

# John Snow and Evidence Based Analysis

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## John Snow

- English physician
- Leader in the development of anaesthesia and medical hygiene
- Founders of modern epidemiology and early germ theory

## 1854 Broad Street cholera outbreak

- A severe outbreak of cholera in 1854 near Broad Street in London
- Background: the 1846–1860 cholera pandemic happening worldwide
- The outbreak killed 616 people

## Two theories

- Miasma theory
  - Particles in the air
  - Dr William Farr, commissioner for the 1851 London census and a member of the General Register's Office
  - Miasma arose from the soil surrounding the River Thames
- Germ theory
  - A germ cell that had not yet been identified, via water
  - John Snow

## John Snow's investigation

- Mapping out the cases
  - “all the deaths had taken place within a short distance of the [Broad Street] pump”.
- Statistics: Cholera rate in sewage-polluted water serving area is 14 times those from upriver

## Evidence is power

- John Snow's investigation
  - Government officials replaced the Broad Street pump
  - He convinced William Farr, his opponent, to accept the germ theory
- The power of data visualization
- The create of double-blind experiment

- Founding of epidemiology

## Further readings

- Tulchinsky, Theodore H. 2018. “Chapter 5 - John Snow, Cholera, the Broad Street Pump; Waterborne Diseases Then and Now.” In *Case Studies in Public Health*, edited by Theodore H. Tulchinsky, 77–99. Academic Press. <https://doi.org/10.1016/B978-0-12-804571-8.00017-2>.
- Scott Cunningham. 9.1 John Snow’s Cholera Hypothesis in *Cause Inference: The Mixtape*. [https://mixtape.scunning.com/09-difference\\_in\\_differences](https://mixtape.scunning.com/09-difference_in_differences)
- John Snow *On the Mode of Communication of Cholera* (John Churchill, 1855).