. It resulted in more than 15,000 deaths in the United States in 1921 and was the third leading cause of death in children in England in the 1930s. As a result of its substantial impact on young people, diphtheria has been called “the plague among children.”

There were several cases of diphtheria in Keene in April and May of 1889, but they were isolated and did not cause a great deal of concern. In early September, however, almost 20 cases were reported by doctors in the city and the populace became alarmed by the outbreak. On Friday September 13 a seven-year-old boy died as a result of the disease, followed the next day by a four-year-old girl. Keene had instituted a board of health in the 1870s and it immediately took action as the outbreak spread. The commissioners visited all homes where cases occurred. Most early incidents of the infection took place in the Beaver Brook valley and in the neighborhoods around the Lincoln Street School, where several

students became ill. The escalation in the number of cases may well have been the result of youngsters returning to school at the end of the summer and being in close contact with other children.



Lincoln Street School, c.1889

Twenty-five cases were reported in Keene in September, resulting in three deaths. The boards of health and education worked in concert to close all elementary schools for two weeks in early October, but the outbreak continued to spread across the northern part of the community and then to other sections of the city as well. The Keene Sentinel followed the progress of the infection closely to keep the public informed. On October 2 the Sentinel stated that: "It is always best to err upon the side of too great caution rather than too little."

The health commissioners ordered that the public library not loan books to families where the infection was present. It was suggested that the authorities should also provide a single building where clothes and bedding could be taken to be destroyed or fumigated and where furniture and carpets could be disinfected. There was fear, however, that carrying such items through the streets might spread the infection. The commissioners eventually worked with individual families to accomplish the destruction or disinfection of potentially contaminated items.

By 1889 New Hampshire had a law requiring all doctors to report cases of diphtheria, and other infectious diseases, so that health officials could track the spread and try to control it, as is currently being done with the coronavirus. Those doctors who failed to report were subject to a \$100 fine for each case not reported. One Keene physician neglected to report some cases, claiming that he was unaware of the law, and was taken to court by the city.

October was a difficult month as 48 cases and 12 deaths were recorded in Keene; the vast majority of those infected were children under the age of 12 years. The board of health continued to visit the families of all who contracted the disease. They found that many of those homes were less than sanitary and that almost all of them were not connected to the city's new system of sewers. The board used this fact as an argument to get as many homes as possible connected to the system quickly.

The outbreak abated somewhat in November which saw 27 cases and three deaths. On November 21st John Frame, a brakeman with the Cheshire Railroad, succumbed to the disease. Frame and his wife had three young children, two of whom became ill with diphtheria just before their father's death. No one would go near the home to help Mrs. Frame due to the infection, so board of health member Dr. A.B. Thurston went to stay with her and assist with the ill children on the night of her husband's death. Dr. Thurston became sick within a couple of days, but later recovered. Unfortunately, one of the Frame children died the following month.

Although the number of cases continued to decline, the Sentinel urged that residents "should not relax their vigilance or fail to take every reasonable precaution to prevent the spread of the disease." The public apparently paid attention to this advice as the contagion slowly abated. There were

numerous cases in Keene and Cheshire County the following year, but there was no concentration as had occurred from September through December of 1889. During those four months well over 100 Keene residents fell ill from diphtheria and twenty died. In the end, however, social-distancing and sanitization helped to ease the spread of the disease.

Diphtheria remained a dangerous contagion well into the 20th century, especially for children. As late as the 1920s some 100,000 to 200,000 people in the United States contracted the disease each year, resulting in approximately 13,000 to 15,000 deaths. By that time, however, physicians and scientists were working diligently to develop treatments and a vaccine. It was during the 1920s that an effective vaccine was developed. Diphtheria has not been entirely eradicated as smallpox was, but that day may soon arrive. Most children in this country receive the diphtheria immunization today. The disease was declared eliminated in the U.S. in 2009, but one case was reported in 2014. That was a far cry from the hundreds of thousands of cases a century earlier, however. Medical science has advanced exponentially over the past 100 years, offering hope that a safe and successful COVID-19 vaccine will soon be available.