

Considerations of the 1918-1919 influenza pandemic

Michael Legge

Modern analysis of the 1918-1919 influenza pandemic is most frequently taken through the lens of modern knowledge and technology. In the article (re-printed in this Journal with permission) being considered in this Editorial the review of the influenza pandemic is considered from the knowledge and understanding of infectious diseases in 1919 (1). The ability to accurately diagnose the infectious agent and methods of control contrast sharply with the current SARS-CoV2 (COVID-19) pandemic. While there are still questions relating to the influenza pandemic, modern molecular and epidemiological techniques are progressively unraveling the 1919 pandemic.

The author of the 1919 article opens with the view that, although there had been other influenza pandemics, influenza was the least understood epidemic disease. At the time the infectious agent was unknown and originally thought to be *Bacillus influenzae* (now known as *Haemophilus influenzae*), the causative agent for the 19th century Russian influenza outbreak. However, the ability of the infectious agent to pass through microbiological filters gave rise to consideration that it was a virus, although not identified until the 1930s.

The contrast between response to the current SARS-CoV2 pandemic and the 1918-1919 pandemic are significant. As the author indicated there was a public indifference to the disease and there were significant troop movements back to home countries following the First World war, facilitating the spread of influenza. Comparing and contrasting routes of infections with other infectious agents at the time it was concluded that "General methods directed against this kind of germ distribution must be necessarily of limited value".

The consideration that it may take years to understand the pandemic contrasts with the modern response to SARS-CoV2. The author discusses the difficulty in identifying the "virus producers" (carriers) and an equal difficulty in establishing immunity. It is clear from the article that the origin of the potent influenza virus was unknown, which led to widespread speculation as to its origin, as was the route of infection. At the time there was no coordinated processes to understand and determine the spread of influenza (or any infectious disease). This lack of knowledge gave rise to what today would be considered disastrous in controlling pandemics. The second to last paragraph would have today's scientists and epidemiologists horrified. Among the retrospective recommendations were to keep schools, churches, theatres etc. open, do not wear masks in the general public (to encourage air circulation), but travelers should wear masks. Treating influenza as infectious (as with smallpox) was encouraged.

Finally, the 12 recommendations at the end have a vaguely familiar resonance to today's precautions although some were typical of the early 20th century public health approach, e.g. chew food properly, don't wear tight clothes and breath pure air when possible

The 1919 article provides a sharp contrast to the modern approach for pandemics, such as rapid international response and communications, rapid identification of the infectious agent (including potential mutations), computer modeling of the pandemic, rapid medical responses, significant political control of populations (closing borders), limiting travel, and rapid development of an effective vaccine.

There is still much to learn about the 1918-1919 pandemic and technologies available now using preserved tissues from the pandemic are providing a more accurate molecular understanding of the virus and identification of phenotypic variability during the pandemic. This important retrospective analysis will allow a better understanding of the pandemic but also the pathogenicity of the 1918-1919 virus for an overall better understanding of influenza.

Although the exact number of people who died as a result of the 1918-1919 pandemic will never be known, it is estimated that between 20 to 50 million people died. This contrasts sharply with the SARS-CoV2 international death rate currently estimated at nearly 4 million to date.

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