



Alfred Rethel, Der Tod als Erwärger. Erster Auftritt der Cholera auf einem Maskenball in Paris 1831, Holzschnitt, 1851, Grafiksammlung "Mensch und Tod" der Heinrich Heine Universität Düsseldorf.

# **Toward the Elimination of Cholera Epidemics: From the Past to Contemporary Societies**

*Virtual workshop, 19 April 2024*



## **This event will be hosted from Poland**

### **Organizers:**

Grażyna Liczbińska (Adam Mickiewicz University, Poznań, Poland)  
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### **Workshop Overview**

*Vibrio cholerae* is the causative agent of cholera and is associated with the aquatic environment. More than 200 serotypes of *Vibrio cholerae* have already been identified and several of them can cause a range of symptoms: from mild manifestations, that do not require medical attention, to severe gastroenteritis, resulting in profuse diarrhoea, leading to dehydration and, in the most extreme cases – death. Over the past two centuries, cholera has emerged and spread from the Delta of the Ganges six times causing six pandemics: 1817–1823, 1826–1838, 1846–1863, 1865–1875, 1883–1896, and 1899–1923. The seventh pandemic began in 1961 in Indonesia, reaching Africa by 1971 and both Americas by 1991. In the contemporary world cholera remains a major cause of morbidity and mortality, particularly in lower-income countries with poor sanitary infrastructure and low hygiene standards. It is endemic in South-east Asia and sub-Saharan Africa and has recently re-emerged in the Americas with ongoing transmission in Haiti. The World Health Organization (WHO) estimates that the officially reported cholera cases represent only 5–10% of the actual number occurring annually worldwide. Of the estimated 1.3 to 4 million cases that occur globally every year, approximately 21,000 to 143,000 cases result in death.

As part of the activities organized by the **IUSSP Scientific Panel on ‘Epidemics and Contagious Diseases: The Legacy of the Past’**, this one-day event aims to create a platform for sharing results of interdisciplinary research provided by historians, historical demographers, biologists, medical doctors and cultural anthropologists on cholera in the past and contemporary world. The event will also discuss the broader cultural context related to cholera epidemics and explore strategies to combat cholera.

**Note –all timings are Central European Time (CET).**

### **The Teams link will be:**

[https://teams.microsoft.com/join/19%3ameeting\\_M2lyYWQyOGQtYzMzZi00NDI3LTljZDktNzRmZDgzYmYwMjZj%40thread.v2/0?context=%7b%22Tid%22%3a%2273689ee1-b42f-4e25-a5f6-66d1f29bc092%22%2c%22Oid%22%3a%220bcb097b-841e-460e-8b4e-4c01c00bde29%22%7d](https://teams.microsoft.com/join/19%3ameeting_M2lyYWQyOGQtYzMzZi00NDI3LTljZDktNzRmZDgzYmYwMjZj%40thread.v2/0?context=%7b%22Tid%22%3a%2273689ee1-b42f-4e25-a5f6-66d1f29bc092%22%2c%22Oid%22%3a%220bcb097b-841e-460e-8b4e-4c01c00bde29%22%7d)

# Programme

**Friday, 19 April 2024**

**9:00 – 9:10 Welcome** (Grażyna & Jörg)

## **Session 1: Cholera as a challenge for current societies (20<sup>th</sup>– 21<sup>st</sup> century)**

**9:10 – 9:25**

Michel Garenne (University of the Western Cape, South Africa) and Oliver Fontaine (formerly at World Health Organization)  
*Cholera in Niakhar, rural Senegal, 1985-1989*

**9:25 – 9:40**

Omur Cinar Elci (Western Atlantic University School of Medicine, Freeport Grand Bahama, The Bahamas)  
*Climate Crisis, Population Dynamics, and Cholera: Why Social Justice Is the Key*

**9:40 – 9:55**

Iman Ahmed (Global Research Forum on Diaspora and Transnationalism, Canada)  
*Cholera in Humanitarian Emergency Settings – Insights from a Global Health Expert*

**9:55 – 10:10**

Emily Pakhtigian (Pennsylvania State University, United States)  
*Early warning systems, mobile technology, and cholera aversion: Evidence from rural Bangladesh*

**9:10 – 10:30** Questions and Comments (Discussant: Patrice Bourdelais, EHESSEcole des Hautes Études en Sciences Sociales, Paris)

**10:30 – 10:45 Break**

## **Session 2: Past: Demography and Epidemiology**

**10:45 – 11:00**

Rolf Gehrman (Europa-Universität Viadrina Frankfurt (Oder), Germany)  
*Prussia and the Second Cholera Pandemic: Reactions, Interpretations and the Demographic Background in the Eastern Provinces*

**11:00 – 11:15**

Ján Golian (Faculty of Arts, University of Ss. Cyril and Methodius in Trnava, Slovakia)  
*Identification of cholera victims in church registers in contemporary Slovakia*

**11:15 – 11:30**

Kaspar Staub (University of Zurich, Switzerland)

*Reconstructing the 1855 Cholera Epidemic in Basel Using Geographic Information Visualization*

**11:30 – 11:45**

Evelien Walhout (Leiden University, The Netherlands)

*The effects of disaster management: the case of cholera in the Dutch town of Roosendaal, 1866*

**11:45 – 12:00**

Francisco J. Garcia (University of Saragossa, Spain) and Víctor Antonio Luque de Haro (University of Almería, Spain)

*The transmission of cholera and social inequality in the face of death during the 1885 epidemic in the province of Zaragoza*

**12:00 – 12:20** Questions and Comments (Discussant: Michel Oris, Spanish Research Council, Institute of Economics, Geography and Demography, Madrid)

**12:20 – 13:00 Break**

**Session 3: Past: Public Health Measures (Part I)**

**13:00 – 13:15**

Helene Castenbrandt (Department of Economic History, Lund University, Sweden)

*The threat of cholera: Quarantine in 19th century Sweden*

**13:15 – 13:30**

Kristina Puljizevic (Catholic University of Croatia, Croatia)

*Cholera in 19th century Dalmatia: the province between the foreign threat and the state health policy*

**13:30 – 13:45**

Pratima Yadav (Indian Institute of Technology (IIT) Madras, Chennai, India)

*Cholera beyond the sanitary prism: International Sanitary Conference of 1894 and the Mecca pilgrimage*

**13:45 – 14:00**

Elena Glavatskaya and Julia Borovik (Ural Federal University, Russia)

*Cholera in the Urals and Siberia in the 19th century: from fear to resistance*

**14:00 – 14:20** Questions and Comments (Discussant: Tim Riswick, Radboud University, Nijmegen)

**14:20 – 14:35 Break**

## Session 4: Past: Public Health Measures (Part II)

**14:35 – 14:50**

Elena Crinela Holom (Babeş-Bolyai University, Centre for Population Studies, Cluj-Napoca, Romania)

*Exploring the Nexus of Public Perception and Administrative Measures: The Cholera Outbreak of 1872/1873 in Transylvania*

**14:50 – 15:05**

Lidia Trăușan-Matu ('Carol Davila' University of Medicine and Pharmacy & New Europe College, Bucharest, Romania) and Octavian Buda ('Carol Davila' University of Medicine and Pharmacy, Bucharest, Romania)

*Preventing Cholera. The Sanitary Law of 1874 and the Evolution of the Quarantine System in Romania (1874–1913)*

**15:05 – 15:20**

Gunnar Thorvaldsen (UiT – Arctic University of Norway, Norway)

*The incidence of cholera in 19th century Norway and major ways to fight the epidemics.*

**15:20 – 15:35**

Isabelle Devos (Ghent University), Melanie Bourguignon (UC Louvain), Yoann Doignon (UC Louvain), Thierry Eggerickx (UC Louvain), Hilde Greefs (University of Antwerp), Lora Pannekoucke (University of Antwerp), Wouter Ronsijn (Ghent University), Sven Vrielinck (Ghent University), Torsten Wiedemann (Ghent University) and Tim Soens (University of Antwerp) (Belgium)

*The 1866 cholera epidemic in Antwerp and Brussels: a comparative analysis of the epidemic's trajectory and public health responses*

**15:35 – 15:55** Questions and Comments (Discussant: Michail Raftakis, University of Bologna, Bologna)

**15:55 Close** (Grażyna & Jörg)

## **Abstracts (authors listed alphabetically)**

Iman Ahmed

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### **Cholera in Humanitarian Emergency Settings – Insights from a Global Health Expert**

#### Introduction

During the last two decades, the world has seen a surge in cholera outbreaks, some continue to linger up to date. Cholera has also been reported in countries where it never was reported before, or those previously declared cholera free, after an outbreak seen and successfully ended more than ten or fifteen years ago.

The current paper analyzes each of the following observations and proposes an approach to tackle the conundrum of cholera.

#### Observations

- a) Fragmentation of data and information.
- b) A mostly clinical approach to cholera outbreak preparedness and response.
- c) A focus on response more than on prevention.
- d) A nine-pillar approach, where any weak link in the chain will cause a weakened or failed response.
- e) The impact of climate, being talked about with no concrete solutions.
- f) An overall lack of systems-thinking.

#### Then what?

We Cannot treat our way out of Cholera. My presentation proposes a living-systems approach to address the conundrum of cholera; one that disrupts, interrogates, draws connections, questions root causes, and surpasses solutions based on stand-alone pillars or relies on the existing Inter-Cluster Coordination mechanisms. It addresses the above identified factors representing challenges of the 21st century.

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### **The threat of cholera: Quarantine in 19th century Sweden**

Various forms of maritime quarantine were in Sweden used as a preventive measure for cholera throughout the 19th century, and Sweden has with that been interpreted as staying more traditionalist than other European states. The country's topographical conditions, with a long and possibly controllable coastline, have been interpreted as one reason for this. However, not much research has been done on Sweden's changing approach to the cholera pandemics. Writings on cholera have in general been descriptive, focusing on the 1834 outbreak, and with little interest in placing national events in an international context. A review of the sources reveals how quarantine from early on was seen as something problematic, as it was both costly and seemingly useless. Subsequently, the Swedish quarantine regulation from 1859 did in fact display a more sanitarian approach, stating that ships should be examined and cleaned rather than undergo a timed quarantine. Hence, Sweden might have continued using quarantine but national and international debate on quarantines were not left unnoticed. This paper will present ongoing research into the changing strategies for keeping cholera away from the Swedish borders during 19th century. Focus is on the organisation of quarantine, and contemporary discussions on its usefulness.

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**The 1866 cholera epidemic in Antwerp and Brussels:  
a comparative analysis of the epidemic's trajectory  
and public health responses**

Traditionally, historical research into epidemics has focused on the overall impact of an outbreak (total number of victims, areas, and groups most affected), but rarely on how an epidemic develops on a daily or weekly basis. In this presentation, we examine the trajectory of the severe cholera epidemic of 1866 as it unfolded in Antwerp and Brussels, then Belgium's largest cities, with 117,000 and 158,000 inhabitants respectively. Linking individual-level data from cholera case registers, cause-of-death registers, death certificates, and cadastral censuses, we can reconstruct a fairly complete picture of the epidemic's trajectory in Antwerp and Brussels, from the first death until the last death (2960 cholera deaths in Antwerp, and 3469 in Brussels). First, we examine how the epidemic unfolded across the city. The epidemic in Antwerp was shorter and evolved more rapidly compared to Brussels where the curve was flatter. Which population groups (age, sex, occupation) were affected first, last, and most, and were some houses infected repeatedly? In which neighbourhoods did the epidemic persist the longest? And did these patterns differ in Antwerp and Brussels? Second, we juxtapose our findings with the actions taken by the city governments of Antwerp and Brussels, using city, provincial, and national government reports, as well as accounts of medical commissions. Did Antwerp and Brussels differ in the timing and type of measures implemented? And did these shape the trajectories of the epidemic in both cities differently? Through this comprehensive analysis, we aim to shed better light on the interplay between an epidemic's path and public health responses.

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## **Climate Crisis, Population Dynamics, and Cholera: Why Social Justice Is the Key**

Parallel to the disruption of the ecosystem in the Anthropocene, the threat of cholera as a global public health problem is on the rise. This trend is linked to global determinants such as the climate crisis, population dynamics, and health disparities. Long before Filippo Pacini described vibrio cholera and its relation to the disease in 1854, cholera has been a prominent disease in human history. Ancient texts from India and Greece described isolated cases of cholera-like diseases. It is known that vibrio has been endemic in the murky waters of the Ganges Delta. Starting with the 16th-century Indian subcontinent and correlated with the increase in population dynamics, cholera frequency, and intensity increased. Historical evidence suggests that the first recorded pandemic of 1817 is linked to the Colonial East India Company's activities and disruption of the ecosystem in the Sundarbans mangrove forest. Since then, cholera, also known as the disease of the poor, became endemic throughout the Global South, including sub-Saharan Africa. We examined the interaction between climatic, environmental, and demographic factors on cholera outbreaks based on district-level data, covering the entire population of Kenya between 1999 and 2009. This multivariate ecologic analysis revealed that living near a large body of water, lack of health facilities nearby, and changes in rainfall were significantly associated with an increased risk of cholera. We observed strong evidence for an association between seasonal rainfall and reported cholera cases and residing nearby a large body of water. As the emerging data on the ongoing climate crisis help us to understand the relationship between the ecosystem, population dynamics, infectious diseases, and the climate crisis, the global cholera risk deserves closer examination to understand the factors affecting cholera epidemics and global health intervention priorities. In this paper, we revisit the complex connections between cholera epidemics and global determinants based on the recent evidence on the climate crisis. Time is running out and until now, the suggested solutions including health policy, engineering, social responsibility, and healthcare proposals failed to produce a sustainable solution. We argue that social justice is the most important, yet missing ingredient. Establishing a social justice-focused, population-oriented, and economic system-based comprehensive approach would help the global community to reduce morbidity and mortality and develop sustainable strategies against climate change and related health outcomes.

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### **The death that the river carried. Social inequality in the face of death in the province of Zaragoza during the cholera pandemic of 1885**

Cholera was first documented in the province of Zaragoza during the biennium of 1933-1934. However, the outbreak that caused the most devastation in the region corresponds to the fifth cholera pandemic of 1885. The initial cases in Zaragoza were identified on June 29, prompting hygienic measures that, nevertheless, failed to halt the pandemic. On July 21, the state of epidemic was officially declared, leading to the establishment of relief stations throughout the locality, as well as hospitals dedicated almost exclusively to this disease. The epidemic was declared over on September 17. During this period, in the province of Zaragoza, over 50,000 people succumbed to the pandemic, with more than 2,000 deaths recorded in the city of Zaragoza alone. This study examines the geographical spread of the disease across the province and delves into the extent to which differences in socio-economic status (socioeconomic category and educational level) affected the mortality rates of adults in the province.

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### **Cholera in Niakhar, rural Senegal, 1985-1989**

The 7<sup>th</sup> cholera pandemic ravaged Africa since 1970, with high morbidity and mortality. This study reports on cholera outbreaks occurring in the 1980's in Niakhar, Senegal (West-Africa), a rural area under demographic surveillance. Two outbreaks were investigated in 1985 and 1987 in a population of about 24 000 people living in 30 villages. Reporting of cholera cases and deaths was considered near complete. The study analyzed basic demographic features of the two epidemics, with age and sex patterns of morbidity and mortality, and main modes of transmission. A total of 2170 cases and 206 deaths were investigated. Over a 5-year period (1985-1989) cholera appeared as the leading cause of death among adults and older children. Cholera mortality was particularly high among older persons and young children. Sex differences were small, with somewhat higher incidence and case-fatality for men. Attempts to vaccinate the population had no effect on incidence nor on case-fatality. Treatments were largely insufficient in this poor and remote area, with no doctor and limited access to medical care. The study underlines the fact that for a long time cholera remained a neglected disease in Africa, under-studied, under-reported, and occasionally a hidden disease. Hygiene, openness and speed of reporting, together with efficient health care are keys for prevention and treatment of cholera.

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### **Prussia and the Second Cholera Pandemic: Reactions, Interpretations and the Demographic Background in the Eastern Provinces**

This presentation deals with the question of the contemporary perception of the cholera crisis of 1831 and the demographic classification of this crisis from today's perspective. First, the measures taken by the Prussian state and their motives are outlined against the background of the contrast between the old concept of the well-ordered police state and liberal views. Then the reaction of the population in the form of fear and protest is discussed, focusing on the question of whether Malthusian concepts were already influencing perceptions of growing social problems in the so-called post-Malthusian era. The statistician Hoffmann was aware of the possibility of relative overpopulation when he analysed the demographic situation in Prussia at the level of counties and county clusters in the 1820s and 1830s. However, being of the old school, he did not go beyond the argument that cholera mortality and general mortality were related. His findings are examined on the basis of available statistical material from the eastern provinces of Prussia. This demographic approach, based on geographical features, opens up the larger question of the extent to which demographic indices were or are a predictor of cholera incidence, morbidity and mortality.

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### **Cholera in the Urals and Siberia in the 19<sup>th</sup> century: from fear to resistance**

Cholera was one of several epidemic diseases that struck the Urals and Siberia several times; especially its southern part suffered due to the trade contacts with the East. While considered generally extinct in Russia, there were Cholera outbreaks during the late 20<sup>th</sup> century and even cases of Cholera reported in the Southern Urals in 2023.

The paper will focus on people's perception of Cholera and the main treatments that were recommended by doctors of medicine, administrators and by representatives of natural medicine at the time. We shall also analyze contemporary statistics and compare different population groups – in the big cities, the countryside and in military regiments.

The paper will be mainly based on local statistical aggregates, newspapers, medical and military reports, as well as field research data, collected in the 1980's in Siberian villages.

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### **Identification of cholera victims in church registers in contemporary Slovakia**

At the beginning of the 1830s, a cholera epidemic caught European countries unprepared, which had not faced a similar infection of pandemic proportions for more than a hundred years. After Tsarist Russia, Hungary, which included today's Slovakia, was the first European country to be affected by the epidemic. Therefore, the development of the measures by which they tried to eliminate the infection can be observed in the reaction of the state and church authorities. In the contribution, I will focus on the method of recording cholera victims in the church registers on the territory of today's Slovakia. I will follow how the registry church records developed, changed and became more specific; I will also investigate what factors influenced the way of registering the deceased. By comparing church registers with state registers, I will try to identify the inaccuracy of the records, or trends that dominated when identified directly in the field (priests in the parish), and how they differed from the practice of trained civil servants (county doctors).

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## **Exploring the Nexus of Public Perception and Administrative Measures: The Cholera Outbreak of 1872/1873 in Transylvania**

Recognized in scholarly discourse as the epitome of a medieval epidemic in Transylvania, the cholera outbreak of 1872/1873 left a profound impact, affecting 57,551 individuals, with 22,053 lives lost and a resulting case fatality rate of 38.3%. Beyond its demographic toll, the cholera epidemic ingrained lasting emotions of fear, anxiety, and uncertainty in the collective consciousness. In response to cholera's adverse effects, state authorities orchestrated a series of strategic interventions to curb its spread and restore confidence in the population.

This endeavor aims to delve into the subtleties of human behavior in Transylvania's historical context, shedding light on both the reactions of the populace and the measures implemented by authorities during the cholera epidemic of 1872/1873. How did individuals and state officials confront the challenges posed by cholera, and what attitudes and responses defined their actions? To unravel these complexities, we will draw upon a diverse array of sources, including contemporary newspapers, literary works, church circulars, and legislative acts issued by state authorities.

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**Early warning systems, mobile technology, and cholera aversion: Evidence  
from rural Bangladesh**

In Bangladesh, cholera poses a significant health risk. Yet, information about the nature and severity of cholera risk is limited as risk varies over time and by location and changing weather patterns have made historical cholera risk predictions less reliable. In this paper, we examine how households use geographically and temporally personalized cholera risk predictions to inform their water use behaviors. We estimate how access to a smartphone application containing monthly cholera risk predictions unique to a user's home location affects households' knowledge about their cholera risk as well as their water use practices. We find that households with access to this application feel more equipped to respond to environmental and health risks they may face and reduce their reliance on surface water for bathing and washing---a common cholera transmission pathway. We do not find that households invest additional resources into drinking water treatment, nor do we find reductions in self-reported cholera incidence. Access to dynamic risk information can help households make safer water choices; tailoring information provision to those at highest risk could reduce cholera transmission in endemic areas.

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**Cholera in 19th century Dalmatia: the province between the foreign threat and the state health policy**

The strategies of defense against cholera were formed depending on the response to the burning question until the 1860s: is it a contagious disease, or is it caused by miasmas? The Habsburg Monarchy, which managed health in the Dalmatia region, after initial oscillation between contagionism and anticontagionism, leaned towards a pragmatic solution and banned quarantines that slowed down trade. In times of uncertainty and lack of scientific evidence, interest prevailed. Local medical practitioners were divided on this issue, and quarantine bans were sometimes not adhered to.

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## **Reconstructing the 1855 Cholera Epidemic in Basel Using Geographic Information Visualization**

We reconstructed the cholera epidemic of Basel in the year 1855 by means of geographic information visualization. The spatial and spatio-temporal patterns of the cholera outbreak were analyzed using maps and graphs along with potential influencing factors such as topography, river courses, and sources of drinking water. The data used in this project consist of historical archive sources on cholera cases that were digitized and geocoded. Additional historical and contemporary sources such as census data from the years 1850 and 1860, historical maps, and geodata on possible influencing factors were processed to approximate the era of the cholera epidemic. In total, 382 of the 399 recorded cholera cases were assigned to their respective addresses in the city of Basel. The resulting maps revealed cholera case accumulations in Kleinbasel, especially on Rheingasse street in the surroundings of a drinking water well. In Grossbasel, cases occurred in clusters mostly in the Birsig river valley with fewer cases in the more elevated parts of the city. The results stand in relation to contemporary cholera research classifying contaminated drinking water, elevation, and river proximity as risk factors in the contraction of cholera. With this digitization and processing of the historical data, further research can be conducted, e.g. using spatial analysis and statistics, or epidemiology.

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## **The incidence of cholera in 19<sup>th</sup> century Norway and major ways to fight the epidemics**

Cholera was first discovered in Norway in September 1832, when the disease characteristics were already known among physicians. A commission to counteract a potential cholera epidemic in Norway was in place when the disease arrived here, and it had sponsored the publication of what we would today call a guide for health personnel: *Short instructions for recognizing, preventing and treating malignant cholera*. In October of the same year, there was an outbreak in south-eastern Norway, where at least 33 people were infected, and a high proportion died. There were already several precautions in place to prevent an epidemic, and these were strengthened in the following years. Among other things, all ports were given quarantine commissions, which investigated possible cases, quarantined the sick and ensured that the bodies of cholera victims were buried in isolated places.

Among cases in significant localities, on 10 December 1848, the first known case of cholera in the city of Bergen was detected, the epidemic ending in April 1849. The disease spread quickly among the poor and the working class. First poorhouses were hit, then the Forced Labor Institution, leading to further spreading in the city's poor areas due to poor and cramped living and sanitary conditions. A provisional decree was adopted on 22 December 1848, introducing a blockade of Bergen. Furthermore, it was decided that local health commissions and epidemic authorities should be established. This resulted in the county commissioner appointing a health commission to hire more doctors and establish a cholera hospital for the care and disinfection of people in quarantine. Ships with epidemic disease on board were also to be quarantined, in so-called quarantine ports.

The last serious spread in Norway took place in 1873. In recent years, there have been some cases of people carrying cholera infection from other parts of the world. However, with today's healthcare system and hygiene standards, this has not led to spreading or deaths. The paper will go into details about the historical cholera epidemics, measures to limit them and to treat the victims. The source material is primarily studies by local historians and reports from the health authorities, while nominative church records can provide details about mortal consequences. Relevant events in the other Nordic countries may be included as need arises.

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### **Preventing Cholera. The Sanitary Law of 1874 and the Evolution of the Quarantine System in Romania (1874 -1913)**

In this presentation, we propose to discuss a very current topic: the issue of epidemics, quarantine and health policies, but in the 1875-1913 period, in Romania. Why should we be concerned with such a subject? Because the disasters produced by epidemics, regardless of their type, place and time have profound and long-term social, political, economic and cultural effects and they reveal the problems of each country's governance, economy and health systems. Being aware of past experiences can help us form a better, more accurate understanding and perspective of the sufferings and imbalances recently caused by the Covid-19 pandemic.

This presentation aims to analyse how the sanitary law of 1874 consolidated and prioritised the public sanitation and hygiene measures in Romania to the detriment of the authoritarian rules of quarantine and compares these changes and events with the international situation, particularly in South-Eastern Europe. In the first section of the presentation, we will discuss the principles enunciated by the 1874 law regarding the prevention of contagious diseases. The second part analyses the state's intervention solutions in the case of cholera epidemics: from the appointment of district and city primary physicians to caretake epidemics to the replacement of land quarantines with sanitary inspection and disinfection stations; from the establishment of temporary isolation hospitals to the creation of cleaning and sanitation plans for villages and towns or home improvement plans. The last part of the presentation highlights the state's contribution in the fight against epidemics and summarises the practical lessons learned from the management of past epidemics.

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**The effects of disaster management: the case of cholera in the Dutch  
town of Roosendaal, 1866**

As in many countries a cholera epidemic hit the Netherlands in 1866, which was its third wave killing about 20,000 persons. We study patterns of cholera, according to sex, age, social class and space, in the rural town of Roosendaal and the nearby village of Nispen, both located in the southwest of the country and close to the Belgian border. Our primary sources include the individual-level causes of death (1863-1938, n=18,308), more specifically the bills of mortality from and around the year 1866, and the minutes of the town council, to study the authorities' response to the crisis. Thus, this paper aims to address the dynamics of a disaster and the responses before, during and after the crisis.

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## **Cholera beyond the sanitary prism: International Sanitary Conference of 1894 and the Mecca pilgrimage**

The International Sanitary Conference of 1894 (Paris) instituted a scheme of regulations to prevent the spread of cholera (and other contagious diseases) through pilgrimage to Mecca. This paper analyzes the ISC of 1894 in four ways. First, it discusses the scheme of regulations that were instituted to regulate the movement of pilgrims to prevent the import of Cholera to Jeddah. Second, it highlights the role of Surgeon General Cunningham (Indian delegate) in the discussions that ensued in the conference and the debate between him and M Monod (French delegate) regarding the prevalence of cholera in India. Third, it looks into the objections that were conveyed by the Government of India to the British government against the regulations adopted at the ISC of 1894. Fourth, it emphasizes the linkages between the regulations instituted at global level on the one hand, and British epidemic policy in colonial India on the other, by analyzing the adoption of Pilgrim Ships Act of 1895. This research attempts to understand cholera through the prism of politics, diplomacy and security — that is, beyond the sanitary prism.

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