

‘No disease was more, important, and no disease so little understood, as the “epidemic cholera”’ (Harrison 1994: 99).

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BC '20

The Cholera Pandemic

Developmental lessons from India

Colloquium: The Politics of Economic Development in the World

The current Cholera pandemic, the seventh one, has been ongoing since 1961. It is often referred to as the ‘forgotten pandemic’, as developed nations haven’t seen an outbreak in close to a century. Cholera is a waterborne illness confined to regions with limited access to clean water and low sanitation. In my paper, I explore the history of the disease using India as a case-study where the disease has been endemic for centuries. All, but the current cholera pandemic, originated in the Indian subcontinent and spread globally.

I looked at specific institutional and cultural reforms as well as advances in field of medicine to find an explanation for the reduction in the incidence of Cholera in modern day India. The purpose of looking at India as a case-study is to see what lessons can be learnt and reforms that can be implemented today to help curb the pandemic. My findings revealed that there were significant efforts made to create an institution which allowed for access to healthcare and mandates for sanitation. The discovery of the Cholera vaccine and treatment were also significant for the reduction in the spread of the disease. Cultural changes such as changes in religious practices and attitudes towards western medicine were also found to be significant.

Despite the unprecedented advances made in medicine in the last couple of decades, the Cholera pandemic has stayed, Reforms in India also do not explain the scale of the reduction of this disease on the subcontinent. As today ⅓ population still live in rural areas with only a quarter of households having access to piped drinking water and good sanitation.

What is the Cholera Pandemic?



Close up of the Cholera Bacterium
Source: USC MPH

Vibrio Cholerae is a bacterial disease resulting in an intestinal infection. It spreads through contaminated water. Most cases result in mild infections with little or no symptoms. In severe cases, if left untreated, fatality rates can range as high as 25-50%

The WHO estimates that cholera infects 2.9 million people annually resulting in 95,000 deaths.

Incubation Period

12 hours - 5 days, the short incubation period of this disease contributes to the speed and scale of the outbreak. The contaminated feces of a person infected with Cholera can spread the infection into water bodies.

Treatment

1. Clean water and sanitation
2. Oral Rehydration Salts (ORS): successfully treat 80% of cases
3. Oral cholera vaccines: two doses required

Cholera is currently endemic in 50 countries.

Democratic Republic of the Congo (DRC), Haiti, Somalia, the United Republic of Tanzania Yemen, together account for 80% of all cases.

WHO

Passed the “Ending Cholera: A global roadmap to 2030” resolution in 2017



Source: made by author using google maps

First pandemic began in Jessore during the time of the Kumbh Mela (a large religious gathering) most likely through the consumption of rice cooked in tainted water.

Changes Made:

Increasing access to healthcare:

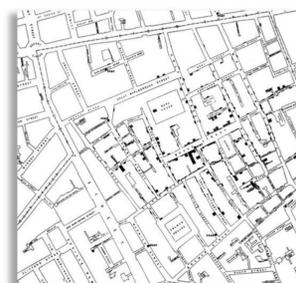
- 1802: Superintendent General of Vaccination appointed
- 1868: Cholera Committee created
- 1880: Mandatory vaccination of children living in municipalities and cantonments
- 1200 hospitals in 1880 → 2500 hospitals in 1902
- 7.4 million patients → 22 million patients (same period)
- 19.9% rate of vaccination at birth → 39.1% (same period)

Taking greater sanitation measures:

- 1864: Sanitary Police Force
- Sanitary Boards
- 1870: Central sanitary department formed combined with vaccine board

Cultural and attitudinal barriers that needed to be reformed:

- Religious traditions: certain traditions like pilgrimage and drinking water as part of ritual inflated the chances of an outbreak. In the bengal region, a goddess of Cholera became a popular deity in hopes to safeguard against the disease. It became apparent that reforms were needed to reduce the risk. At the time it had still not been established that contaminated water was the source of Cholera. Many people believed it had to do with contaminated air (miasma).
- Colonial tension: in the 1850s, fear of unrest and mutinies held back the British from instituting dramatic measures due to a want to avoid pushback.
- Parallels with the Plague: the plague pandemic had also reached the subcontinent at the same time, In 1898 Epidemics Disease Act (still in use today) was passed which gave the British Raj the ability to quarantine people and areas where an outbreak took place. Bombay (now Mumbai) was particularly stuck by the plague due to the high density and low sanitation levels. Much of the population follow a tenet of non-violence which made them unwilling to kill rats, thereby not reducing the spread of the plague.



Contact tracing map of Cholera in Soho, London.
Source: National Geographic

India in the 21st century:

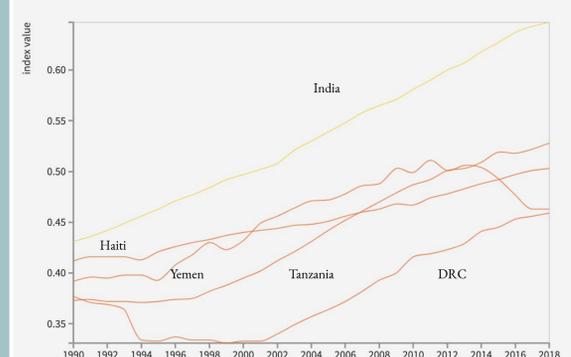
- 843 cases, 3 deaths (2016)
- ⅓ population live in rural areas. 28% of households have piped drinking water and 26% of households have access to good sanitation.

Estimates of mortality during this time are conflicting due to lack of a formal record keeping system. Finding reliable data sources was one of the major challenges encountered when writing this paper.

For example, regarding the first pandemic estimates range from 18 million (French Physician Moreau de Jonnes in 1931) to 2 million (British Statistician James Jameson in 1820). A more reliable number comes for the period 1865-1947, where total recorded cholera deaths in British India are approximately 23 million.

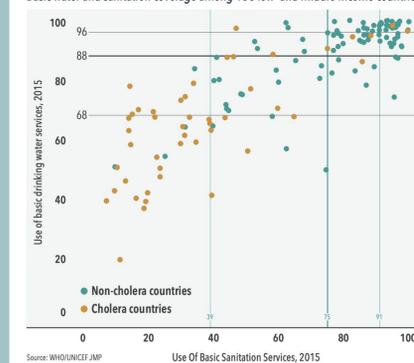
Risk Factors:

- Population density
- Most at risk community: poor people living in shanty settlements or rural areas
- Cultural and religious traditions that involve the exchange of fluids



Depiction of Human Development Index Data across the health dimension (0 to 1, least to most developed) for India, Haiti, Yemen, Tanzania, and the DRC for the period 1990-2018. Somalia was excluded due to insufficient data availability. Source: data from the UNDP, graph created by author.

Basic water and sanitation coverage among 138 low- and middle-income countries



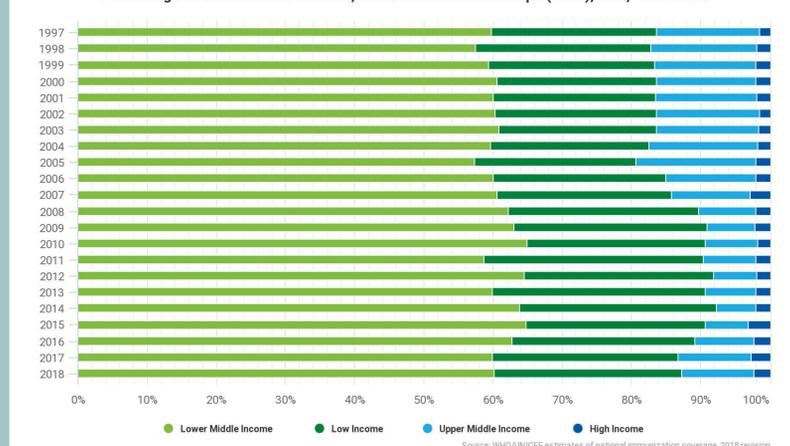
Source: WHO/UNICEF JMP

Cholera is a disease that can be easily avoided and treated but its persistent outbreak point to developmental issues in the region where it persists. Comparing the HDI of 4 of the 5 countries which account for the majority of Cholera cases, with India, solely across the dimension of health measures show how reforms have not taken place at the same rate. India being a middle income country does have advantages when it comes to the ability of providing greater access to health and sanitation

The basic sanitation graphs, comparing cholera and non-cholera low and middle income nations, shows a strong correlation between prevalence of cholera and lack of access to clean water.

The Cholera pandemic cannot be averted with solely vaccines and advances in medicine. Rather, the only strategy that works is to prevent an outbreak in the first place by promoting developmental reforms. The WHO’s 2030 goal stresses this fact by advocating for “the highest level of political commitment” (WHO 2020; 18). Long term investments are needed in sanitation, housing, and agricultural sectors to reduce the fragility and susceptibility of at risk areas to Cholera. Lessons from India also show the importance of a cultural change regarding the recognition of sanitary practices that are tied to cholera and the acceptance of western medicines and routine immunization.

Percentage of unvaccinated children, World Bank Income Groups (2018), BCG, 1997-2018



Source:

Data
Immunization: [UNICEF](#)
Sanitation: [WHO](#)
HDI: [UNDP](#)

Literature

Cholera and symptoms: [CDC](#)
Infection rates and mortality: [WHO](#)
Reforms made during British Raj: [Mushtaq](#), ‘Public Health in British India’, Indian Journal of Community Medicine, 34-1, 2009.
Arnold, David. ‘Cholera and Colonialism in British India’, Past & Present, 113, 1986
Polu, Sandhya. ‘Plague and Cholera - the epidemic versus the endemic’, Infectious diseases in India 1892-1940, pp 50-81, 2012.

1817

FIRST CHOLERA PANDEMIC

Originated in the Indian subcontinent spreading globally

1829

SECOND CHOLERA PANDEMIC

1852

THIRD CHOLERA PANDEMIC

1863

FOURTH CHOLERA PANDEMIC

1881

FIFTH CHOLERA PANDEMIC

1899

SIXTH CHOLERA PANDEMIC

1961

SEVENTH CHOLERA PANDEMIC

Originated in Indonesia and is the world’s longest going pandemic.

A timeline of the seven cholera pandemic.
Source: made by author