

The Politics of Science: Evidence from the History of Public Health

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RESEARCH GOALS

This project examines the development of modern public health policy in context of 19th-c. cholera pandemics.

1. When did the scientific community reach consensus about cause of disease?
2. How does the evolution of government policy positions about usefulness of quarantines track scientific consensus about disease transmission?

Case setting: 19th-century cholera epidemics in Britain
Data: Corpus of digitized historical medical research
Findings: Scientific consensus on disease transmission converges by end of 19th century. However, government policy decisions stem from select group of public health experts whose views were not representative of broader public health field.

DATA

Medical Heritage Library: Digitized medical research from archives of major medical schools, libraries in U.S. and U.K.

- Journal articles, monographs, books, pamphlets, transcribed lectures, etc.

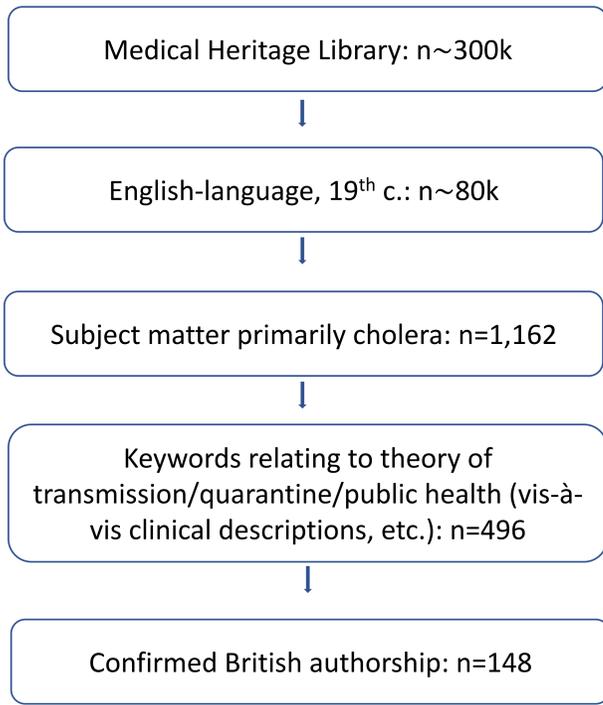


Figure 2: The MHL sample

Wave 1 (1831-1832): Consensus opinion of government experts that cholera is contagious and quarantines are useful. Government policy response includes quarantine measures.

View	Example
Contagion	The disease probably depends on a specific animal poison , fungus, or contagion germ ..."
Environmental	The statistics ...prove beyond all doubt, that the disease spreads by... atmospheric quality , and that contagion has little or nothing to do with it. "
Neutral/unsure	"To confirm or disprove this hypothesis will require far more investigation than the subject has, as yet, received."

Figure 3: Examples of contagion vs. environmental argument for cause of cholera in scientific texts

Mixed automated-human coding strategy: Keywords suggest relevant fragments of texts that discuss theories of disease transmission (Figure 3)

- Identifying keywords selected from contemporary medical dictionaries to accommodate changing vocabulary
- Texts hand-coded into categories depending on views: "contagion" vs. "environmental"
- Implication: contagion suggests quarantine may be useful; environmental view will never support restrictions on movement

CONTEXT

- Cholera emerged as new disease threat in Britain in 1820s
- Subject of major scientific debate: **is contagious transmission or local, environmental cause?**
 - Today, we know: bacterial waterborne disease spread by movement of infected people to places - contagious!
- **If contagious, quarantines (national + local) potentially useful, if costly. If environmental ("miasma"), quarantines are useless as public health measure.**

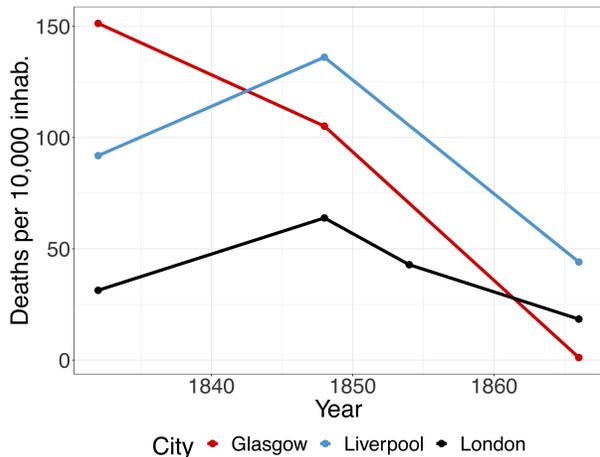


Figure 1: Cholera mortality rates for select cities across four waves of pandemic

FINDINGS

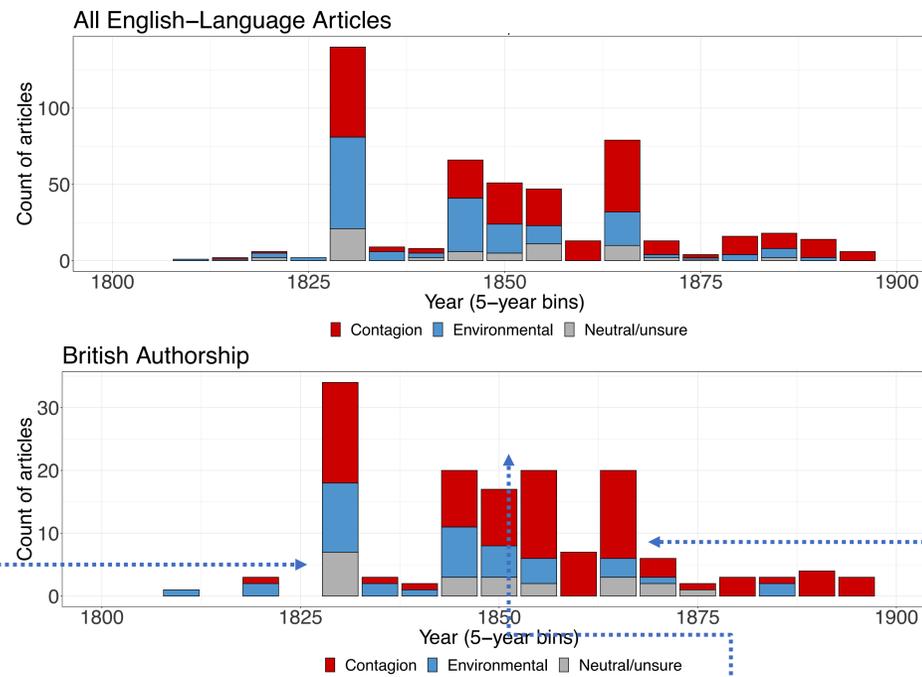


Figure 4: Number of scientific texts over time, color-coded by view. Large spikes in texts correspond to new waves of pandemic generating increased interest.

Wave 2 (1848-1849) and 3 (1853-1854): Consensus opinion of gov. experts that cholera is environmental and quarantines are useless. Focus among government on improving sanitation, based on anti-contagionist disease theory.

- Diversity of opinion about cause of disease persisted until 1850s, when consensus solidified around contagion theory of transmission
- However, government relied almost exclusively on the contagion side (pro-quarantine) to make policy during 1830s – and on the environmental hypothesis (anti-quarantine) during 1840s.

Wave 4 (1866): Relatively low death toll. Government response focuses on failures in water treatment systems, in line with modern contagion hypothesis.

REFERENCES

Figure 1: Mortality estimates from Underwood (1948) and National Water Supply report (1878).
 Figure 3: Quotations from Reinhardt (1853), Lassen (1866), and Mussey (1840).

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