# **The Unjust Trial of Typhoid Mary**

Mary Mallon, born in Ireland in 1869, immigrated to the United States in the year 1884 (Marineli et al., 2013). She was the first healthy carrier of the bacteria Salmonella typhi, which causes typhoid. For this reason, she earned the name ‘Typhoid Mary’ because she spread the disease unknowingly to around 120 people of which five people died (Marineli et al., 2013). She had worked as a cook for several employers. It was Soper, a civil engineer, who traced the typhoid outbreaks to Mary Mallon, sparking a long battle in which Mary was convicted and was confined to isolation to prevent any further typhoid epidemics (Rosenberg, 2017). This paper argues that the trial of Typhoid Mary was unjustified and that she did not deserve to lose her freedom. This is because the healthcare system during those times, i.e. the 1800s was not as developed as it is today and it was the failure of the healthcare system rather than Mary Mallon that caused the typhoid epidemics.

## Newly Discovered Causative Agent

At the time of Mary Mallon, the causative agent of typhoid itself was newly discovered. Karl Liebermeister, in 1800, had discovered that typhoid spread through contaminated drinking water (Marineli et al., 2013). Later on, a doctor by the name William Budd had found that a certain toxin in feces of typhoid patients was responsible for spreading the disease. It was difficult to isolate the microorganism. Karl Joseph Eberth was the one who discovered the typhoid causing microorganism in 1879 in spleen and abdominal lymph nodes (Marineli et al., 2013).

Thus, at the time of Mary Mallon, the knowledge about the causative agent of the disease was fairly new and even the contagion mechanisms were not as well established as they are today. In the early 1900s in the United States, around 350,000 typhoid cases were reported every year, characterized by fever, mental depression, physical disturbance, rose-colored spots on abdomen and chest, perforation in bowel, and diarrhea (Merrill, 2012).

In those times, the disease was fatal in around 10% of the cases and had mainly affected deprived people (Marineli et al., 2013). At this time, medical scientists had just begun to accept the germ theory of disease that diseases were caused by microorganisms (Leavitt, 2014). Thus, public health physicians, who directly confronted epidemics in places where death rates were high, sought to find the agents causing these epidemics. At the time of Mary Mallon, George Soper, a civil engineer had first thought that the typhoid epidemics were because of freshwater clams. Later on, he found that not all the affected patients had eaten clams. He wanted to understand how the infection thrived in the relatively clean environments of the city. It was he who first traced that Mary Mallon was the first carrier of typhoid who appear to be healthy but was hazardous to others. The method by which scientists of those times established that the samples provided by Mary Mallon tested positive were fairly new (Leavitt, 2014). Moreover, Mary Mallon did not even appear sick and it is reported that she did not “even have a cough” when she was in custody (Inglis-Arkell, 2014). Then why did the health department quarantine her although it was not her absolute fault?

The actual fault was with the healthcare system of those times. The mechanics behind Mary Mallon being an asymptomatic carrier have only recently been discovered at Stanford (Inglis-Arkell, 2014). It has been shown that immune cells called macrophages that eat the foreign bodies become aggressive early on in a typhoid infection. After fighting the typhoid infection for a few days, the aggression with which they fight off the infection starts to recede. At this point, they penetrate the macrophages and live in them. This has been discovered now. It was unfairly expected at the time of Mary Mallon that she would believe that she was a carrier be confined to isolation all her life. In modern times, there have been improvements in the processing and handling of food in addition to advances in personal and public hygiene and waste management (VanMeter and Hubert, 2015). Furthermore, products are available that improve the human body’s defense mechanisms against pathogens. These methods were not in place in the 1800s and so the entire blame of the typhoid epidemics cannot be put on Mary Mallon alone.

## Lack of Immunization in Earlier Days

When hundreds of New Yorkers were infected with typhoid, Mary was held responsible. However, it is important to note that vaccination against Salmonella typhi, the causative agent of typhoid, was developed only in 1911 and antibiotic treatment was only possible in 1948 (Marineli et al., 2013). Mary Mallon on the other hand faced her trial in 1909 and was quarantined in North Brother Island until her death. It is thus clear that the vaccine and treatment for typhoid were developed longer after Mary’s trial and conviction.

In today’s times, vaccinations against typhoid are available. Many new kinds of vaccines like DNA vaccines are also being developed (Marathe et al., 2012). At the present in the United States, two vaccines are available. These are however reserved for those traveling to developing countries because the vaccine is not in routine use in the US because of the low incidence of the disease. Contrary to this, at Mary’s time, the incidence of typhoid was high and there were no vaccines available. Now, because of measures like chlorination of water, the incidence of typhoid has been drastically reduced. Thus, it was the failure of the healthcare system in the early 1800s that led to the typhoid epidemics and had there been vaccinations available, the trial of Mary Mallon and related incidents would not have taken place.

## Treatment of Carriers

When Mary Mallon had been found to be a carrier, she sued the health department. Instead of explaining her the significance and effects of being a carrier, the health officials offered to remove Mary’s gallbladder, which she refused (Marineli et al., 2013). Since no proper treatment options were available then for carriers, she was unsuccessfully treated with brewer’s yeast, laxatives, urotropin and hexamethylenamin (Marineli et al., 2013). Rather than being treated, she was asked to change her profession as a cook. Since she had no symptoms, she could not understand why someone who is healthy could spread the disease and so she fought back (Rosenberg, 2017). By the time of her death, 400 more healthy carriers of typhoid were identified but none of them were confined forcibly like Mary Mallon. As of now, there are treatments available for carriers of typhoid as well. A 28-day course of treatment with antibiotics helps flush out the microorganisms from the body (NHS, 2015). If only it was possible to treat carriers in Mary Mallon’s time, she could have been saved from quarantine and from living the rest of her life in isolation. During her stay at North Brother Island, it is reported that she was neglected at times and had to give 163 samples for lab tests (Inglis-Arkell, 2014). The government forcibly took away her freedom based on a charter that was written before the discovery of healthy carriers. Instead, it would have been more justified if they tried to find how a healthy carrier could be treated.

## Conclusion

The incident of Mary Mallon has shown the importance of ethical issues in disease control and epidemiology. Today, typhoid can only be treated through antibiotics and there are treatments available for healthy carriers as well. Improvements in sanitation, public health and epidemiology have reduced the incidence of the disease. Mary Mallon has been very unfortunate as she was identified as the first healthy carrier of typhoid, a concept which was new in those times. At that time, the causative agent and its mechanisms of propagation were just discovered. Furthermore, the treatment and immunizations were also not available. Thus, Mary Mallon had no chance of recovering and coming back to her old life. Her trial and isolation were thus unjustified because in those times, healthcare was not as developed as it is today. Very little was done to protect her interests and by isolating her, her fundamental rights were violated. Compared to the 1800s, modern healthcare is very advanced with health insurance and personalized treatments available for all.

**References**

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