

**Title:** Plagues & Wars: The "Spanish Flu" pandemic as a lesson from history

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## Abstract

The "Spanish Flu" pandemic began in 1918, just as the First World War was drawing to a close. The conditions created by the war facilitated the spread of infectious disease, something that we can also see examples of in the present day. The pandemic went on to kill 50-100 million people around the world, so it is vital to understand the root causes and strategies that can be applied to prevent such a devastating event from occurring again. However, we would argue that very similar mistakes to those made by policy-makers in 1918, in terms of prioritising their war efforts over the health of the public, are also being made today. The lessons of history, in other words, are not being learned. In addition, the deliberate targeting of healthcare workers, as well as of civilian infrastructure, only exacerbates the risk of a new pandemic being nurtured and then spread from the cauldron of a modern war zone. We argue that health professionals have a humanitarian responsibility to advocate for the health of the population as a primary objective, and to hold policy-makers to account if they fail to uphold this ultimate priority.

## Keywords

H1N1, Pandemic, Spanish Flu, War, Armed conflict, Infectious disease

**Word count:** 1,976

# Plagues & Wars: The "Spanish Flu" pandemic as a lesson from history

## Introduction

Armed conflict and infectious disease outbreaks are both preventable occurrences that have the potential to devastate human societies. We are currently approaching the centenary of the conclusion of what is still justly known as 'The Great War'. November 1918 saw the end of a horrifying global conflict distinguished by mechanised slaughter on an industrial scale, many of the relatively minor chapters of which count as atrocious and reprehensible human tragedies in their own right. The Somme, Passchendaele, Verdun, the Greek & Armenian Genocides, the list could go on. The First World War was a humanitarian catastrophe of unprecedented proportions, which directly caused the deaths of some twenty million souls. However, we are also approaching the centenary of a modern 'plague' that not only killed many more people than the First World War, but was also actively facilitated by that conflict and still casts a shadow over public health practice today [Horton, 2018].

In the spring of 1918, reports of a new disease began to appear. The international news agency Reuters received word from Spanish sources that "*A strange form of disease of epidemic character has appeared in Madrid. The epidemic is of a mild nature; no deaths having been reported*" [Trilla et al, 2008; p.1]. This proved to be part of the first, and relatively mild, wave of a disease that would go on to infect approximately 500 million people (about a third of the global population at that time), and to kill so many that it would later be described as the single most deadly event in human history in terms of its body count [Shanks & Brundage, 2012]. This was the beginning of the "Spanish Flu" pandemic.

Precisely where it originated is still uncertain. The plains of North America and military camps in France have both been posited as possible wellsprings of the pandemic, but wherever it began it clearly spread rapidly, being described in many different parts of the world almost simultaneously [Taubenberger & Morens, 2006; Holmberg, 2017]. Late 1918 saw a second, far more deadly, wave of the disease sweep across the USA, Europe [Eggo et al, 2011], Mexico [Chowell et al, 2010], New Zealand [Summers et al, 2011], Iceland [ibid], Iran [Azizi et al, 2010], and even isolated island nations such as Western Samoa (where it killed more than 20% of the population) [Shanks & Brundage, 2012]. Analysis of permafrost-frozen corpses from the time has shown that this was a strain of the H1N1 influenza virus, and it caused such calamitous damage to the lungs and respiratory tracts that victims usually died of secondary bacterial pneumonia, which medicine at the time lacked the antibiotics to treat [Morens et al, 2010].

Contemporary and historical accounts describe hospitals flooded and overwhelmed with patients stricken by a contagion that had cut them down in their prime; suddenly afflicted by coughing, terrible pains in the limbs and back, respiratory failure, and uncontrollable fevers. The all-too-common sequel was hypoxia and death, with vivid descriptions of the "heliotrope" tinge to the skin of those whose lungs could no longer supply their bodies with vital oxygen [Rivas Hunt, 1919]. Soldiers in crowded barracks were often the focus of local outbreaks [Holmberg, 2017], and the forced movement of troops across continents only spread the disease further [Barry, 2004]. Later accounts lamented the scourge which had "...[carried] off so many that had been spared in the cataclysm of war" [JRAMC, 1943]. Although ironically newer recruits, lacking the protection conferred by exposure to earlier and milder strains of the virus, had by far the highest mortality rates [Shanks et al, 2010]. Ultimately the "Spanish Flu" went on to kill 50-100 million people around the world [Taubenberger & Morens, 2006; Morens et al, 2010].

## What caused the pandemic?

Military personnel appear to have been the primary vectors and initial victims of the disease, but it quickly spread into the civilian population. Some reports indicate that ‘Spanish Flu’ had the highest mortality in younger adults (<45yrs), unlike most strains of influenza which commonly hit the very young and the elderly hardest [Morens & Fauci, 2007]. It has been observed that elderly people in 1918 could have acquired some immunity from influenza outbreaks of the previous century, such as the 1889–1890 pandemic, which had many similar features [Morens & Fauci, 2007; Erkoreka, 2009]. However, it may also simply be the case that military aged individuals were at greater risk because in 1918 millions of them (in many cases from previously isolated populations) were meeting for the first time on the battlefields of Europe, huddling together in freezing mud or lying wounded in crowded and unsanitary field hospitals. Whatever the case may be, it is clear that the conditions of war created a fertile soil for diseases to spread [Humphries, 2014]. H1N1 merely exploited a human-created niche in order to transition from local outbreak into a global pandemic.

Both government and military leaders of the time frequently ignored or overruled public health advice designed to control the spread of the outbreak, even once it was positively identified as such [Holmberg, 2017]. Troop ships went back and forth between America and Europe, setting sail with a few cases that should have been quarantined, and arriving at their destination like ghost ships. Huge “Liberty Loan” parades (to raise funds for the US involvement in the war) took place in cities across America, multiplying the infection while public health officials pleaded for all large public gatherings to be suspended [Barry, 2004]. Even the name “Spanish Flu” tells its own story of the ways that war impeded the prevention and control of this pandemic. Wherever the disease originated, it did not come from Spain. However, as one of the few European countries that maintained neutrality during the Great War, Spain had greater press freedom than the belligerent nations, where wartime propaganda and censorship kept any “bad news” stories out of the public eye. Spanish media therefore merely reported the news that was being suppressed in Britain, Germany, France and other countries where it could conceivably have saved many lives. In Spain, the disease was known at the time as “French Flu” [ibid; Trilla et al, 2008].

In perhaps the most tragically ironic twist of this story, on April 3<sup>rd</sup> 1919, US President Woodrow Wilson collapsed during peace talks at the conference of Versailles. He had a high fever, severe cough and confusion, all symptoms suggestive of influenza infection [Barry, 2017]. It is impossible to say for sure to what extent his incapacity prevented Wilson from steering the eventual outcome of the conference – the Treaty of Versailles – away from the vengeful and punitive sanctions which his European counterparts wished to impose upon the German people. If it did, given how much that treaty contributed to the rise of extremist politics in inter-war Germany, then the “Spanish Flu” might also count as one of the causal factors of the Second World War.

## Modern parallels

Although the spectre of a new influenza pandemic represents a significant potential threat [NHSE, 2016; WHO, 2017a], it is also one against which national and international systems have developed significant defences [WHO, 2011; PHE, 2018]. The science of public health has come a long way since 1918, and we are all safer as a result [Morens et al, 2010; Rosner, 2010]. However, the health impacts of armed conflict are largely unchanged from those which catalysed the “Spanish Flu” pandemic, and also often significantly diminish the effectiveness of medical advances that have occurred since then. Vaccination and surveillance, isolation and effective treatment are all available today for a wide variety of infectious diseases, but the knowledge of how to accomplish them is rendered useless when hospitals are destroyed, when health professionals have fled the country, and when vaccination teams cannot travel freely due to general insecurity or even targeted violence

against them. Just as in 1918, armed conflicts today create a fertile niche for infectious diseases to spread, and then weaken and hamper the ability of human society to prevent or control them [Li & Wen, 2005; Iqbal & Zorn, 2010; Kibris & Metternich, 2016]. The largest burden of resulting morbidity and mortality invariably falls upon the most vulnerable [Ghobarah et al, 2003; Iqbal, 2006].

One of the clearest modern examples of the relationship between conflict and disease can be seen in Yemen's recent cholera epidemic, described by the WHO as the worst in the world [Lake and Chan, 2017]. As faeco-oral diseases are easily preventable with basic hygiene and sanitation measures [Tappero & Tauxe, 2011; Waldman et al, 2013], the resurgence of cholera in epidemic form should be viewed as an entirely man-made product of the country's ongoing civil war. Airstrikes that destroyed the civilian electricity grids, water sanitation plants and sewage-treatment infrastructure resulted in human waste contaminating food and water supplies [DEC, 2016; Allana, 2017]. The fatality rate of cholera is markedly increased by malnutrition [McGoldrick, 2017], and Yemen is heavily dependent upon food & fuel imports [Lowcock, 2018], so the blockades of Hudaydah and Saleef ports (and also Sana'a airport) exacerbated the severity of this epidemic by creating famine conditions. Both the spread of cholera in Yemen, and the resultant death toll, are therefore direct results of the war [FAO, 2018].

Syria is another modern example of conflict as a public health issue. In 2013 an outbreak of wild poliovirus was confirmed in Deir ez-Zor and Aleppo, despite Syria's previously excellent record in combating infectious disease and the country having been polio-free since 1999 [WHO, no date]. This and later recorded outbreaks (such as the one in ISIS-held Deir ez-Zor Governorate in 2017) can be traced to the destruction of healthcare infrastructure, cold-chain disruption, deliberate targeting of health workers and general insecurity, all leading to inadequate vaccine coverage [GPEI, 2017; WHO, 2017b]. It should be noted that the same violence and insecurity make any recent account of infectious disease outbreaks in Syria necessarily a partial one. The lack of public health surveillance caused by widespread violations of medical neutrality means that many disease clusters are likely to have gone unreported [Fouad et al, 2017]. We could thereby have already missed the early warning signs of the next pandemic.

### Humanitarian responsibilities

With sophisticated national and international systems in place to guard against a new pandemic, there is a danger of becoming complacent about the threat that this could pose. However, the relatively low-severity H1N1 pandemic of 2009 should have been a wake-up call for anyone indulging in such false comfort. The international response has been criticised for a lack of effective preparedness, as well as high-level decision-making being tainted by commercial and political interests [Godlee, 2010; Morens et al, 2010]. Wherever motivations of ideology, profit and prejudice result in suboptimal care for populations in need, public health professionals have a duty to draw attention to this, and to do what they can to minimise the influence of those factors in future. Where the health needs in question are also being generated by belligerent human behaviour, the prevention imperative becomes even stronger.

Throughout human history, plagues and wars have marched hand-in-hand, and yet there remains a reluctance in the public health community to recognise and address armed conflict as a major root cause of preventable morbidity and mortality [Connolly & Heymann, 2002]. We would argue that health professionals have a humanitarian responsibility, not only to bear witness to the suffering caused by this deadly association, but also to challenge the logic of violence and injustice in our own time. If wars must be fought, then the health and human rights of those living in the conflict zones

should be championed and protected. Essential public health infrastructure (water treatment plants, hospitals, electricity grids) must never be targeted, health workers must be inviolate, and vital medical services for the population must be supported and maintained as far as humanly possible. If we cannot do this, and cannot convince our political leaders to see the necessity of it, then we are all at risk of some future war begetting a new plague that could unmake civilisation.

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