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OPINION PIECE

The 1918 and 2020 virus pandemics: an American comparison

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The 1918 influenza virus pandemic seems to have been much more severe in the United States (US) than its 2020 counterpart (the COVID-19 virus) appears to be so far. The ultimate number of deaths for the present situation was originally estimated to be between 100,000 and 240,000 out of a US population of over 330 million. In sharp contrast, in 1918, there were 675,000 fatalities out of a population of only 100 million. Accordingly, the 1918 fatalities, relative to a much smaller total population, were about 22 times as severe as the present estimated US pandemic figures.

This great discrepancy occurred despite the fact that in both pandemics, preventive measures were used, including the banning of public gatherings, the encouragement of population to stay at home and the resort to quarantine, the wearing of facemasks, and the shutting down of schools and businesses. Interestingly, the advantages of social distancing were already well known in 1918 despite a lack of knowledge about viruses. (Knowledge of viruses would only become possible with the introduction of the electron microscope in 1931.)

In 1918 the widespread use of masks as a facial protection proved to be ineffective since they could not screen out such minuscule objects as viruses. Today, although there is a severe shortage of high quality masks for the general population, a significant number of N95 masks are being manufactured for the medical staff in hospitals and more are being manufactured daily – they are called N95 masks because they can filter out 95% of airborne particles, including viruses. In contrast, masks in 1918, could, at most, only filter out the larger sized bacteria.

U.S. Government initiatives to fight the 1918 flu pandemic were also hampered, perhaps crucially, because it was torn between two conflicting goals: not only fighting the disease but also fighting World War I. And the second goal, particularly during the flu's worst phase in the autumn of 1918, seems to have outweighed the first. Indeed, it was during September, October and November that the U.S. involvement in the war, like the flu, reached its peak – and this wasn't simply a coincidence.

The pandemic seems to have begun at Fort Riley, Kansas earlier in the year. The troops were then sent to Europe where they quickly infected French, British and then German soldiers. Trench warfare, then current, was itself a major contributor because it forced large numbers of soldiers to fight at very close quarters in deplorable sanitary conditions. U.S. hospital ships, returning the wounded in crowded conditions, further spread the disease. Meanwhile, most doctors and nurses were being sent to Europe, severely weakening the chances of treating the sick at home.

In contrast to the states' and cities' encouragement of social distancing, the U.S. public health officials, themselves, were unwilling to impose quarantines during wartime. Civilians were vitally needed for the war effort, as in, for example, munitions factories. Parades appealing for mass subscription to Liberty war bonds were also encouraged and once the war was over, in early November, victory parades appeared all over the country further limiting any efforts at social distancing.

Despite the obvious severity of the 1918 pandemic in the U.S., it seems to have lacked any obvious long term impact on the country. The economy rapidly recovered and, except for a relatively brief recession during 1920-1921, the next eight years witnessed a major boom. There was also no clear impact on the U.S. society. Although individuals and families affected by the flu retained bitter memories, the society as a whole appeared to have almost forgotten it.

On the other hand, World War I, itself, had a major impact on the U.S. economy and society and was therefore sharply etched in the national consciousness. Its long-term impact totally overshadowed that of the pandemic. It acted as a powerful catalyst for the already existing, if still embryonic, automobile, radio and telephone industries, all of which were to see dramatic growth in the decade following the war, forming the infrastructure to the boom of the 1920s.

Unlike the 1918 influenza virus, the current COVID-19 pandemic is likely to have important long-lasting effects. It has not been overshadowed by another major event such as a world war but rather arose spontaneously on its own. Like World War I, it is acting as a catalyst, accelerating pre-existing trends. It is, for example, making travel by airplane more cumbersome and therefore more difficult. In this respect it is sure to amplify the restrictions on airplane travel already evident as a result of the highly publicized September 11, 2001 terrorist attacks on the U.S. World Trade Center and Pentagon.

In the present situation, such restrictions are also going to be more far reaching: they will have to be imposed on long distance trains and local urban transportation, including subways and buses. Similar restrictions will apply to most public gatherings. The public will therefore return ever more to virtual social communication (computers and smart phones), including distance education and virtual medical consultations (telemedicine), a trend already evident before the crisis. Such technology of course was still absent in 1918, limiting any long-term social impact.

Even more importantly, the current pandemic will further accelerate the replacement of human labour by artificial intelligence, including robots, a current which had anyway been emerging in the last ten years. Robots, after all, are impervious to disease. Many of the workers put on "furlough" as a result of the temporary imposition of social distancing, will therefore not be reemployed but will have to subsist on some form of basic income guarantee. In contrast, the 1918 flu could not have such an impact since artificial intelligence at that time did not exist.

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ABOUT THE UNIVERSITY OF PRETORIA

The University of Pretoria (UP) is one of the largest contact and residential universities in South Africa, with its administration offices located on the Hatfield Campus, Pretoria. This 112-year-old institution is also the largest producer of research in South Africa.

Spread over seven campuses, it has nine faculties and a business school, the Gordon Institute of Business Science (GIBS). It is the only university in the country that has a Faculty of Veterinary Science which is ranked top in Africa, and overall has 120 academic departments, as well as 92 centres and institutes, accommodating more than 55 000 students and offering about 1 100 study programmes.

UP is one of the top five universities in South Africa, according to the 2019-2020 rankings by the Center for World University Rankings. It is also ranked among the top 100 universities worldwide in three fields of study (veterinary science, theology and law), and among the top 1% in eight fields of study (agricultural sciences, clinical medicine, engineering, environment/ecology, immunology, microbiology, plant and animal sciences and social sciences).

In June 2019, the annual UK Financial Times Executive Education Rankings once again ranked GIBS as the top South African and African business school. The University also has an extensive community engagement programme with approximately 33 000 students involved in community upliftment. Furthermore, UP is building considerable capacities and strengths for the Fourth Industrial Revolution by preparing students for the world beyond university and offering work-readiness and entrepreneurship training to its students.

As one of South Africa's research-intensive universities, UP launched the *Future Africa Campus* in March 2019 as a hub for inter- and transdisciplinary research networks within UP and the global research community to maximise 4IR innovation and address the challenges and stresses our continent and world is facing. In addition, UP also launched the Javett Art Centre in September 2019 as a driver of transdisciplinary research development between the Humanities and other faculties. In 2020 UP will launch Engineering 4.0. as a hub not only for Smart Cities and Transport, but also to link the vast resources in technology and data sciences to other faculties via Future Africa. These initiatives are stimulating new thinking at the frontier of 'science for transformation'.

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