

IUSSP Scientific Panel Workshop

Report on:

From Influenza to COVID. Continuity and Discontinuity in the Factors of Inequality, *Madrid, Spain, 14-15 November 2024*

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Introduction

This report on the workshop *From Influenza to COVID: Continuity and Discontinuity in the Factors of Inequality* focuses on three main aspects: what we have covered and learned, what we may have missed, and what we envision for future research in the area. This report summarizes the key points discussed, identifies gaps, and outlines potential directions for our collective efforts moving forward.

1. What We Covered, What We Learned

The call for proposals outlined our goals: to explore the continuities and discontinuities in epidemic dynamics, particularly in relation to social and spatial inequalities. The presentations and discussions offered insights into both these historical and contemporary dimensions of pandemics.

Discontinuities

A significant contrast exists between past and present understandings of diseases. In 2020, the viral cause of COVID-19 was identified almost immediately, its genome sequenced, and this crucial knowledge was rapidly shared among laboratories worldwide. This is in stark contrast with the cholera pandemics. At the time, it seemed that nobody had a clue, perhaps with the exception of John Snow. As Isabelle Devos as well as Tania Ferreira and Alexandra Esteves highlighted in their presentations on Belgium and Portugal, respectively, public health efforts in the

past often focused more on combating foul odors and other superficial concerns—undoubtedly a response to the terrible smells—rather than addressing water sources.

Lack of understanding about the causes of disease was further evident during the 1918 influenza pandemic. Although people recognized the potential usefulness of wearing masks, they mistakenly believed influenza was caused by a bacterium identified decades earlier by Pfeiffer during the 1890 influenza pandemic. It was not until 1933 that Shope, Laidlaw, and others isolated the influenza virus.

People in the past were not unreceptive to new knowledge or blind to the “ultraviolet light of science,” in reference to Chris Dibben and Andrew Stevenson’s talk on influenza and sunlight. Their presentation brought a novel perspective on what might have been suspected long ago: people noticed back then that soldiers who were nearly declared dead and therefore left outside the large army tents, which served as makeshift hospitals, tended to recover better than those who were assigned beds inside the tents.

However, because epidemics disrupt societies, potentially disturbing public order, it can also happen that the authorities hide the realities to keep control. This is convincingly demonstrated by Hampton Gaddy, Svenn-Erik Mamelund and Michael Baker, who show the extent to which the influenza epidemic of 1918-1921 was covered up.

Continuities

Despite significant scientific advancements, inequalities continue as a persistent thread running through centuries. Knowledge, while empowering, can also increase divides, as the privileged are able to leverage resources and knowledge to mitigate risks, perhaps even more today than in the past. Gagnon’s talk suggested that the 1918 pandemic, in some cases, appeared relatively indifferent to factors such as socioeconomic status or race, particularly among young adults. In contrast, the COVID-19 pandemic revealed clear disparities along these lines of vulnerability. Nevertheless, socioeconomic status, race, gender, and geography have been, and remain, critical determinants of health outcomes during epidemics and pandemics, as emphasized in the presentation of Mélanie Bourguignon about the individual determinants of mortality associated to the 1918 flu pandemic in Belgium.

Similarly, Katarina Matthes’s comparative analysis of the pandemics of 1890, 1918, and 2020 highlighted persistent regional disparities tied to poverty in specific areas of Switzerland. Similarly, Ritu’s exploration of gender inequities underscored the

vulnerabilities Indian women faced during the 1918 influenza pandemic. The extended discussion period that followed the talks proved useful. Here, it revealed potential reasons for women's heightened risk. These included their traditional roles as caregivers and, in the case of India, high fertility rates, with pregnancy being a significant risk factor. Babere Kerata Chacha's presentation on Africa for its part emphasized racial and socioeconomic disparities during epidemics and pandemics.

The social causes of diseases were also thoroughly explored in the final session of the conference by Jordan Kein and Marcelo Pereira de Souza Fleury, with the added bonus of complex statistical modeling. Jean-Marie LeGoff's presentation further addressed epidemiological models of COVID-19 diffusion within and between households, once again highlighting the value of cross-fertilizing social science and epidemiology to generate new insights into contemporary pandemics

The aftermath and consequences of pandemics

Several presentations enriched our understanding by examining not only the determinants but also the consequences and aftermath of pandemics. For instance, Jonas Helgertz (with Tommy Bengtsson and Martin Dribe) identified unexpected increases in risk for certain age groups during subsequent waves of the 1918 influenza pandemic. This historical observation offers valuable insights that demographers and historical epidemiologists can share with immunologists to explore the potential immunological mechanisms underlying these patterns.

In a similar vein, Michel Oris, Stanislao Mazzoni and Diego Ramiro, building on Peter Ori's detailed event history modeling of infant and child mortality of historical Hungary, showed that the increase in child mortality following parental death was not necessarily due to cross-contamination during and around the major influenza peaks in 1913-1922 Madrid. This finding highlights how specialized expertise can uncover phenomena that challenge conventional assumptions.

Still about Madrid, Diego Ramiro Fariñas's presentation shed light on the intricate ways influenza may interact with tuberculosis, highlighting stark differences in the declines in tuberculosis mortality following the 1918 pandemic.

2. What We Missed

Despite the richness of the programme and of our discussions, certain areas received less attention.

Geographical Scope

While most discussions focused on Europe and America, notable contributions expanded the geographic lens. For example, Babere Kerata Chacha addressed continuities and discontinuities in African contexts, while Hampton Gaddy provided an account of Pacific Island epidemics, and Ritu addressed the fascinating Indian case. However, we observed limited exploration of the rest of Asia, underscoring some gap in our geographical coverage.

Underexplored Pandemics

In our call for proposal, we wrote: “Despite progress and convergence, several deadly episodes have been overlooked by the media and underexplored by the scientific community, such as the Hong Kong influenza in 1968-70.” Despite having quite significant (just in the month of December 1969, it made about 30000 deaths in France) we completely went over this Hong Kong flu, and episodes like the 1957 influenza pandemics were also largely overlooked.

Not only this, whenever we talk about the 19th century, it is always about cholera, but there were also other epidemics, pandemics, many of influenza that were never quantitatively analysed, as Peter Ori showed.

Quarantine Practices

Although quarantines played a critical role in historical epidemics like cholera, their discussion was limited in this conference – with some exceptions, of course – likely due to our focus on influenza and COVID-19 (in the title).

3. What's Next?

Looking ahead, several opportunities for advancing this research were identified:

Broadening Historical Focus

Future conferences should explore pandemics beyond the extensively studied episodes of 1890, 1918, 2009, and 2020. Earlier 19th century epidemics remain under-quantified and ripe for investigation. The rapid advancement of AI technologies and the growing availability of databases are opening up unprecedented opportunities to address this gap. Historical data collection is being revolutionized on a daily basis by the new technologies to process large amounts of archival records from handwritten documents to dispersed datasets, which should be regrouped. These tools will allow researchers to reconstruct demographic and

epidemiological patterns with a great level of detail, uncovering trends obscured by incomplete or inaccessible data. By leveraging these technologies, we can deepen our understanding of how societies have historically responded to health crises, offering valuable perspectives for contemporary and future public health challenges.

Collaborative and Systematic Approaches

To enhance comparability, we should prioritize coordinated efforts through international collaborations. We should emphasize standardized and comparative methodologies, ensuring consistency in how data is collected, processed, and analyzed. Historical demographers and epidemiologists have recognized the value of collaborative approaches, as evidenced by studies that apply identical methods to the same variables across diverse historical databases. This approach minimizes the usual pitfalls of endless disagreements stemming from researchers addressing seemingly similar topics but using widely different datasets or methods.

In that perspectives, an excellent initiative is the European COST Action “The Great Leap. A multidisciplinary approach to health inequalities”, which supported this Madrid workshop, with the IUSSP scientific panel on ‘Epidemics and Contagious Diseases: The Legacy of the Past’. We express our gratitude for their support, while highlighting the necessity to expand the scope of comparative research across continents and time periods.

Alain Gagnon, with Michel Oris and Diego Ramiro Fariñas