

History, Medicine through time

Lesson 17 of 30

Worksheet:

How far did John Snow change ideas about the prevention of disease?

Mr Prudden



What was cholera?

Cholera caused diarrhoea and sickness that became so bad the victim would become **dehydrated**.

It was usually fatal: sufferers would die between two and six days after falling sick.

During their illness their blood became thicker, rupturing blood vessels under their skin. This turned their skin blue which is why cholera got the nickname **'the blue death'**.

It was spread through person-to-person contact, or water contaminated with human faeces of a sufferer.

It first arrived in Britain in 1831 and quickly spread across the country and arrived in London the following year in 1832. By the end of 1832, 5,275 Londoners had died.



Attempts to prevent cholera before John Snow

Local councils believed that *miasma* caused cholera. They saw the filthy **slums** in the cities, where families sweated in overcrowded conditions and rotting material on the streets was commonplace, as the reason why cholera was killing so many people.

A man called **Edwin Chadwick** even recommended flushing human waste into the Thames so that it couldn't be smelt!

The government encouraged cities to set up **boards of health** and provide clean water supplies, but this had little effect on people's living conditions because it was optional, so most cities chose not to.



John Snow

John Snow was popular and respected, and London's leading **anaesthetist**. Snow gave **Queen Victoria chloroform** during the birth of one of her nine children.

He observed cholera during a particularly bad **epidemic** of cholera in 1848-49. He wrote up his theories in ***On the Mode of Communication of Cholera*** where he suggested that cholera could not be transmitted by **miasma** because it affected the guts, not the lungs. He believed that cholera was transmitted by cholera-ridden faeces contaminating drinking water.



John Snow's experiment

In **August 1854**, cholera broke out in **Soho**, a district of London. **Snow** investigated 93 deaths and created a **spot map** to show where the deaths occurred.

He soon spotted a pattern - the deaths centred around the water pump on **Broad Street**. After interviewing local residents, **Snow** concluded that the deaths were caused by residents drinking from the water pump on **Broad Street**. He discovered residents who had used a different water supply were not as affected, for example workers at a local brewery had its own water supply. There was one anomaly, a woman living several miles from **Soho** had died. It was discovered that she had a bottle of water sent from the **Broad Street** pump because she liked its taste!

Snow removed the handle from the pump and the cholera outbreak in Soho died away. Later inspections revealed that the water pump was one meter to a **cesspit** and waste from the it had leaked into the drinking water well.



The impact of Snow

Snow's discovery had a huge and immediate impact in **Soho** because the number of people dying from cholera dropped drastically. His impact outside of **Soho** was very limited.

In 1855, **Snow** presented his theory about the cause of cholera and his findings to the British government. He correctly recommended that to avoid future outbreaks of cholera the government needed to make massive improvements to the sewer systems of London.

However, the British government was very dismissive of **Snow**, and the **General Board of Health** clung to the theory of *miasma*. **Snow's** theory and recommendation were ignored because he had no scientific proof to show what in the water caused the disease.

Snow's proposal to build new sewers would cost the British government lots of money which they did not want to spend.



The impact of Snow

It would be another seven years before **Snow's** theory would be vindicated, by which time **Snow** was dead. **Louis Pasteur** published his **germ theory** in 1861, and in 1884 **Robert Koch** finally isolated the **bacteria** that caused cholera.

The government eventually invested money into a new sewer system planned by **Joseph Bazalgette** and completed in 1875, but not because of **Snow**.

A very hot and dry summer in 1858 had caused '**The Great Stink**'. The Thames was low and the stench from the exposed sewage on the river banks persuaded the government that something needed to be done. They also passed the **1875 Public Health Act** to force cities to clean up.



Glossary

- **Anaesthetist** A medical specialist who administers drugs to produce unconsciousness before and during surgery.
- **Bacteria** A tiny living organism, too small to be seen by the naked eye, which causes disease.
- **Cesspit** A pit for storing sewage or waste.
- **Chloroform** A liquid whose vapour acts as an anaesthetic and produces unconsciousness.
- **Dehydrated** When the body does not have enough water to keep the organs working properly.



Glossary

- **Epidemic** A widespread outbreak of disease.
- **Germ theory** The theory that germs (micro-organisms) cause disease, often by infection through the air.
- **Miasma** Smells from decomposing material was believed to cause disease.
- **Slums** A squalid and overcrowded urban street or district inhabited by very poor people.



Comprehension Questions

1. What did people traditionally believe caused cholera?
2. What theory about cholera did Snow write in his book *On the Mode of Communication of Cholera* and what actions did he take to prove it?
3. Can you explain two reasons why the British government rejected Snow's theory and recommendations about cholera?
4. What event finally forced the British government to take action on cholera and why?
5. Challenge question: How far do you agree that John Snow made very little difference in changing ideas about preventing cholera?

You may want to use the following sentence starters and hints to help you.

In some ways John Snow made very little difference in changing ideas. For example...

However, in other ways John Snow did make a difference. For example...

Overall, I mostly agree that...

