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Review Article

Risky Business: A Comment on Nurse's Exposure to Infectious Diseases at Work, the Experiences of WW1 Nurses from New Zealand

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The impact of the COVID 19 pandemic on health professionals around the world highlighted that front line health care staff continue to pay a high price in the provision of care. It has been well documented as to how the lack of appropriate personal protective equipment (PPE), unequitable access to testing, vaccinations as well as the share volume of patients exposed frontline staff to infection[1]. In other smaller events such as Ebola, the early days of AIDS (Acquired immune Deficiency Syndrome) and tuberculosis as other examples where health care workers were unprotected. As the impact of COVID-19 seems to be waning, despite high numbers of infection circulating, it remains to be seen whether the lessons learnt about protecting and supporting frontline health care staff will continue to be upheld in future pandemics.

These modern-day experiences are mirroring what generations of health care professionals, and in particular nurses have experienced in the past. By the nature of their work, nurses are at a greater risk of infection than most other health professionals, as they tend to have more frequent and prolonged contact with patients, are involved in handling bodily fluids, and work close to patients performing any number of duties.

Between 1914-1919 of World War One and the immediate years afterwards, New Zealand send 20% of its nursing population overseas to provide care to the 1000s of wounded and ill soldiers of the Allied nations, amounting to approximately 540 registered nurses. Others such as Voluntary Aid Detachments (VADs) and Red Cross nurses also were sent however these are not accounted for in New Zealand Army service records. On their return to New Zealand, most were then sent straight to work at a new front line, that of the catastrophic influenzas epidemic, brough home by returning soldiers and ravaging through the population[2].

The NZANS left New Zealand fit and healthy, aged between 26-45, and were considered the cream of the crop of their provincial and city hospitals. Prior to departing nurses were inoculated for typhoid and paratyphoid, which caused deadly enteric fever. They were also inoculated against smallpox. The nurses were sent away in batches, starting with the first fifty in April 1915. It was thought at the time, that this would be all that was needed, however by June dozens more were sent and on it went over the next few years [1]. Those early nurses did not return to New Zealand until, after the war ended unless they were "invalided home" (as stated in individual medical files).

The nurses were often working in what could be considered austere environments, in temporary field hospital with poor sanitation. They may also be working in confined environments such as hospital trains dealing with men straight from the front, with infected wounds or infectious diseases such as dysentery. Hygiene measures may be difficult in such confined spaces. In the hotter countries like Egypt and Samoa, flies were also a problem. Another environment which was a breeding ground for infectious diseases was the hospital and troop ships. One of the most well-known New Zealand examples is the Troop Ship Tahiti which had over 1000 men on board, with ten passenger nurses heading to England in 1918. An unwelcome passenger came on board en route, and by the time the ship docked in Southampton over 100 men had died from influenzas, one passenger nurse and at least five others were quarantined for several weeks. Many more soldiers were ill and incapacitated with influenza, and those who died did so from pneumonia, untreatable in the pre antibiotic era[3].

As all the New Zealand war service files from World War one have been digitised, it has been possible to review each of the 550 service files. A data base was created collecting all the available information know about the nurses, age at service, age at death, length of service and locations, along with any details of sicknesses and their amount of time absent with these. This work has been reported elsewhere [1,2], as part of a bigger project. Rather, this commentary is going present the impact of the infectious disease the nurses experienced as well as some of the long-term consequences of their service. Some of these infectious disease ae now virtually non-existent in a well vaccinated population, and of course this can have some complications as the vaccine hesitant may not see the value in vaccinating against a disease they think has been non-existent for generations [3].

[1]https://www.who.int/news/item/03-03-2020-shortage-of-personal-protective-equipment-endangering-health-workers-worldwide

[2] https://nzhistory.govt.nz/culture/influenza-pandemic-1918

[3] https://ww100.govt.nz/influenza-on-the-ss-tahiti

In analysing all the files of the nurses who served overseas, three main infectious diseases are prevalent, accounting for over 50% of the recorded sickness. These were influenza, with regular outbreaks through 1916, 1917 and the large global pandemic of 1918. The impact on nurses was at least three weeks off sick in a hospital and then they would have to convalesce in a nursing home to regain their strength before going back to duty. The next most common infectious disease was measles, which remains the most contagious infectious disease currently. The third main infectious disease is tuberculosis, which was often not labelled as such in the notes. For those nurses who ended up in a sanatorium on their return to NZ, their medical boards described firstly a period of chronic cough fatigue and weight loss for weeks and up to three months. They would then receive a diagnosis of "CPDI', which is chronic pulmonary disease indeterminate. Then after about six months they were usually invalided back to New Zealand and sent to a sanatorium for further treatment. Once they had recovered sufficiently they were then often requested to stay on working in the sanatorium on "light duties", ostensibly with the idea that they couldn't get sick again with TB.

Another infectious disease mentioned in several files is diphtheria, a disease long gone from Western countries due to vaccination. This is a potentially fatal disease of the airways causing obstruction and death if the membrane occluding the airways is not removed [4]. Modern treatment of diphtheria is with antibiotics and an antitoxin. Other common infections reported in the files of nurses are skin infections such as boils, which often results in several weeks off sick, or the need for draining of boils. Whilst these nurses may not have been very ill with the skin infections (most likely staphylococcus), it would have been precarious for the soldiers if they received a wound infection.

Whilst the 1918 Spanish infauna pandemic is generally well known and the devastating impact it had on war depleted populations around the world, it was not the first influenza outbreak during world war one. Whilst influenza was known as an illness and that it was caused by a virus and spread via droplet infection, the actual virus was not isolated until 1932 [5]. Until then diagnosis was made by clinical symptoms only; very high temperature, muscle pain and severe debility all appearing suddenly. Often in nurses files the original record would state "PUO", meaning pyrexia unknown origin followed by "NYD", not yet diagnosed. Then a few days later the entry would read "influenza" (never "flu") and then there would be a period of convalescence lasting up to three weeks. Prior to the 1918 influenza outbreak, which claimed the lives of several nurses bother overseas and in New Zealand, the most severe epidemic was in 1916 and is considered the precursor of the 1918 outbreak. The epidemic began in a large British camp in Etaples which had over 100, 00 soldiers and 24 hospitals. The onset of symptoms was rapid and severe, with a high mortality rate [6].

Conclusion

This discussion of the impact of infectious disease on New Zealand army nurses in World War One has highlighted historically the risk nurses have been in, whilst caring for patients. Despite advances in modern health, with improved vaccinations, PPE and understanding of transmission of infectious disease, the experiences of the early days of the COPVID-19 pandemic were eerily similar to historical events, leaving frontline staff under protected and many paying the ultimate price of losing their lives, to what has become essentially preventable through vaccinations and hygiene measures.

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