A DAY (NEARLY) LIKE ANY OTHER:
HEALTHCARE WORK IN AN INFLUENZA PANDEMIC

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ABSTRACT

The World Health Organization has long anticipated an outbreak of a highly pathogenic influenza. Fear of a highly virulent influenza has been compounded by the 2003 outbreak of Severe Acute Respiratory Syndrome (SARS) where some health workers refused to work. In light of this, the question has been asked whether healthcare workers would continue to work during an influenza pandemic. Worryingly, surveys suggest that many would not.

The thesis explores past experience of some ‘new’ infectious diseases and how these impacted on the health workforce. It considers evidence from the 1918 influenza pandemic, where (for the most part) nurses were not over-represented in the death statistics. It is argued that all infectious disease is not the same and a one-size approach by way of either compulsion or incentives to work should not be adopted. In situations where a healthcare worker faces a higher risk of infection and serious illness than the general population and attending at work could expose their family to additional risk (as was the case in SARS) consideration may need to be given to incentives to encourage work performance rather than any form of compulsion.

However, the thesis argues that the health workforce would not be at greater risk during an influenza pandemic and the common law contract of employment sufficiently compels work performance, with public sector employees having a greater obligation to work than might their private sector counterparts. During an influenza pandemic workloads may increase but it will be a day (nearly) like any other.
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III DECLARATION OF ORIGINALITY

I hereby certify that this thesis is entirely my own work and that any material written by others has been acknowledged in the text.

The thesis has not been presented for a degree or for any other purposes at The University of Sydney or at any other university or institution.

Signed:   Date:  30 June 2016
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Chapter 1
Introduction

I  INTRODUCTION

On a Saturday in early May 2009 the following appeared as part of an article in the *Age* newspaper:

When little Edgar Hernandez — Mexico’s first confirmed victim — fell ill at the end of March ... his family blamed pollution from a large nearby piggery. The powerful respiratory illness that infected five-year-old Edgar had already hit 60 per cent of his neighbours in the village of 3000 people by April 6 when health authorities finally declared an emergency and sealed off the village.

By that time a 39-year-old census taker in the neighbouring state ... was desperately seeking medical help for a nasty respiratory illness .... On April 9, Adela Gutierrez was in the intensive care unit ... barely able to breathe, her feet and hands blue from the lack of oxygen in her blood. Despite antibiotics, she continued to deteriorate; doctors could not figure out what was wrong. On April 12, a preliminary test suggested she had the highly contagious coronavirus associated with SARS (severe acute respiratory syndrome). Realising he had a crisis, the hospital director ... quarantined the other 20 seriously ill patients in intensive care and tried to calm his terrified staff, 16 of whom were later to fall ill. Within 24 hours Gutierrez was dead.¹

Imagine you are a healthcare worker² reading the above which suggests that a disease outbreak is likely to cause considerable illness and many deaths. One month later an influenza pandemic, arising in Mexico, is announced by the World Health Organization (WHO)³ and you recall the earlier report. Would you, despite any concerns for your own safety or that of your family, be prepared to work or do you believe you have a legal right to refuse to do so? Healthcare workers, at least in developed countries, are no longer aware that they may be exposed to an infectious

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² The healthcare workforce includes professionally regulated workers (for example doctors, nurses and midwives) as well as the unregulated workforce (cleaners, clerical workers, kitchen staff etc.).
disease which could cause their death. However the reality is that new infectious diseases do appear which may pose a threat to the workforce.

Today, one example of a potential threat, with a mortality rate of around 50-60 per cent, is Highly Pathogenic Avian Influenza. The majority of these deaths have occurred where access to sophisticated health care is often limited. Cases identified to date have arisen following the direct exposure of individuals to domestic bird flocks (including the faecal matter of birds) often at local meat markets. There remains little evidence of person-to-person transmission. If avian influenza becomes readily transmissible, and so a pandemic, the concern is that the virus will be equal to or more highly pathogenic than the influenza outbreak of 1918: an outbreak, with an estimated case fatality rate of around 2.5%, which caused millions of deaths globally. One fear is that, in these days of widespread air travel, a virulent influenza virus will travel extremely quickly and be able to cause greater devastation than was the case in 1918.

A Key argument and scope of thesis

The objective of the thesis is to explore evidence of the 1918 pandemic where the shortage of nurses created problems for care delivery. Despite the passage of time, surveys indicate that a percentage of health workers may refuse to work during a pandemic. At the beginning of the 20th century healthcare workers knew their job was intrinsically dangerous. Infectious disease was commonplace and effective treatment limited. See for example: Deborah Palmer, "To Help a Million Sick, You Must Kill a Few Nurses": Nurses’ Occupational Health, 1890–1914 (2012) 20(1) Nursing History Review 14.

New diseases (for example Ebola, Marburg Haemorrhagic fever, Nipah virus) emerge, and ‘old diseases’ (for example cholera, yellow fever and epidemic meningococcal disease) may reappear: World Health Organization, 'World Health Report' (2007), 10. In the Western World, over the last 50 years, three previously unknown infectious diseases: Legionnaires Disease (first seen in 1976), HIV/AIDS (1980’s), and Severe Acute Respiratory Syndrome (SARS – 2002-2003) appeared. Legionnaires and SARS were respiratory diseases but only SARS was transmissible between people. These diseases will be addressed briefly in this chapter because of the way they impacted on the health system and workers.


It is estimated that the pandemic caused up to 50 million deaths: Jeffrey K Taubenberger and David M Morens, '1918 Influenza: the mother of all pandemics' (2006) 17 Revista Biomédica (First published in Emerging Infectious Diseases 2006; 12:15-22 (Authorized reproduction)) 69.
pandemic. The situation of 1918 is compared with the modern nursing workforce to consider whether, during an influenza pandemic, a nurse shortage is a likely possibility and, if so, is there a need to compel performance or supplement the nursing workforce.

Using doctrinal and interdisciplinary analysis of legal and health sciences sources, as well as archival research and case studies of available historical records on responses to the 1918 pandemic at two Sydney hospitals this thesis has considered the 1918 pandemic and the ways in which medical care, and the nursing profession, have changed since then. Records of Sydney hospitals in existence during the 1918 pandemic (namely the Royal Alfred, Sydney and Coast Hospitals), were accessed with the assistance of on-site museum staff. Unfortunately records at the Coast had been lost in a fire meaning primary records only existed at RPA and Sydney hospitals. In addition memoirs written by nurses including histories of hospitals and nurse training were explored.

Newspaper reports were accessed through the website of the National Library of Australia: trove.nla.gov.au/newspaper. Initially the search included major newspapers in Victoria but it became apparent that the same difficulties arose in both states. The major newspaper in NSW was the Sydney Morning Herald and this provided the primary research material. Using the search terms ‘influenza’ (1918) 579 articles were identified, adding the word ‘nurse’ revealed 115 documents. In 1919 the same terms found 3145 mentions (2294 of which were articles) which were further narrowed to 578 by use of the term ‘nurse’. Many articles containing the word ‘nurse’ related to either funeral notices or references to private nurse-run hospitals. While it was evident that nurses were in very short supply during the 1918 pandemic a comparison with the situation in 2016 demonstrates there is now capacity to expand the nursing workforce if required. As will be seen, the nursing workforce of today is considerably different to that of 1918.

The thesis argues that it is reasonable to expect healthcare workers to work during a global influenza pandemic, either by reference to their common law contract of employment or by way of statutory measures. Maintenance of a functioning health service is essential in a situation where large numbers of seriously ill people are likely to require health care. The community generally may experience a higher level of
morbidity\textsuperscript{9} and mortality\textsuperscript{10} if health workers refuse to work. While professional and ethical arguments exist that specifically apply to the regulated workforce (including nurses and doctors), all members of the healthcare team are important and the service will require all workers if it is to function effectively. For that reason, relying on ethical arguments to compel work performance is potentially problematic.

The primary argument of the thesis is that, in accordance with their contract of employment, healthcare workers should expect to work during an influenza pandemic. The basis for the argument is three-fold. Firstly, during an influenza pandemic the virus will be widespread and workers are highly likely to be exposed to the disease outside, as well as within, the workplace.\textsuperscript{11} Evidence from the 2009 influenza pandemic demonstrates that similar levels of viral exposure occurred in both clinical (working with patients) and non clinical healthcare workers.\textsuperscript{12} An argument that healthcare workers are at a much higher risk of influenza because of work exposure does not appear to be supported by the evidence. Secondly, the experience of the influenza pandemic of 1918 demonstrates that nurses were not over-represented in the influenza death statistics.\textsuperscript{13} This is despite the fact that, in 1918, extended working hours combined with ineffective, and potentially dangerous personal protective equipment, would have exposed nurses to greater workplace risk than would be the case for nurses today. Thirdly, while no definitive treatment exists for influenza treatments such as oxygen and artificial ventilation, along with antibiotics to treat associated infections, are now readily available. As it is believed the majority of patients dying of influenza in 1918 did so because of respiratory failure and bacterial

\textsuperscript{9} Morbidity is the level of illness experienced by a group.
\textsuperscript{10} Mortality is the death rate of those known to have died as a result of the disease. Mortality may also be referred to as a Case Rate Fatality (CRF).
\textsuperscript{12} Wing-Hong Seto et al, 'Clinical and Nonclinical Health Care Workers Faced a Similar Risk of Acquiring 2009 Pandemic H1N1 Infection' (2011) 53(3) Clinical Infectious Diseases 280.
\textsuperscript{13} G Dennis Shanks et al, 'Low but highly variable mortality among nurses and physicians during the influenza pandemic of 1918–1919' (2011) Influenza and Other Respiratory Viruses 213.
pneumonias,¹⁴ these treatments have the capacity to dramatically improve survival rates.

The primary focus of this thesis is healthcare workers in the Australian acute public hospital sector, as that is where the ‘sickest’ patients will be during a pandemic. Although the term ‘healthcare worker’ is used broadly (so includes cleaning, catering, clerical and other support staff) reference will often be made to nursing staff as they are the largest single occupational group in the health system.¹⁵ Unlike some other occupational groups, nurses provide patient care twenty four hours a day, seven days a week. The thesis is narrowly focused on the question of working during an influenza pandemic: therefore the analysis offered does not apply to all outbreaks of infectious disease.

There has been discussion in the health literature asking whether use of the word ‘patient’ is appropriate. The term ‘patient’ has been questioned, particularly in areas of mental health, on the grounds that it implies a dependency.¹⁶ Despite this literature, people in receipt of health care services will be called patients throughout this thesis. ‘Patient’ is used here because individuals, suffering from influenza, will need to receive care and are not, really, in a position to ‘collaborate’ with the health care team. Moreover, it has been said that the ‘term ‘patient’ entails a special ethical and legal relationship to the nurse or midwife, and others in the context of professional health care”¹⁷ an observation which has particular resonance for this discussion.

This chapter will first explain what a pandemic is and provide examples of some recent instances where unexpected occupational risks have arisen for healthcare


workers. These are circumstances where ‘new’ infectious disease outbreaks (Legionnaire’s Disease, HIV, SARS) have occurred. In each of these examples the cause of the disease was initially unknown. While other diseases have also emerged, these are chosen as illustrative for different reasons. Legionnaire’s demonstrated the need for a 24/7 public health response; HIV changed the way the health workforce dealt with bodily fluids; while SARS demonstrated the risk a rapidly transmissible respiratory disease could cause. In both the HIV and SARS outbreaks, healthcare workers questioned if they were obliged to care for infected patients. The chapter will briefly explain how influenza A differs from these disease outbreaks. Finally, the thesis chapters will be outlined.

II WHAT IS MEANT BY ‘PANDEMIC’?

In its simplest form a pandemic is defined as a disease which is ‘prevalent throughout an entire country or continent, or the whole world’.

A virus which can be readily transmitted, without the capacity for disease interruption, has pandemic potential however the term ‘pandemic’ provides no information about disease severity. Once an influenza virus has the capacity to transmit rapidly between people, the disease will spread quickly: a fact which explains its pandemic potential. The regular annual influenza season is technically ‘pandemic’ in nature in that the virus is widespread. In fact, it has been said that ‘pandemic and seasonal influenza are not separate entities, they represent a continuum of disease, from the emergence of a novel virus ... to the continued circulation of closely related viruses (of the same subtype) in subsequent

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19 Doshi notes that the WHO has approached the question of ‘pandemic’ by way of description rather than with a clear definition. Peter Doshi, (2011) 89 The elusive definition of pandemic influenza, Bulletin of the World Health Organization, 532-538. Others disagree: Heath Kelly, (2011) 89 The classical definition of pandemic is not elusive, Bulletin of the World Health Organization, 540-541, it is suggested that severity should be part of a ‘risk assessment’ rather than a marker for determining whether a pandemic is underway.

20 See discussion Chapter 2.
years’.\textsuperscript{21} As the seasonal influenza virus is similar to that which has previously circulated, people will have a degree of immunity.

To distinguish from seasonal influenza the word ‘pandemic’ has come to refer to a novel form of influenza to which the community has little or no immunity.\textsuperscript{22} History shows that influenza pandemics occur at irregular intervals\textsuperscript{23} and there have been five recognised pandemics over the past 120 years:\textsuperscript{24} the so-called ‘Russian’ (1889–9), ‘Spanish’ (1918–19), ‘Asian’ (1957–58), ‘Hong Kong’ (1968–9) and ‘Mexican’\textsuperscript{25} (2009) pandemics, which were named after their suspected place of outbreak. While it appears that the virulence of infection, and subsequent death rate, has decreased with each pandemic since 1918,\textsuperscript{26} it may not be safe to assume this will always be the case. Of course, on a more positive note, there is no doubt that changes to promote public health have seen vastly improved standards of living.\textsuperscript{27}

\begin{itemize}
  \item Jonathon Van-Tam and Chloe Sellwood (eds), \textit{Pandemic Influenza} (Cambridge MA; CAB Informational 2nd ed, 2013) 1.
  \item World Health Organization, above n 7.
  \item Jeffrey K Taubenberger and David M Morens, ‘Pandemic influenza–including a risk assessment of H5N1’ (2009) 28(1) \textit{Revue Scientifique et Technique} 187, provides an overview of probable influenza pandemics that occurred over several centuries.
  \item Ibid, at 2 noting that a ‘mild pandemic’ (particularly when it was not possible to identify a new virus microbiologically) might have gone unrecognised.
  \item For the various pandemics mortality rates are estimated as being 1-2.5% (1918-1919); 0.2-0.5% (1957-8); 0.1% (1968-9) and 0.08 to less than 0.5% (2009). Kilbourne, who notes that the severity of the 1919 pandemic was ‘unequalled’, suggests that, given different viral profiles, pandemics probably also occurred in 1929 and definitely in 1946: Edwin D Kilbourne, ‘Influenza pandemics in perspective’ (1977) 237(12) \textit{Journal of the American Medical Association} 1225, 1226. Kilbourne was a respected virologist instrumental in developing ‘genetically engineered influenza vaccines’: Jeffery K Taubenberger et al, ‘In Memoriam: Edwin D. Kilbourne, MD, 1920–2011’ (2011) 204(2) \textit{Journal of Infectious Diseases} 185, 185.
  \item John B McKinlay and Sonja M McKinlay, ‘The Questionable Contribution of Medical Measures to the Decline of Mortality in the United States in the Twentieth Century’ (1977) 55(3) \textit{The Milbank Memorial Fund Quarterly Health and Society} 405; Simon Szreter, \textit{The importance of social
knowledge as well as medical care has improved since the turn of the 20th Century while medical treatments that are commonplace today would have been completely unimaginable in 1918.  

III INFECTIOUS DISEASE AND HEALTH CARE WORK

People with infectious diseases, for example measles, seasonal influenza and gastroenteritis, frequently present to hospitals and in particular to emergency departments, yet these patients are rarely regarded as representing a major threat to the wellbeing of healthcare workers. This is because, with appropriate protections such as the wearing of gloves, the risk to the worker is generally small. In addition, even if the worker becomes unwell, many infectious diseases can be treated successfully. Where a disease is vaccine-preventable — for example hepatitis, measles or whooping cough — workers might be required to accept immunisation as a pre-condition of employment. Consequently, the risk posed to healthcare workers from infectious disease is generally small and there is little awareness today that the ‘job’ can be dangerous: however this was not always the case.

In the days prior to antibiotics, particularly when population overcrowding was combined with poor sanitation, infectious diseases caused many deaths and healthcare workers were clearly at risk. In 1893 Matron McMaster (of the Coast Hospital for infectious diseases) said ‘[w]hen they take up nursing they know they

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29 Interventions as simple as oxygen were not readily available during the 1918 pandemic, see discussion chapter 3.


31 The Coast Hospital, around 10 miles from Sydney, was established in 1881 following an outbreak of smallpox. In 1934 the site was renamed in honour of Prince Henry, Duke of Gloucester. As the rate of infectious diseases started to decline the hospital became a general public hospital, although it continued as a specialty center for the treatment of infectious disease, including providing care for HIV positive patients (as mentioned in the Bryce Courtney book *April Fool’s Day* and the experience of his haemophiliac (and HIV+) son). Prince Henry Hospital closed in 2001 with services transferred to the Prince of Wales Hospital, Randwick, NSW.
must meet infectious diseases and are prepared to nurse them ...’. In the early years of the 20th Century so many nurses contracted and died from typhoid (also called enteric) fever that the Board of the Royal Prince Alfred Hospital convened a committee to investigate how nurses might be best protected.

Health workers during the 1918 pandemic were well aware of the risk of infectious disease exposure inherent in their work and had knowingly accepted that risk. For those workers, the influenza which caused so many deaths created a huge workload but the outbreak, as frightening as it was, was another infectious disease with many patients who needed care. Although the hospital workforce of the time knew nothing of the cause of influenza, nor did they have any worthwhile treatment to offer victims, they continued to work. In part, this was no doubt due to the fact that infectious disease was commonplace, while the hierarchical nature of the workforce would have meant it unlikely that nurses would refuse assignments.

While today healthcare workers are no longer as aware of infectious disease, new viruses and bacteria can arise to remind workers of the potential for infection. Quite reasonably, workers do not expect to die as a result of their work; but, during an influenza pandemic, healthcare workers may fear that their chances of doing so will increase.

Emerging infectious diseases are challenging because the nature of the risks to the health workforce are not clear when diseases first emerge. As a result, when a new infection appears, the question of whether workers have a duty to work may be revisited. The risk profiles of infectious diseases are highly variable. Some diseases are readily transmissible between people (eg measles, influenza), others are less readily transmissible (eg SARS), and other infectious diseases are not transmissible (eg

32 Cordelia Maylean, *Nurses at Little Bay* (Prince Henry Trained Nurses’ Association, 2nd ed, 1990), 60.
33 Dorothy Armstrong, *The First Fifty Years: A History of Nursing at the Royal Prince Alfred Hospital Sydney From 1882 to 1932* (Roden Print, 1982), 38. Armstrong records (at 39) that between 1905 and 1919 8 nurses died of typhoid. Typhoid, as a risk to nurses, was also investigated at other institutions – for example see Helen Gregory, *A Tradition of Care* (Boolarong Publications, 1988), 35.
34 In 1922 the overall mortality from infectious disease was 15 per cent compared with just 1 per cent in 2007: Australian Institute of Health and Welfare 2010. *Australia’s health 2010*. Australia’s Health Series no. 12. Cat. no. AUS 122. Canberra: AIHW, 205.
35 See chapter 3.
Legionnaires) or require non-human intervention or vector (eg malaria). For this reason John Snow\textsuperscript{36} suggested the term ‘communicable diseases’ (rather than contagious) when referring to disease that could be transmitted between people.\textsuperscript{37}

Since 1976, several new diseases have been identified.\textsuperscript{38} Three will be briefly explored because of the way in which they impacted on the health system. Legionnaires and SARS, like influenza, are respiratory diseases, while HIV changed work practices. Because Legionnaires was a non-communicable disease it had little impact on the health workforce, although the outbreak highlighted the importance of having an effective public health team.\textsuperscript{39} HIV caused healthcare workers to consider if they had an obligation to care for such patients at all and changed the way healthcare workers deal with bodily fluids. The SARS outbreak saw some health workers refuse to work.

(i) Legionella – Legionnaires Disease

In 1976 a group of war veterans gathered at the Bellevue-Stratford Hotel in Philadelphia, Pennsylvania for the annual convention of the American Legion. A few days after the convention, several attendees died of suspected heart attacks. Their symptoms were atypical as patients had complained of chest pain, cough and fever. Between July 27 and August 1 1976, 11 attendees died. Within a week, more than 130 attendees were in hospital: 25 died.\textsuperscript{40} Initially it was considered that this could be a

\textsuperscript{36}In 1854 Snow identified the origin of a major cholera outbreak in London: Kathleen Tuthill, John Snow and the Broad Street Pump, UCLA Department of Epidemiology: School of Public Health http://www.ph.ucla.edu/epi/snow/snowcricketarticle.html last accessed 15 April 2016.

\textsuperscript{37}John Snow, ‘On Continuous Molecular Changes, More Particularly in Their Relation to Epidemic Diseases’ (1985) 7(3) Reviews of Infectious Diseases 441, 443, nn 4.

\textsuperscript{38}Diseases do emerge or re-emerge at times. In 2014 the world saw a large outbreak of Ebola (which presented a high risk to the health workforce) see http://www.cdc.gov/vhf/ebola/ last accessed 16 February 2016. Although the virus was first identified in humans in 1952, there is now a developing threat from a mosquito-borne disease: Zika. Zika generally causes a mild illness, but may be implicated as a cause of infant microcephaly where the expectant mother has been infected: http://www.who.int/mediacentre/factsheets/zika/en/ last accessed 16 February 2016.

\textsuperscript{39}The public health team (also called ‘The Disease Detectives’) were instrumental in identifying the source of this disease: ‘The Philadelphia Killer’ (1976) (August 16) Time 54, especially 58.

\textsuperscript{40}By the end of the outbreak, 34 out of 221 infected people died (a mortality rate of just over 15.3 per cent). The elderly and those with compromised immune systems were most at risk: Ronald Kotulak, ‘Legionnaires’ Disease Less Mysterious, Still Deadly’, Chicago Tribune 1986 http://articles.chicagotribune.com/1986-08-31/news/8603050199_1_legionnaires-disease-water-tower-rare-disease last accessed 21 November 2014.
novel outbreak of influenza. Fortunately one physician had cared for three of the deceased and noticed they had all attended the same conference. He advised public health authorities of his concerns and, after a delay (as the public health department was not then available 7 days a week), an investigation commenced. It was later proven that the disease was caused by bacteria (Legionella) found in dirty water stored in air-conditioning units. As a bacterium was the cause, individuals could be treated effectively with antibiotics. Since 1976 there have been isolated cases of Legionnaires’ disease, including a death in Western Australia following exposure to bacterial spores in potting mix and recent outbreaks in Sydney. Despite being a respiratory disease, Legionnaires’ does not present a risk to the health workforce as person-to-person transmission does not occur. The initial outbreak highlighted the importance of having a dedicated 24 hour public health team to investigate disease outbreaks. As will be discussed in chapter 2, public health surveillance now occurs at local, national and international levels.

(ii) HIV

Between June 1981 and April 12 1982 the USA Centres for Disease Control and Prevention (CDC) identified 19 cases of Kaposi's sarcoma and/or pneumocystis carinii pneumonia, a rare and unusual form of pneumonia, within a previously healthy

42 Above n 39.
43 Kotulak, above n 40.
44 Ibid.
45 Ibid.
46 Liam Croy, 'Death Promotes Potting Mix Alert', West Australian (online) 21 February 2014.
49 Kotulak, above n 40. In 2000-2001 an outbreak at the Melbourne Aquarium resulted in policy and regulatory changes. A summary of that outbreak (and exploration of the role of interested parties, including the media) can be found in Christopher Reynolds Public Health Law and Regulation (2004, Federation Press), Chapter 8, 235-251. (Case study by Priscilla Robinson.)
homosexual male population. Of the 19 patients known to be infected, 11 died.\textsuperscript{51} It took some time before the causative agent was identified as the Human Immunodeficiency Virus (HIV).\textsuperscript{52} The virus caused a breakdown in the human immune system leading to an Acquired Immunodeficiency Syndrome (AIDS).

It became evident that contamination with blood from an HIV positive person presented a risk.\textsuperscript{53} The question of whether a healthcare worker was obliged to provide care to this group of people became an active discussion among practitioners as well as in clinical and ethical journals:\textsuperscript{54} some refused to care for HIV positive patients.\textsuperscript{55} Questions were also raised as to whether HIV positive staff should remain in positions where they had patient contact.\textsuperscript{56} Ultimately it was determined that transmission in the workplace was difficult and the level of fear began to abate.\textsuperscript{57}

\textsuperscript{51} http://www.cdc.gov/mmwr/preview/mmwrhtml/00001114.htm The CDC set up a task force and commenced surveillance on the disease: Guinan, above n 50.

\textsuperscript{52} Two groups of researchers, in contradictory reports published in the same journal, identified the possible causative agent in 1983, the first (Gallo et al) called the virus HTLV-III (human T-lymphotropic virus) Robert C Gallo et al, 'Isolation of human T-cell leukemia virus in acquired immune deficiency syndrome (AIDS)' (1983) 220(4599) Science 865. The second group –Françoise Barré-Sinoussi et al, 'Isolation of a T-lymphotropic retrovirus from a patient at risk for acquired immune deficiency syndrome (AIDS)' (1983) 220(4599) Science 868 called the virus they had found a 'lymphadenopathy-associated virus (LAV)'.

\textsuperscript{53} Denise M Cardo et al, 'A Case–Control Study of HIV Seroconversion in Health Care Workers after Percutaneous Exposure' (1997) 337(21) New England Journal of Medicine 1485. Seroconversion refers to the appearance of HIV antibodies in the blood. The risk of seroconverting as a result of exposure is estimated at about 0.3%. AIDS develops as a long term consequence of being HIV positive without treatment.


\textsuperscript{56} Scott H Isaacman, 'The Other Side of the Coin: HIV-Infected Health Care Workers' (1990) 9 Louis University Public Law Review 439.

\textsuperscript{57} Julie Louise Gerberding, 'Incidence and prevalence of human immunodeficiency virus, hepatitis B virus, hepatitis C virus, and cytomegalovirus among health care personnel at risk for blood exposure: final report from a longitudinal study' (1994) 170(6) Journal of Infectious Diseases 1410 also pointed out (1414) that pooled data suggested the risk following percutaneous injury with HIV positive blood was around 0.25% with apparently little risk from mucosal, patient care, and fomite exposure. However, it was acknowledged the study group was too small to be determinative, estimating the risk (again from pooled data) to be 0.10%.
The HIV outbreak reminded doctors and nurses that their workplace could expose them to a risk of a deadly infection. It also caused a change in workplace practices by requiring workers to take precautions against risk of contamination with blood or blood products. Today these measures are known as standard precautions and emphasise the importance of hand washing, as well as the use of gloves and appropriate protective equipment when providing patient care. However the primary emphasis is on protection against blood-borne rather than respiratory disease. In Australia it is not routine for health workers to wear masks when caring for patients presenting with a respiratory disease.

(iii) **Severe Acute Respiratory Syndrome (SARS)**
Compounding concerns about a potential outbreak of a novel influenza is the experience of Severe Acute Respiratory Syndrome (SARS). In November 2002 ‘unconfirmed reports’ of an unknown respiratory disease, circulating in the Quandong region of China, emerged. By February 2003 the first case of SARS was identified. A medical professor had been treating patients with this new disease prior to attending a conference in Hong Kong. While at the conference he became seriously unwell, eventually dying in hospital. Subsequently, other people with whom he had been in contact, including those who had merely stayed at the same hotel, became infected and some died. By the time it was recognised that this was a new disease air travel had transported infected people away from Hong Kong, causing a rapid global dissemination with the virus appearing in 30 countries. A global effort saw the new...
virus identified and classified within months of its first appearance.\(^6^3\) SARS created a huge workload for public health officials and wreaked havoc on economies and tourism.\(^6^4\)

During the SARS outbreak, contact tracing of exposed individuals coupled with quarantine was effective in interrupting disease progression.\(^6^5\) This meant that those who had been exposed, but were as yet asymptomatic, could remain at home. It was only once they developed symptoms that they needed medical care. The patient was most ‘infectious’ when they were severely ill or in a phase of rapid clinical deterioration.\(^6^6\) These facts meant healthcare workers were exposed to a higher degree of risk when compared to other members of the community.\(^6^7\) Much occupational exposure occurred before it was even understood that a new virus was circulating.

SARS caused some healthcare workers to fear attending for work.\(^6^8\) Some refused to work on occupational health and safety grounds.\(^6^9\) Those who did work were called ‘heroes’ but, at the same time, occasionally shunned when out in the community.\(^7^0\) In Canada, in recognition of the danger they faced, nurses (and other staff) were offered financial incentives to work, but the ad hoc application of these benefits without trade union consultation created problems.\(^7^1\)

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64 The media was also implicated in the tourism downturn. For example, Peter Mason, Peter Grabowski and Wei Du, ‘Severe Acute Respiratory Syndrome, tourism and the media’ (2005) 7(1) International Journal of Tourism Research 11.


67 Healthcare workers made up 21 per cent of the infected group: ibid 14.


70 In Singapore, one medical officer was excluded from his family home because of fear: Singapore Heroes: SARS Heroes http://singaporeheroes.weebly.com/sars-heroes.html last accessed 22 May 2014.

71 See for example: Ontario Nurses’ Association v Sunnybrook and Women’s College Health Sciences Centre, Toronto East General and Orthopaedic Hospital, Inc., North York General Ontario Hospital
More recently an outbreak of Middle Eastern Respiratory Syndrome (MERS) has been identified as being a similar, but less readily transmissible, viral relation of SARS. The disease currently has a mortality of around 30 per cent. The mode of transmission between people is, as yet, uncertain. Unlike SARS it appears that MERS may result in an asymptomatic infection. The disease is being closely watched by the WHO and countries have been advised to strengthen their viral surveillance. Like SARS, healthcare workers are currently over-represented within the numbers of those infected.

IV WHY IS THIS DISCUSSION IMPORTANT?

For healthcare workers two features link the 1918 pandemic, Legionnaires disease, HIV, and SARS: uncertainty and fear. In all situations the exact cause of the disease was initially unknown. The risk of contracting each disease, and the consequence of doing so, could not be assessed at the outset. These unknowns resulted in fear. The difference between HIV and the other diseases is the mode of transmission. It was quickly apparent HIV was spread through exposure to blood which meant that protective measures, such as gloves, could be effective: this led to the implementation of universal (now standard) precautions. While there is no evidence of person-to-


72 Centres for Disease Control and Prevention, Middle East Respiratory Syndrome (MERS) http://www.cdc.gov/coronavirus/mers/about/index.html last accessed 22 May 2016.

73 So, for example, the CDC describe the appearance of antibodies to MERS-CoV that would indicate a person had previously been infected with MERS-CoV: Centers for Disease Control and Prevention, Illinois resident who had contact with Indiana MERS patient tests positive for MERS coronavirus (17 May, 2014) http://www.cdc.gov/media/releases/2014/p0517-mers.html last accessed 2 June 2016.


76 The influenza virus was not identified until 1933, well after the 1918 pandemic: see chapter 2.

77 Shilpa B Rao, 'How Universal are Universal Precautions?' (2009) II(12) Virtual Mentor 949, points out that poor compliance is commonplace.
person transmission with Legionnaires disease, respiratory-based diseases which are spread by way of droplets, such as influenza and SARS,\textsuperscript{78} can be difficult to control.

The spectre of the 1918 pandemic, coupled with the current known 50 per cent or higher mortality rate of H5N1 (avian) influenza,\textsuperscript{79} and the estimated 10 per cent mortality of SARS\textsuperscript{80} where some workers refused to work, has led researchers to question whether healthcare workers would work during an influenza pandemic.\textsuperscript{81} The concern has been highlighted because, during SARS, healthcare workers were over-represented in numbers of those infected.\textsuperscript{82} Obviously, healthcare workers would fear a disease with a mortality rate of 50 per cent: if there was such a high death rate the likely reality is that most people would simply stay at home. However evidence from past influenza pandemics does not suggest an outbreak would ever have a sustained mortality rate anywhere as high.\textsuperscript{83}

Today the cause of influenza is known and a new variant can be readily identified. In 2009 it took about two weeks to sequence the new H1N1 virus, with this

\textsuperscript{78} The influenza virus may live for some hours on surfaces. For example: B Bean et al, 'Survival of influenza viruses on environmental surfaces' (1982) 146(1) Journal of Infectious Diseases 47-51; the question of whether large or small droplets are most important in transmission remains unresolved: WHO, above n 66.

\textsuperscript{79} World Health Organization, 'Weekly Epidemiology Record' (2015) 28(90) 349, 351. Between 2003-2013 all case mortality was 60 per cent. However it is also estimated that, if asymptomatic infections are taken into account, the current true mortality is likely to be 14-22 per cent: FCK Li et al, 'Finding the real case-fatality rate of H5N1 avian influenza' (2008) 62(6) Journal of Epidemiology and Community Health 555. This will be discussed in chapter 3.

\textsuperscript{80} WHO, above n 60.


\textsuperscript{82} It is estimated that globally 21% of healthcare workers were infected. As a percentage of infected individuals HCW rates were estimated as being 57% (Vietnam); 43% (Canada) and 41% (Singapore: some died. See DYH Tai, 'SARS plague: duty of care or medical heroism?' (2006) 35(5) Annals - Academy of Medicine Singapore 374. Also WHO, above n 66. Risk of exposure was not necessarily uniform. In the US, none of 110 workers exposed to patients with SARS demonstrated any evidence of infection. A finding the authors attributed to limited HCW exposure to high risk patients or procedures: Benjamin J Park, Angela J Peck, Matthew J Kuehnert, Claire Newbern, Chad Smelser, James A Comer, Daniel Jernigan, and L Clifford McDonald 'Lack of SARS Transmission among HCW's United States' (2004) 10 (2) Emerging Infectious Diseases www.cdc.gov/eid.

\textsuperscript{83} There were isolated examples of high mortality outbreaks of influenza prior to the ‘explosion’ in 1918: see Chapter 3.
information available even before the pandemic was announced.\textsuperscript{84} Identification of a new influenza virus does not necessarily mean it will be highly pathogenic\textsuperscript{85} and it is not possible to initially determine how the virus will affect ‘its human prey’.\textsuperscript{86} The fact that scientists can today identify a new virus (including a novel form of influenza) in a timely fashion means that healthcare workers can be given early notice. Without the capacity to distinguish the influenza virus, mild pandemics may have previously gone unrecognised: a fact that may have led us to consider a pandemic outbreak is likely to be ‘more severe, most explosive’\textsuperscript{87}. However, increased sensitivity in testing could also lead to an (apparent) increase in pandemics as ‘new’ influenza viruses, which have little impact on the community, and so ‘mild pandemics’, can be detected.\textsuperscript{88} Yet, early notice may also result in fear: particularly if workers know little about influenza. Many surveys exploring the work intention of employees during an influenza pandemic suggest that people may be unwilling to work.\textsuperscript{89}

The thesis explores evidence that suggests, even if the next pandemic did arise from avian\textsuperscript{90} influenza, a mortality rate approaching as high as 7 per cent would be extraordinary.\textsuperscript{91} The true number of dead in 1918 is unknown and it has been noted that the death rate has been the subject of historical upward revision.\textsuperscript{92} In the ‘worst’ pandemic, occurring at a time where there was no effective medical care, the mortality rate was comparatively low and nurses were not generally over-represented in the

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\textsuperscript{84} Theresa McPhail, \textit{The Viral Network: A Pathography of the H1N1 Influenza Pandemic} (Cornell University Press, 2014), 30-31.

\textsuperscript{85} Michael A Vance, ‘Disease Mongering and the Fear of Pandemic Influenza’ (2011) 41(I) \textit{International Journal of Health Services} 95.

\textsuperscript{86} Sipress, above n 6, 239.

\textsuperscript{87} Taubenberger and Morens, above n 23, 189.

\textsuperscript{88} McPhail, above n 84, 187.


\textsuperscript{90} Many virologists think the likelihood of a pure avian basis for an influenza outbreak highly unlikely: Taubenberger and Morens, above n 23, especially 200-201.

\textsuperscript{91} Mark Honigsbaum, ‘Putting pandemics in perspective’ (2011) (Policy paper I26) \textit{www.historyandpolicy.org}.

death statistics. As noted by one researcher, even in 1918, ‘you might get sick, but chances are you won’t die’ from influenza.\textsuperscript{93}

Operating on the premise that workers may refuse to work primarily, but not exclusively, because of fear, scholars have proposed alternative grounds (such as ethical obligations,\textsuperscript{94} or express contractual clauses\textsuperscript{95}) which might be used to promote work performance — some of these grounds will be explored during the thesis. However, it is argued that workers in the health arena should be expected to work during an influenza pandemic under their common law contract of employment. The obligation to work, in return for payment, is the essence of the employment relationship. It is both unhelpful and unnecessary to conceptualise work attendance during an influenza pandemic as a ‘duty to treat’\textsuperscript{96} or to ‘care,’\textsuperscript{97} therefore as something ‘more’ than the normal obligation to work. Framing the requirement to work on the basis of ethical or alternative grounds suggests that workers are being asked to do something extra-ordinary: as was the situation in SARS.\textsuperscript{98}

While the SARS outbreak did cause considerable danger for a small percentage of the health workforce, this will not be the case in an influenza pandemic. During an influenza outbreak everyone is potentially at risk and workers are merely being asked to do their job. Rather than developing reasons to justify or augment an obligation to work, health workers need to be better educated about influenza. Surveys have revealed that healthcare workers do not understand what the word ‘pandemic’ means;

\textsuperscript{93}Karen Slonim, “Send only your serious cases.” Delivering flu to Toronto: An anthropological analysis of the 1918-1919 Influenza Epidemic in Toronto, Ontario, Canada. (Doctorate of Philosophy Thesis, University of Missouri-Columbia, 2010), 2.


\textsuperscript{95}Heidi Malm et al, ibid.

\textsuperscript{96}Ibid.


\textsuperscript{98}For example: Mark L. Clifford, Dexter Roberts and Michael Shari, Heroes of the SARS wars http://www.businessweek.com/stories/2003-06-08/heroes-of-the-sars-wars; Tai, above n 82.
they simply assume it to be ‘bad’. This knowledge deficit could largely be rectified by way of education which could help to make workers less fearful. This education should include the fact that most people who become unwell with influenza recover, and that attendance at work is unlikely to increase the likelihood of death. Finally, workers should be advised that, while SARS caused healthcare workers to fear that they could be exposed at work, leading to the potential exposure of their families, the situation with influenza is different. During the SARS outbreak, community exposure to the virus was highly unlikely: with influenza, exposure in the community will likely occur just as frequently as in the health care setting.

Past experience demonstrates that once a novel influenza virus becomes rapidly transmissible, and achieves pandemic status, the genie will be out of the bottle. Everyone will face the risk of infection. Although it might be anticipated that the health care workforce could face a slightly higher risk because of a concentration of infected individuals who are admitted to health facilities, this does not necessarily translate to a higher mortality.

On that basis it is argued that workers have a contractual obligation to continue work; an obligation which is not altered by the declaration of an influenza pandemic. An assumption that health workers are going to be at a considerably greater risk at work is not borne out by the historical and medical evidence. The perception of serious danger has been skewed by the SARS experience. Arguments based on suggestions that by working during an influenza pandemic, health workers will be asked to go ‘beyond the call of duty’ and do something extraordinary, ignore the well known characteristics of an influenza pandemic. During an influenza pandemic any person coming in contact with multiple people during their working day (for example a bus driver or a school teacher) will be exposed to the risk of infection. In light of this, the failure of a healthcare worker to attend work, without legal justification, could be accepted by the employer as a repudiation of the employment contract, and provide employers with the option of lawful termination of

employment. For healthcare workers, workloads are likely to increase, but it will be a day (nearly) like any other during an influenza pandemic.

Having briefly outlined the argument, the thesis explores the issues in the following way:

**A Chapter Outline**

**Chapter 2** explores the nature of the influenza A virus and the risk involved in an influenza pandemic. The valuable role global surveillance plays in alerting the world community to new outbreaks of infectious disease, including influenza, will be discussed. It is noted that influenza A has certain characteristics: once the virus adapts to allow person to person transmission the virus will spread rapidly and containment will be impossible. While the ‘worst’ influenza pandemic the world has known had a variable global mortality, the overall case fatality rate was estimated to be 2-3 per cent.\(^{101}\) Historical analysis reveals that, in the early stages of that disease outbreak, mortality rates might have been as high as 25-50 per cent.\(^{102}\)

Despite uncertainty of the possible mortality, the widespread nature of influenza means that workers face risks at home, work and within the community. In fact, evidence suggests that workers who have children at home\(^ {103}\) may be more at risk and so may themselves present a greater risk to colleagues.

**Chapter 3** explores the experience of the 1918 influenza pandemic. Although, evidence from 1918 reveals that many nurses did become sick, and some died, they were not over-represented as an occupational group in the death statistics. Working conditions of Australian nurses at the time will be explored, arguing that those conditions, coupled with ineffective protective equipment, potentially placed them at a higher risk of death than would be the case today. The chapter also outlines some of the improvements in medical care, and technology (for example oxygen and ventilator

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102 John S Oxford et al, ‘A hypothesis: the conjunction of soldiers, gas, pigs, ducks, geese and horses in Northern France during the Great War provided the conditions for the emergence of the “Spanish” influenza pandemic of 1918–1919’ (2005) 23(7) Vaccine 940. See chapters 2 and 3.

103 Williams et al; MacIntyre et al, above n II.
support\textsuperscript{104}), which allows treatment for the patient with any acute respiratory illness: including influenza. Finally the chapter briefly considers the experience of SARS and the primary differences between SARS and Influenza. Even though SARS occurred over a decade ago, that outbreak provides a useful counterpoint to a discussion about influenza. The discussion will explain why the health workforce was at greater risk during the SARS outbreak than were the general community: a situation that will not arise in influenza.

Next, \textbf{Chapter 4} explains that the common law contract of employment imposes a legal obligation on nurses to work. This chapter will review surveys that suggest a component of the health workforce may refuse to work. It is argued that, during an influenza pandemic, it would be lawful and reasonable for the employer to expect workers to work in line with their employment contract. If workers refuse, the employer could issue a directive demanding work performance. It will be recommended that workers be given access to educational materials about influenza and reminded that their contract of employment requires them to work during an influenza pandemic. Although it will be argued that work during a pandemic should not attract additional payments, if such incentives are deemed necessary, these should be negotiated prior to an outbreak of disease.

\textbf{In Chapter 5} it is suggested that public sector workers may have an additional obligation to work as they, unlike private sector employees, are required to adhere to statutory-based codes of conduct as well as being employed to provide care to the ‘public’ generally. The fact that some Australian states and territories have legislation in place that could be invoked to compel health workers to work during a pandemic is explored. Reinforcing the common law obligation to work, employees should be reminded that public sector employment gives rise to certain expectations: including working during an influenza pandemic and failure to work will be met with an appropriate penalty.

Today the technical nature of health care means a trained professional health workforce is essential. While volunteers could have a limited role during a pandemic,  

\textsuperscript{104} Artificial ventilation was first used in 1953 but not really in common use until the 1970’s: Fiona E Kelly et al, ‘Intensive care medicine is 60 years old: the history and future of the intensive care unit’ (2014) 14(4) Clinical Medicine 376.
they cannot replace qualified staff. However, increased workloads as well as staff sickness may mean the health workforce could need supplementation.

**Chapter 6** explores differences in the nursing workforce in 1918 compared with today. Today nurses need to hold a valid practising certificate in order to work. If the workforce is to be expanded people need to be able to quickly re-enter the profession. It is suggested that the ‘public interest’ registration process in the *Health Practitioner Regulation National Law Act 2009* (Qld) needs to be flexible during a pandemic. Consideration could be given to an emergency provision that would allow health professionals who had allowed their registration to lapse, to re-register with a minimum of delay. This emergency provision would facilitate re-entry of qualified staff to the professional workforce.

Employers’ obligations under work health and safety legislation to take ‘reasonably practicable’ steps to protect people in the workplace are considered in **Chapter 7**. Surveys reveal that willingness to work during a pandemic falls dramatically if personal protective equipment (PPE) is not available. Where a pandemic risk exists in the community, or may be transmitted by way of interaction between colleagues, it may be unreasonable for staff to demand full protective equipment at all times. The fact that workers frequently contaminate themselves when using PPE is also a reason to question whether there is any value in insisting on its extensive use. It is suggested that the best protection for staff will be good cough hygiene from patients and colleagues, and frequent hand-washing. As a side issue, it is argued that infection control should be clearly placed under the umbrella of work health and safety legislation in order to avoid any potential disconnect between the two.

Vaccines, as a tool to reduce the incidence of many childhood infectious diseases, are well proven. **Chapter 8** explores how vaccines work and the benefits they provide. Despite these benefits, some argue vaccines are dangerous. Past

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105 The *National Health Law 2009* as adopted in other States and Territories, see chapter 6.

106 In order to protect the public, any reinstatement of lapsed registration would exclude nurses and doctors who have had their registration revoked (on a temporary or permanent basis) by the regulation authority: Australian Health Practitioner Regulation Authority.

107 Sharon Dezzani Martin, ‘Nurses’ ability and willingness to work during pandemic flu’ (2011) 19(I) *Journal of Nursing Management* 98.
experience shows that, even when a disease has a high mortality rate, people may actively object to vaccination and compulsion can lead to dissent.

Despite the clear value of many other vaccines, the value of vaccination against influenza is less clear. Consequently, it is argued that seasonal vaccination should not be compulsory for healthcare workers. Given delays in vaccine production, immunisation of workers during a pandemic may not be necessary as healthcare workers could already have produced antibodies against the pandemic strain. As a result, if workers were to be preferentially vaccinated, this might be an inappropriate use of what could be a scarce resource. It is also argued that, during a pandemic, rejection by health workers of a vaccine could negatively impact upon the acceptance of the vaccine by the general public. Therefore workers should be offered, but not compelled, to receive vaccinations against a pandemic strain.

Chapter 9 provides a brief overall summary of the discussion. Recommendations are made under five headings: (1) Employment obligations: the employment contract combined with being a public sector worker, reinforce the requirement to work. Refusal to work should be accompanied by an appropriate penalty including, for the nurse, a notification to the Nursing and Midwifery Board of Australia. (2) Increasing the nursing workforce by activating nurses who are registered but currently not working as well as a fast track (perhaps limited) registration in the public interest for recent retirees: particularly those who have critical care skills. The Nursing and Midwifery Board of Australia has a role to play in contacting professionals to ask them to consider returning to work during a public health emergency and could also generate a statement reminding professionals that, during a community-wide outbreak of disease, they have a professional duty to continue to work if employed to do so. If students of nursing are to be utilised as workers during a pandemic it is necessary to first (a) identify their industrial entitlements (b) scope of practice and (c) educate the workforce as to the role expected of these workers. (3) Work health and safety, given the lack of certainty as to the modes of influenza transmission, combined with the risk of self-contamination upon removal of personal protective equipment it is recommended that good hand hygiene and cough etiquette is, for the most part, likely to provide sufficient protection in the workplace. It is also recommended that infection control should
become a clear obligation lying within work health and safety and not, as currently is the case, as a parallel obligation. (4) Given past experiences where compulsory vaccination has resulted in public dissent it is recommended that healthcare workers not be compelled to accept vaccination against seasonal influenza. As a vaccine against the pandemic influenza strain will not be available for several months healthcare workers who have been exposed may have already developed a degree of immunity and so preferential vaccination of this group may be a waste of a potentially scarce resource. Finally, (5), the importance of educating the workforce about the likely real (low) danger of influenza and the meaning of the word ‘pandemic’ is stressed. The public health message may need to be nuanced to more accurately reflect the reality that, in the absence of high risk factors, most people with influenza will experience a short term illness. A re-worked message, particularly given the diffident value of anti-viral medications, may reduce the pressures caused on the health system by the ‘worried well’. It is also questioned whether academics should continue to undertake surveys asking ‘will you work’ during an influenza pandemic as this reinforces the perception that workers will be asked to do something ‘extra’ during a pandemic which, the thesis has argued on the evidence explored, is not the case during an influenza pandemic.

The following chapter explains the nature of influenza A, the differences between seasonal and pandemic influenza and the role that surveillance plays in identification of new diseases: including influenza.
Chapter 2
INFLUENZA

I INTRODUCTION

At the time of the 1918 influenza pandemic the causes of infectious disease were poorly understood. Considerable scientific advancement occurred in the following years: including identification of the influenza virus.\(^1\) It is now known that infectious disease can occur as a result of exposure to a number of substances including bacteria,\(^2\) viruses,\(^3\) fungus\(^4\) and prions.\(^5\) Infectious disease may be transmitted by way of exposure to blood,\(^6\) respiratory droplets\(^7\) or even ingestion.\(^8\) Some diseases (for example Ebola\(^9\) and SARS) are not readily transmitted between individuals, while others, such as measles and influenza, are highly infectious. Different characteristics

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1 Wilson Smith, CH Andrewes and PP Laidlaw, ‘A virus obtained from influenza patients’ (1933) 222(5732) The Lancet 66. See discussion in chapter 3.
2 For example Legionnaires disease, Haemophillus influenza and diphtheria.
3 For example measles, whooping cough and HIV.
4 Meningitis may have a bacterial, viral or fungal (and occasionally parasite) cause see NINDS Meningitis and Encephalitis Fact Sheet, http://www.ninds.nih.gov/disorders/encephalitis_meningitis/detail_encephalitis_meningitis.htm last accessed 7 January 2015. Pneumocystis jiroveci pneumonia (previously called Pneumocystis Carinii Pneumonia) is a fungal infection that causes illness in immunosuppressed persons. Prior to the HIV/AIDS epidemic the illness was rarely seen.
5 Prions are ‘an abnormal version of a protein called a prion (prion is short for proteinaceous infectious particle). Prion proteins occur in both a normal form, which is a harmless protein found in the body’s cells, and in an infectious form, which causes disease’. Human disease occurring as a result of prion infection include Creutzfeldt-Jakob Disease (CJD) as well a variant of CJD thought to be caused by eating beef infected with a bovine spongiform encephalopathy or BSE. See NINDS Transmissible Spongiform Encephalopathies Information Page http://www.ninds.nih.gov/disorders/tse/tse.htm last accessed 7 January 2015.
6 For example Ebola, HIV, Hepatitis; infection may also be transmitted by injection.
7 Influenza, Pertussis (whooping cough), SARS.
8 The earliest recorded example of which was Kuru. Kuru was a disease found in cannibalistic tribes of Papua New Guinea. Eating the brains of infected individuals, or contact of infected tissues to open wounds, spread the disease - a form of transmissible spongiform encephalopathies (TSEs). There was a long delay between exposure and symptoms. Death usually occurred within 12 months of first symptoms. See NINDS Kuru Information Page: http://www.ninds.nih.gov/disorders/kuru/kuru.htm last accessed 7 December 2015.
of infection pathways have implications for containment.\textsuperscript{10} Where there is a delay between exposure to a person with an infection and the onset of symptoms in the exposed individual, public health interventions, including isolation and quarantine, have the potential to effectively interrupt the transmission of illness thereby ending the disease outbreak.\textsuperscript{11}

Regardless of the origin of a novel influenza A, once a new form of the virus becomes readily transmissible between humans, the disease will spread through the population quickly. This chapter discusses the characteristics of the influenza virus, exploring public fear of a highly pathogenic\textsuperscript{12} influenza. The role that local and international influenza surveillance plays is briefly considered. Mention is made of the historical evidence that suggests that, while mortality rates may be high at the start of an outbreak, the mortality rate is likely to reduce over time\textsuperscript{13} even if morbidity remains high. The chapter concludes that, in both seasonal and pandemic outbreaks, the virus will be widespread throughout the community, with people (including healthcare workers) exposed to the virus at work as well as at home.

II THE INFLUENZA A VIRUS

Influenza is a chameleon of a virus that constantly undergoes change. The causative agent is an orthomyxovirus with three common strains: influenza A, B or C.\textsuperscript{14} Influenza C does not cause significant human disease.\textsuperscript{15} Influenza B does cause disease

\textsuperscript{10} See discussion chapter 4.

\textsuperscript{11} For example measles is very infectious and keeping people home can halt disease spread. Media can advise people of the risks, encouraging people to be alert to signs and symptoms after possible exposure; for example: Julia Medew, 'Measles alert follows RMIT graduation ceremony', The Sydney Morning Herald, (online) 6 January 2015.

\textsuperscript{12} Pathogenic means the ability to cause disease.

\textsuperscript{13} It is suggested that this is, at least in part, because severe cases are most likely to be first diagnosed: David N Fisman, Gabriel M Leung and Marc Lipsitch, 'Nuanced risk assessment for emerging infectious diseases' (2014) 383(9913) The Lancet 189, 190.


in humans but does not cause pandemics. The primary cause of human influenza disease (both seasonal and pandemic) is the influenza A virus.

While only a virologist can write a definitive account, a brief overview of the cellular replication of the influenza A virus is necessary at this point because, as noted by Dr Ryan, it is important to ‘know thy enemy!’

A Cellular invasion and replication of the influenza virus

Unlike a bacterium, which is a self-contained organism and independently capable of multiplication, a virus is ‘a piece of genetic material, protected by proteins and in some cases also by a membrane’ and unable to self-replicate. In order for any virus to multiply, it must first find an entry point into a host cell. The influenza A virus is a ‘single stranded RNA’ which has 8 gene segments. The outside of the influenza A virus contains two surface proteins (hemagglutinin (HA) and neuraminidase (NA)) and the virus is classified by reference to these proteins: there are currently known to be 16 HA and 9 NA subtypes. The HA and NA components are, along with a further protein (M2), also known as ‘antigens’— meaning that they are a ‘foreign substance

16 Influenza C is one virus responsible for the ‘common cold’: Lars R Haaheim and John S Oxford, ‘Basic Influenza Virology and Immunology’ in Jonathon Van-Tam and Chloe Sellwood (eds), Pandemic Influenza (CAB international, 2013), 19.
17 Influenza B is said to be prone to less frequent ‘significant new drift variations’ so has less pandemic potential: Maria C. Zambon, ‘The pathogenesis of influenza in humans’ (2001) II(4) Reviews in Medical Virology 227, 228. That is not to say that Influenza B cannot cause significant disease: Jonathan A. McCullers and Frederick G. Hayden, 'Fatal Influenza B Infections: Time to Reexamine Influenza Research Priorities' (2012) 205 (6) Journal of Infectious Diseases 870-872.
19 Information in this section comes from three primary sources: (1) ibid, chapter 3 (Natural History of the Influenza Virus), (2) Peter C. Doherty, Pandemics: what Everyone Needs to Know (Oxford University Press, 2013) and (3) Jonathon Van-Tam and Chloe Sellwood (ed), Pandemic Influenza (CAB Informational 2013), especially chapter 3 (Lars R Haaheim and John S Oxford Basic Influenza Virology and Immunology).
20 Basic Influenza Virology and Immunology, (Haaheim and Oxford) in Van-Tam and Sellwood, above n 19, 19. Also Doherty, above n 19, 2-3.
22 Van-Tam and Sellwood, above n 19, 23.
23 Ibid 15.
24 Ibid 15- 16.
25 Ryan, above n 18, 58.
that elicits an antibody\textsuperscript{26} response from the host’s immune system’.\textsuperscript{27} The HA spike on the influenza virus binds to receptors found on cells in the human respiratory epithelium (i.e. respiratory tract), thereby effectively opening a gate allowing the virus to enter.\textsuperscript{28} Once the virus has entered the cell it is enveloped by the cellular membrane creating an ‘endosome’.\textsuperscript{29} The M2 protein allows for the ‘uncoating’ and release of these particles into the cell.\textsuperscript{30} Further chemical changes occur and the virus is finally able to replicate,\textsuperscript{31} with the cell becoming a ‘factory’ producing virus particles (virions)\textsuperscript{32} ‘[V]irus release can involve the destruction (lytic\textsuperscript{33} death) of the original production factory, or the infected cell can co-exist with the virus and continue to pump out new virions’.\textsuperscript{34} The cell needs to discharge these particles so that further replication can occur and, in the case of the influenza virus, it is the neuraminidase (NA) enzyme that allows the virions to escape.\textsuperscript{35} What causes one influenza virus to be more pathogenic than another is not understood.\textsuperscript{36}

It has been estimated that, in the case of influenza, the entire process from ‘entry to maturity can take as little as 6 hours’.\textsuperscript{37} This rapid cycle explains why, if it is to be of any benefit, treatment with neuraminidase inhibitors\textsuperscript{38} needs to commence early in order to quickly shut down the ‘virus factory’.\textsuperscript{39} Other drugs (amantadine and...
rimantadine) work by interfering with the M2 activity thereby ‘abort[ing] or slow[ing] down the replication process’ within the host cell.40

III INFLUENZA A - ILLNESS IN THE HUMAN POPULATION

Influenza A is ‘one of the most efficient and infectious pathogens known’41 and causes a respiratory disease which is rapidly and readily spread between people. The ability of a person to infect a number of others in an unimmunised population is known as the replication number (or Ro). Where the Ro is less than 1 a disease is likely to disappear.42 The potential for widespread disease is likely once the Ro is at 1.5-2,43 but this may be a crude assessment for a number of reasons.44 Because the influenza virus replicates quickly, the disease can spread rapidly even with a comparatively low Ro. It has been estimated that the Ro for pandemic influenza in 1918 was between 1.4 and 2.8, while in 2009 the Ro was 1.4 to 1.6.45 However, as the Ro is usually measured by looking at large population aggregates it may not hold true for smaller groups including ‘military camps and ships’ where the Ro can be higher.46

The typical incubation time, that is time from influenza exposure to evidence of illness, for influenza is between 1-4 days (with an average of 2 days). It is known that a person sheds most virus (ie, is most infective) during the early course of their illness when fever is present; and, the more severe the symptoms, the greater the risk to

40 Van-Tam and Sellwood, above n 19, 20.
41 Clinical Aspects of Influenza (Allen W. Kirchner) in Ryan, above n 18, 73.
43 The Ro for diseases, such as pertussis and measles, is over 12 meaning they are highly infectious: https://practice.sph.umich.edu/micphp/epicentral/basic_reproduc_rate.php last accessed 16 February 2016.
44 Fisman, Leung and Lipsitch, above n 13.
others.\textsuperscript{47} Children, and those who are immunocompromised,\textsuperscript{48} are likely to be infective for longer periods of time.\textsuperscript{49} Perhaps of greater concern is the fact that asymptomatic, but infected persons, may contribute to the spread of influenza.\textsuperscript{50} Some researchers believe asymptomatic transmission is unlikely\textsuperscript{51} while others believe that as many as 1 in 3 infected persons may be asymptomatic yet contributing to disease spread.\textsuperscript{52}

Although influenza can be spread in a number of ways, it is believed that transmission occurs primarily by way of droplet dispersal and direct contact. However, despite having first been identified in 1933\textsuperscript{53} with virology ‘truly coming of age’ by 1950\textsuperscript{54} and with allegedly more known about the genetic structure of the ‘influenza type A virus than any other human virus’,\textsuperscript{55} uncertainty remains about the relative importance of various means of transmission.\textsuperscript{56} For example, although it is estimated that the influenza virus can survive on surfaces for an estimated 1-2 days\textsuperscript{57} there is currently no evidence that ‘contact with contaminated surfaces results in transmission of infection’.\textsuperscript{58}

\begin{thebibliography}{9}
\bibitem{47} Van-Tam and Sellwood, above n 19, 58.
\bibitem{48} An immunocompromised person has a less responsive immune system meaning that they are more prone to infection: http://infectiousdiseases.about.com/od/glossary/g/immunocompromised.htm last accessed 21 January 2015.
\bibitem{49} \textit{Influenza Transmission and Infection Control Issues} (Joanne Enstone and Ben Killingley) in Van-Tam and Sellwood, above n 19 68.
\bibitem{51} Elini Patrozou and Leonard A Mertmel, ‘Does Influenza Transmission Occur from Asymptomatic Infection or Prior to Symptom Onset?’ (2009) 124(2) \textit{Public Health Reports} 193. The authors conclude (196) there was ‘limited evidence to suggest the importance of [asymptomatic] transmission’.
\bibitem{53} Smith, Andrewes and Laidlaw, above n 1.
\bibitem{55} Ryan, above n 18, 62.
\bibitem{56} Enstone and Killingley in Van-Tam and Sellwood, above n 19, 69-70.
\bibitem{58} Enstone and Killingley in Van-Tam and Sellwood, above n 19, 69.
\end{thebibliography}
The influenza virus gains entry to the human body by contact with mucosal tissues (this includes eyes, mouth and nose) as well as the respiratory tract. At rest a healthy adult takes around 12–20 breaths a minute, exchanging approximately 500 mls of air each time — at a conservative 12 breaths x 60 (per hour) x 0.5 litre that means a person breathes in (and exhales) around 360 litres of air an hour. This normal breathing is both a means of spread as well as a way of inhaling the virus. An ill person, especially if they have a fever, is likely to have a higher respiratory rate. While you cannot stop breathing, it is believed that good cough etiquette (i.e. covering the mouth when coughing or sneezing) as well as maintaining a distance of around 3 feet from a person who is coughing or sneezing might reduce the risk of disease transfer.

Signs and symptoms of influenza typically come on abruptly and can include a high fever (of 3-4 days duration), headache, a history of fatigue/weakness (which may result in severe exhaustion) accompanied by severe aches and pains. A cough and chest discomfort is common, however an influenza sufferer is less likely to experience a sore throat or blocked nose. Children, and less commonly adults, might also have gastro-intestinal symptoms. While it can be difficult to clinically distinguish between influenza and the common cold, a disease with sudden onset, especially accompanied with fever and the symptoms listed, is more indicative of influenza.

Influenza is often diagnosed on the basis of a clinical history suggestive of the disease rather than by way of biological testing. Originally a clinical diagnosis alone was sufficient because, in the absence of any influenza specific treatment, confirmation of influenza in the laboratory did not impact upon treatment of the disease. Today the limited arsenal of anti-viral drugs available for the treatment of
influenza must be taken early in the onset of disease if they are to be of any value.\textsuperscript{65} Consequently treatment, if implemented, usually commences before testing can confirm the presence of disease.

Rapid influenza tests are in development which may allow identification of the influenza virus within minutes.\textsuperscript{66} A home testing kit, allowing for identification of influenza A or B, is also in production.\textsuperscript{67} Given the current limited efficacy of anti-viral drugs, these tests may have little importance in the making of treatment decisions.\textsuperscript{68} That is not to say home testing would be worthless, rather its value might primarily lie in alerting people to the fact that they are infectious. This knowledge could encourage them to remain at home and ensure they engage in good cough hygiene. Rapid testing might also be used in a workplace to identify infected workers and asking them to go home in order to protect colleagues. However, humans are not the only creatures prone to influenza.

A Zoonosis a human risk

A disease that can be transmitted between animals and humans is classified a zoonosis.\textsuperscript{69} Although the influenza A virus affects humans, influenza A is found in other warm blooded animals: a fact which has implications for human health. The first accurately described outbreak of ‘fowl plague’ occurred in 1878 in Italy.\textsuperscript{70}

\begin{notes}
\item Whether anti-viral drugs are of any real value remains in dispute: Tom Jefferson et al, ‘Neuraminidase inhibitors for preventing and treating influenza in adults and children’ (2014) 4(1) Cochrane database of systematic reviews (Online).
\item Nicky Phillips, ‘Rapid Diagnosis kit will take five minutes to test if you've really got the flu', The Sydney Morning Herald (online), 2015; FDA Clears First Real-time PCR Test for Influenza A/B (23 September 2015) http://www.medscape.com/viewarticle/851413 last accessed 21 April 2016.
\item Currently called the Respirio Flu Test https://clinicaltrials.gov/ct2/show/NCT02487173 it is anticipated that, once the trials have concluded, the test will be made available for purchase through pharmacies. Last accessed 1 March 2016.
\item The Cochrane Review found that the use of anti-viral drugs had to be weighed against potential side effects: Jefferson et al, above n 65. Others recommend the use of these drugs only in people who are at risk of serious complications: Linda Brookes, Andrew T Pavia and Gregory A Poland, Why Is Influenza So Difficult to Prevent and Treat? (23 January 2015) http://www.medscape.com/viewarticle/838459 last accessed 21 April 2016.
\item Blanca Lupiani and Sanjay M Reddy, 'The history of avian influenza' (2009) 32(4) Comparative Immunology, Microbiology and Infectious Diseases, 311.
\end{notes}
importance of poultry as a vector for human disease was first recognised in the 1950’s yet avian influenza has probably existed for nearly 4,500 years, infecting humans since the domestication of wild birds.

Most birds infected with avian influenza do not demonstrate evidence of disease and the virus is classified as being a low pathogenic avian influenza. However a highly pathogenic avian influenza (HPAI) exists that has the potential to suddenly kill large numbers of domestic as well as wild birds. Avian surveillance has increased since 1997 following the first documented case of highly pathogenic avian influenza implicated in a human death. Virologists have noted that in the last (known) pandemics, despite HPAI being watched for at least 130 years in birds, there is ‘no historical data to support the possibility that poultry are capable of serving as intermediate hosts in the development of a pandemic’.

Professor Beveridge remarked that ‘a Pandora’s box’ was opened in 1955-56 when it was discovered that many influenza viruses were found in animals (swine and horses) with the largest reservoirs being avian. Pigs and horses have receptors in their airways which are adapted to both human and avian influenza viruses, with swine believed to have the greatest role to play in the ‘mixing’ of influenza viruses (avian and human) that have the potential to infect humans. In the ‘mixing vessel’ scenario a pig is infected with the influenza A virus from both a human and a wild bird

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71 Influenza in Birds and Mammals (Leslie A Reperant and Albert DME Osterhous) in Sellwood, above n 19, 32. Influenza in wild birds is not a new phenomenon although intensive domestic farming practices with close contact between domestic poultry and farmers, is thought to be increasing the risk to humans: see http://www.who.int/csr/don/2004_03_02/en/ last accessed 22 January 2015.


73 Van-Tam and Sellwood, above n 19, 32.

74 Ibid, 29-30.


78 Haaheim in Van-Tam and Sellwood, 18-19.
source. During the process of cellular replication the two types of viruses are mixed by way of ‘re-assortment’. It is suggested that a pig ‘mixing vessel’ might have been the source of the 1957 and 1968 pandemics. Swine flu was also evident prior to 1918 and the overcrowding of people and animals (birds, pigs and horses) in army camps might have helped create that virus. an influenza virus noted to be ‘unequalled’ in its severity.

The case fatality rate (that is those persons known to have the disease who subsequently die) of human-acquired avian influenza between 2003-2016 was just under 53 per cent. While the H5N1 virus raised the spectre of catastrophe, other avian influenzas also exist. Yet, despite the concern about its pandemic potential, avian influenza remains a rare human disease with no clear evidence of human-to-human transmission. The concern is that if that avian influenza becomes rapidly transmissible between people the world will face an influenza outbreak with a very high mortality rate. However, given past experience, an influenza pandemic with a case fatality rate of greater than 7 per cent would be truly extraordinary.

79 Ryan, above n 18, 66.
80 Van-Tam and Sellwood, above n 19, 18 with a visual explanation of how viruses might mutate and cause a pandemic.
85 Alan W Hampson, ‘Avian influenza: A pandemic waiting in the wings?’ (2006) 18 Emergency Medicine Australasia 420. H5N1 is the most prominent, but not the only Avian influenza, eg H3N2 and H7N9 exist.
86 This was the initial case fatality rate being reported from Mexico in 2009 (ultimately shown to be closer to 0.03%): Mark Honigsbaum, ‘Putting pandemics in perspective’ (2011) (Policy paper 126) www.historyandpolicy.org.
B Highly pathogenic avian influenza (H5N1)

As noted the known average mortality rate of humans infected with H5N1 approaches 53 per cent. This fact has given rise to statements such as:

I would simply remind you that in 1918 in 12 months time in the absence of commercial air travel or globalisation, influenza killed a hundred million human beings and only had a 2% kill rate. Meaning 98% of the people who got infected, survived it. So if you now jump to the age of globalisation, rapid air travel, movement of humans, their animals everything all over the planet, we are all one giant organism now and imagine a 50% kill rate, you know you can do the math.

Even though the speaker may not believe there is risk of a pandemic which will kill half of its victims, listeners no doubt just hear ‘a 50% kill rate’. Statements such as this can be misleading and potentially fear mongering. One group of investigators determined that, taking into account those known to have had an asymptomatic infection the case fatality rate of avian influenza is currently closer to 14–33 per cent.

Yet, that does not mean that if the virus became more transmissible the mortality rate would be anywhere near that high. As will be shown in chapter 3, at the beginning of the 1918 pandemic there were some isolated pockets of influenza outbreaks with very high mortality rates, but the ultimate mortality was around 2 per cent.

Consequently, if the H5N1 influenza were to become readily transmissible, a mortality rate of 50 per cent is highly unlikely. The reason for this is two-fold. First because ‘a virus that swiftly dispatches [all]most everyone it infects gives itself little

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87 Avian influenza is a notifiable disease under Australian Public Health legislation for example Schedule 1 of the Public Health Act 2010 (NSW); Public Health and Wellbeing Regulations 2009 (Vic) Schedule 4 (laboratory confirmed influenza); Public Health Regulation 2005 (Qld) schedule 2.

88 WHO, above n 83.


chance to spread' and second, the 50 per cent mortality fails to take into account asymptomatic individuals or those who may have had a mild infection.

While technology to identify viruses and other causes of disease are very valuable, this knowledge can create problems. In the past people may have died of a disease, the cause of which was unknown. In the absence of testing, if there were only occasional instances of such disease, a death would be classified as a respiratory disease of unknown cause. As Professor Frederick Leung notes, increased sensitivity and the ability to identify viruses has had a flow on effect:

[w]hen your sensitivity is high, then the numbers get magnified. Fifty years ago, viruses crossing over from animals to humans never amounted to anything. This is why we have all these “new” viruses—because our sequencing technology is so powerful.

Currently there is no evidence of sustained human-to-human transmission with H5N1. However, because of the perceived risk, considerable effort is being made to identify people who might have been exposed to that virus. Dr Margaret Chan, Director-General of the World Health Organization, said of highly pathogenic avian influenza (H5N1) in 2007:

[t]he present situation is unique. In the past, pandemics have always announced themselves with a sudden explosion of cases, and taken the world by surprise. For the first time in history, we have been given an advanced warning.

Yet, despite close monitoring avian influenza was not the cause of the next pandemic. As noted by Morens and Taubenberger:

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91 Alan Sipress, Fatal strain: on the Trail Of Avian Flu and the Coming Pandemic (Viking Penguin Press, 2009) 94, 238; also the comment of Professor Leung ‘[t]he more virulent the virus, the faster the virus dies out’ in Theresa McPhail, The Viral Network: A Pathography of the H1N1 Influenza Pandemic (Cornell University Press, 2014), 194.
93 McPhail, above n 91, 193. McPhail notes that Professor Leung (Professor of Biological Sciences, University of Hong Kong) may be considered a ‘heretic’ by some of the influenza fraternity, 187.
94 Sipress, above n 91.
96 Vincent CC Cheng et al, ‘Two years after pandemic influenza A/2009/H1N1: what have we learned?’ (2012) 25(2) Clinical Microbiology Reviews 223, 229. The authors point out that swine flu had been recognized prior to the outbreak but that the wide distribution of pig farming made surveillance difficult.
As our understanding of influenza viruses has increased dramatically in recent decades, we have moved ever further from certainty about the determinants of, and possibilities for, pandemic emergence.97

At the outset of the 2009 H1N1 outbreak Dr Chan said:

For five long years, outbreaks of highly pathogenic H5N1 avian influenza in poultry, and sporadic frequently fatal cases in humans, have conditioned the world to expect an influenza pandemic, and a highly lethal one. As a result of these long years of conditioning, the world is better prepared, and very scared.98

The fact that there has been such emphasis placed on the risk of H5N1, as well as on the events of 1918 may have resulted in 'our perception of influenza pandemic behaviour ... be[ing] biased towards those that are most severe, most explosive'.99

This emphasis on the catastrophic is not helpful for healthcare workers. If they believe that an influenza pandemic is going to kill 50 per cent of people infected, or are continually reminded that in 1918 millions of people (including the young) died of influenza, it is not unsurprising that surveys indicate people have stated they would fear working and may well refuse to do so.100 As explored in chapter 3, this fear is misplaced as the evidence demonstrates that nurses were not generally over-represented in the 1918 death statistics.101

Some scientists also suggest the magnitude of the risk of avian influenza is overstated, as receptors in the epithelial cells of the upper human airway tend to bind to human influenza strains, while avian influenza requires a receptor found lower in the airways.102 On this basis some investigators believe an effectively transmissible primarily avian based, human influenza is unlikely.103 The fact that H5N1 has been detected in humans since 1997,104 yet cases remain isolated events, also suggests that a pandemic from a primary avian source is unlikely to eventuate.

97 Taubenberger and Morens, above n 76, 24.
100 See discussion in chapter 4.
102 Van-Tam and Sellwood, above n 19, 18.
103 Taubenberger and Morens, above n 99, 200-201.
104 Which was when fear of a 1918 type pandemic was raised: McPhail, above n 93, 26.
Although a new virus can give rise to a pandemic, it is worth also considering the impact of seasonal influenza. As noted in chapter 1, the pandemic form of the virus will become the next seasonal outbreak.

C  Seasonal Influenza

The influenza A virus has been described as ‘promiscuous’\textsuperscript{105} and accepting of poor ‘proof-reading’.\textsuperscript{106} This means the virus experiences a near constant but subtle mutation which is known as ‘anti-genic drift’, a process which ‘works well as a short term-survival’ technique as the small changes mean the population remains at risk of infection, since there is no ability for the group to develop complete immunity.\textsuperscript{107} Because there is no widespread immunity, the virus has continual opportunities to infect and replicate.

Usually there are two annual seasonal winter influenza outbreaks: one in the Southern and the other the Northern Hemisphere, each of which last for around 8–10 weeks.\textsuperscript{108} While the reasons for the winter cycle are unclear, the closer congregation of people in less well ventilated spaces may contribute to viral spread. Lower temperatures, less ultraviolet radiation and low humidity may also play a role in allowing the virus to survive. Outbreaks also occur in tropical zones\textsuperscript{109} and, for unknown reasons influenza activity may increase during rainy seasons.\textsuperscript{110}

Seasonal outbreaks of influenza do not tend to cause high rates of death because the virus is very similar to that which circulated during previous years. This means that many people, having already been exposed to a like virus, have some degree of immunity against the circulating viral strain.\textsuperscript{111} Consequently, those who are

\textsuperscript{105} Influenza Surveillance and pandemic requirements (John M Watson and Richard G Peabody) in Van-Tam and Sellwood, above n 19, 23.
\textsuperscript{106} Ibid and Ryan, above n 18, 62-63.
\textsuperscript{107} Ryan, above n 18, 63.
\textsuperscript{108} Seasonal Influenza: Epidemiology, Clinical Features and Surveillance (J. Van-Ta) in Sellwood, above n 19, 4.
\textsuperscript{109} Hampson, above n 85, 421.
\textsuperscript{111} Van-Tran and Sellwood, above n 19, 1.
at greatest risk tend to be those with weakened immune systems or with small airways.\textsuperscript{112}

Seasonal influenza has been described as ‘paradoxical’ because, while children are the most infected group, the greatest mortality is found in the elderly.\textsuperscript{113} Children are particularly prone to influenza as they have poor cough hygiene. In addition they remain infective for longer than adults.\textsuperscript{114} As a result, during seasonal influenza, having young children at home can increase the risk to adult residents, who may then present a risk to work colleagues and other contacts.\textsuperscript{115}

The constant seasonal change in viral composition also means that influenza vaccines need to be regularly altered in order to try for a best match against the primary influenza strain in circulation.\textsuperscript{116} As a result vaccines may vary in efficacy from year to year, as a late change in the virus may not be countered by a vaccine that required several months to produce.\textsuperscript{117} The question of vaccination will be explored more fully in chapter 8. However, pandemic influenza presents a slightly different picture.

\section*{D Pandemic Influenza}

While seasonal influenza occurs regularly and is technically pandemic in nature as it is widespread, the term ‘pandemic influenza’ has come to have a specific meaning. The term refers to an outbreak of a novel form of influenza to which the population has little, or no, immunity.\textsuperscript{118} The World Health Organization (WHO) states that:

\begin{itemize}
  \item \textsuperscript{112} Jeffrey K Taubenberger and David M Morens, '1918 Influenza: the mother of all pandemics' (2006) 17 Revista Biomédica (First published in Emerging Infectious Diseases 2006; 12:15-22 (Authorized reproduction)) 69. The authors discuss the usual ‘U’ shaped mortality of influenza, 74-5.
  \item \textsuperscript{113} Van-Tam and Sellwood, above n 19, 5.
  \item \textsuperscript{114} Ibid, 5-6.
  \item \textsuperscript{115} Children are also implicated in the spread of influenza like illnesses as well: Chandini Raina MacIntyre et al, 'Respiratory viruses transmission from children to adults within a household' (2012) 30(19) Vaccine 3009.
  \item \textsuperscript{116} Ryan, above n 18, 63.
  \item \textsuperscript{117} Seasonal Influenza Vaccine only 23% Effective this Year, Lara C Pullen, 15 January 2015 at http://www.medscape.com/viewarticle/838241?nlid=74668_2823&src=wnl_edit_medp_nurs&spon =24 last accessed 21 January 2015.
\end{itemize}
An influenza pandemic occurs when an animal influenza virus to which most humans have no immunity acquires the ability to cause sustained chains of human-to-human transmission leading to community-wide outbreaks. Such a virus has the potential to spread worldwide, causing a pandemic.\textsuperscript{119}

So, to give rise to an influenza pandemic three conditions must be met: (1) a novel virus; (2) no immunity; and (3) sustained human-to-human transmission. As noted above, animals can be involved as ‘mixing vessels’ and the unstable influenza A virus can mutate dramatically by way of ‘antigenic shift’ or ‘re-assortment’ where the ‘animal influenza virus change(s)’ and becomes easily transmissible in humans.\textsuperscript{120}

It is assumed that this re-assortment occurs rarely,\textsuperscript{121} an assessment that is supported by the fact that, in just over 100 years, there have only been 4 (known) influenza pandemics — including that of 1918.\textsuperscript{122} However re-assortment does not, in and of itself, automatically give rise to a highly pathogenic virus: it merely gives rise to a novel virus. The fact that the community lacks widespread immunity means it is likely to cause higher levels of disease than would be expected during a seasonal outbreak, but a pandemic will not automatically result in levels of death such as those seen in 1918.

While historical evidence suggests influenza pandemics have been known for over 500 years, it is the relatively recent ability to identify the virus in the laboratory that has allowed for absolute classification and identification of a pandemic.\textsuperscript{123} The 1918 and 2009 influenza viruses both had swine elements\textsuperscript{124} although the 1918 virus also included an avian-like component.\textsuperscript{125} The avian-like component had health

\textsuperscript{119} Ibid 14.
\textsuperscript{120} Ibid.
\textsuperscript{121} Basic Influenza Virology and Immunology (L R Haaheim) in Van-Tam and Sellwood, above n 19, 23.
\textsuperscript{122} Prior to scientists being able to categorise an influenza virus it might be that other ‘pandemics’ occurred but if they had low levels of illness/death these outbreaks may have been considered ‘seasonal’ influenza. After 1918-19 pandemics clearly occurred in 1957-58 (‘Asian flu’) and 1968-69 (‘Hong Kong flu’) and, of course, the 2009 ‘Mexican/Swine Flu’ outbreak.
\textsuperscript{123} Taubenberger and Morens, above n 76.
\textsuperscript{124} Rui Xu et al, 'Structural basis of preexisting immunity to the 2009 H1N1 pandemic influenza virus' (2010) 328(5976) Science 357.
\textsuperscript{125} Taubenberger and Morens, above n 76, 19; Taubenberger, Hultin and Morens, above n 54, 54.
implications as it made the 1918 virus more virulent.\textsuperscript{126} This has been explained as if ‘the virus was wearing a coat and, while the virus appeared the same (H1N1) on the surface, the 1918 virus had ‘different knives’ underneath’.\textsuperscript{127} It might be that the 1918 pandemic was an aberration\textsuperscript{128} where the particular circumstances of large numbers of people (and animals\textsuperscript{129}) congregating in army camps, followed by rapid dispersal of those people via cramped troopships and trains, created a ‘perfect storm’ promoting swift and effective transmission of the virus. Although the death rate of the 1918 pandemic was high, even at the time it was recognised that most people only had a mild illness.\textsuperscript{130} The fact that many people may have an insignificant and asymptomatic illness can therefore make it difficult to determine the actual rate of influenza. In 2009 the estimated 440,000 notified cases worldwide’ was likely a ‘gross underestimate since most people with pandemic (H1N1) 2009 were not being tested’.\textsuperscript{131} Because of this, estimates of circulating influenza (seasonal or pandemic) are made using a variety of sources.

\section*{IV ESTIMATING RATES OF INFLUENZA}

Measurement of rates of influenza (both seasonal and pandemic) is complicated. Traditionally rates of seasonal influenza are measured by way of ‘excess mortality’ — that is deaths over and above what would be expected if there had not been an influenza outbreak. Honigsbaum explains that the concept of ‘excess mortality’ was

\begin{itemize}
\item \textsuperscript{126} Virulence may be influenced by host as well as viral factors: Satoshi Fukuyama and Yoshihiro Kawaoka, 'The pathogenesis of influenza virus infections: the contributions of virus and host factors' (2011) 23(4) \textit{Current Opinion in Immunology} 481; Terrence M Tumpey et al, 'Characterization of the reconstructed 1918 Spanish influenza pandemic virus' (2005) 310(5745) \textit{Science} 77.
\item \textsuperscript{127} Explanation from Professor Booy (Head of Clinical Research, National Centre for Immunisation Research and Surveillance, Professor Paediatrics & Child Health, The Children’s Hospital at Westmead) during telephone conversation on 24 July 2012.
\item \textsuperscript{128} Honigsbaum, above n 86, also: Mark Honigsbaum, \textit{A History of The Great Influenza Pandemic: Death, Panic and Hysteria, 1830-1920} (I. B. Tauris & Co, 2014), 235.
\item \textsuperscript{129} Oxford et al, above n 81.
\item \textsuperscript{131} \textit{Australia’s Health} 2010. Australia’s Health Series no. 12. Cat. no. AUS 122. Canberra: AIHW.
\end{itemize}
devised by Dr William Farr: a public health reformer. Although there was an obvious risk from diseases such as cholera and typhoid, Farr felt that many medical practitioners saw influenza to be a local disease without serious implications for the wider community. To rectify what he felt to be a deficit, Farr published tables of ‘excess mortality’ from disease: including influenza. These tables made the risk of respiratory disease more visible.

Unfortunately then, as now, there was no real treatment for influenza. Farr was measuring a disease for which improvements to public health could do little, thereby ‘reinforcing dread of the epidemic form of influenza without offering an obvious public health solution’. As public health measures reduced outbreaks of other infectious diseases, ‘respiratory diseases began to replace infectious diseases as the major cause of morbidity and mortality’. While the ‘excess mortality’ concept gives an estimate of additional deaths assumed to be due to influenza, the true rate of circulating influenza remains unknown.

Further complicating the issue is the fact that an estimated 200 viruses can cause an influenza-like-illness and some researchers believe true influenza is rare, accounting for as little as 1 per cent of respiratory disease during seasonal outbreaks. In a seasonal outbreak ‘hundreds of thousands’ of individuals in the United States are annually tested for influenza with an average positive return of around 16 per cent. During the 2009 novel influenza pandemic in Australia, when testing for influenza increased considerably (and presumably those tested had symptoms indicative of disease), in Western Australia there was an average 23 per cent positive return for

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133 Honigsbaum, above n 128, 19.

134 Ibid 23.

135 Honigsbaum, above n 128, 20, reference made to Anne Hardy, Health and Medicine in Britain since 1860 (Macmillan, 2000), 8.


influenza. In other words, 77 per cent of samples provided during the pandemic did not test positive for influenza.

It is clear that, during an outbreak of influenza, many people may think they have influenza but do not. Others may be infected but asymptomatic or only experiencing a mild illness. Even in 1919 ‘it became manifest that the number of persons who suffered from slight attacks of influenza — so slight in many cases that they did not seek medical assistance — was very large’. Therefore even during a pandemic, the numbers of those known to be sick with influenza, and those who die, may be only a very small component of the persons who have been infected. In 1919, while it was ‘impossible to state accurately the number of persons attacked by influenza’ in NSW, an investigation was made of work absences due to sickness and it was concluded that ‘36.63%’ of people in the ‘metropolitan district ... were attacked’, giving an estimated overall ‘case mortality rate’ of around 1.3 per cent.

The overall morbidity rate, that is the number of people infected by the virus, may be overestimated because of the compounding difficulties of influenza-like-illnesses. But, by the same token, it is difficult to truly determine the actual mortality rate which, if this is to be accurate, should be a comparison of the number of people infected (which should include those without symptoms) and the percentage (of that infected group) who die as a result of the disease. It can be seen from the information above that many more people are tested than are found to be positive. The question of how many people actually have influenza may not be capable of an answer until there is an easily administered test (and even then, without testing everyone, this would not detect asymptomatic cases). As was the case in the time of Dr Farr, there is still no specific treatment for influenza which, for the most part, will be a self-limiting disease. However, because the influenza virus has the potential for widespread disease, surveillance occurs on many levels.

139 Paton, above n 130, 150.
140 Ibid 152.
141 Ibid 152.
142 Ibid 144.
143 Phillips, above n 66.
A Surveillance for influenza

In order to estimate the levels of illness circulating in the community, the Australian Commonwealth Department of Health and Ageing uses a variety of sources, including influenza-like (and confirmed influenza) presentations to emergency departments, community surveys as well as information voluntarily reported by various GP practices. The triad of symptoms (cough, fever and fatigue) are identified as having a positive predictive value (for influenza) of between 25-60 per cent, which means that ‘accurate identification of influenza activity still requires laboratory confirmation’. Websites, for example the Australian based www.flutracking.net and (in the USA) http://flutracker.org/, allow people to self report an influenza-like illness. Even Twitter has been explored as a means of surveillance. These mechanisms of surveillance provide an estimate of influenza-like illness which show similar (but much higher) peaks and troughs to that of laboratory-confirmed influenza.

Influenza is listed as a notifiable disease in all Australian States and Territories. In October 2014 there had been 62,918 notifications for the year — which was almost three times higher than the same period in 2013. Most influenza viruses were of type A and the main subtype was the 2009 pandemic strain as well as a

146 David A Broniatowski, Michael J Paul and Mark Dredze, ‘National and local influenza surveillance through Twitter: an analysis of the 2012-2013 influenza epidemic’ (2013) 8(12) PLoS One e83672. The authors found that the infection curve identified by way of Twitter mirrored that of the CDC.
H3N2 virus.\textsuperscript{150} Local laboratories in Australia communicate with the World Health Organization providing information about circulating influenza strains and their potential threat.\textsuperscript{151} While the focus here is influenza, the risk of global infectious disease can arise from other sources and the obligation of member states, under the International Health Regulations, requires them to report outbreaks of any infectious disease that has the potential to be a global threat.

Within Australia the \textit{National Health Security Act 2007} (Cth)\textsuperscript{152} provides for a National Notifiable Diseases List: a list generated in consultation with State and Territory Health Ministers.\textsuperscript{153} The Minister can enter into agreements with the States and Territories to provide information about communicable diseases.\textsuperscript{154} Data collected under the \textit{National Health Security Act} is to be used to prevent, protect against, control or respond to a ‘public health event of national significance’\textsuperscript{155} and to ‘give effect to the International Health Regulations’.\textsuperscript{156} The \textit{National Health Security Act} uses the terminology of the \textit{International Health Regulations 2005} (IHR) and, for the purposes of a public health concern in Australia, a public health event of national significance is defined as meaning any of the following:\textsuperscript{157}

- (a) one or more cases of a disease listed on the NNDL [National Notifiable Diseases List];
- (b) an urgent event;
- (c) an overseas mass casualty;
- (d) a public health risk (other than an event covered by (a),(b) or (c)).

\textsuperscript{150} Ibid.
\textsuperscript{151} Known as the Global Influenza Surveillance Network (GISN) the network also makes recommendations about the composition of influenza vaccines for the following influenza season. http://www.influenzacentre.org/centre_GISN.htm last accessed 16 May 2016.
\textsuperscript{152} Amended in September 2009 to give greater powers to the Minister in the case of an Emergency Disease Situation by relaxing some, or all, of the regulatory obligations under the Act (Parliament of the Commonwealth of Australia: House of Representatives, National Health Security Amendment Bill 2009 Explanatory Memorandum, 6).
\textsuperscript{153} \textit{National Health Security Act 2007} (Cth) s II(5). In the absence of consultation, a disease can be temporarily added by the Minister or the Commonwealth Chief Medical Officer for a period of 6 months - \textit{National Health Security Act 2007} s 212(3). This provides flexibility if a novel condition presenting a risk to public health suddenly appears and urgent action and mandatory reporting may be required.
\textsuperscript{154} \textit{National Health Security Act 2007} (Cth) s 7.
\textsuperscript{155} \textit{National Health Security Act 2007} (Cth) s 8(a).
\textsuperscript{156} \textit{National Health Security Act 2007} (Cth) s 9(b).
\textsuperscript{157} \textit{National Health Security Act 2007} (Cth) s 3.
An urgent event is one that potentially, or actually poses a risk of disease\textsuperscript{158} which may, or does have, a serious impact on public health, where the ‘event is unusual or unexpected, and has a high potential to spread’.\textsuperscript{159} The spread may be within Australia or to other countries.\textsuperscript{160}

The Act (as required by the IHR\textsuperscript{161}) clearly identifies a National Focal Point\textsuperscript{162} with responsibility for liaising with States and Territories in relation to ‘public health events of national significance.’ The National Focal Point is also required to provide information to the World Health Organization\textsuperscript{163} and comply with the IHR.\textsuperscript{164} All States and Territories provide information to the National Focal Point for entry into the National Notifiable Diseases List. This list covers 65 communicable diseases — not all of which require notification in the home jurisdiction.\textsuperscript{165} In accordance with a written agreement between the Commonwealth and all States and Territories, relevant information is shared with the Commonwealth.\textsuperscript{166}

The Quarantine Act 1908 (Cth) has recently been replaced by the Biosecurity Act 2015 (Cth)\textsuperscript{167} which aims to ‘give effect to Australia’s international rights and obligations, including under the International Health Regulations’ as well as managing infectious diseases or biosecurity risks within Australia.\textsuperscript{168} The Act allows for a number of orders to be made if an individual, infected with a listed disease, is subject to a ‘human biosecurity control order’.\textsuperscript{169} This includes directing an individual to report

\begin{itemize}
\item \textsuperscript{158} Includes injury or death.
\item \textsuperscript{159} National Health Security Act 2007 (Cth) s 3.
\item \textsuperscript{160} National Health Security Act 2007 (Cth) s 3.
\item \textsuperscript{162} National Focal Point (s 9 National Health Security Act 2007 (Cth)) is identified as being the Secretary of the Department (s 9(a)) and (s 9(b)) persons, offices or positions (if any) nominated in writing by the Secretary. The Department is the Department of Health and Ageing.
\item \textsuperscript{163} National Health Security Act 2007 (Cth) s 10(b).
\item \textsuperscript{164} National Health Security Act 2007(Cth) s 10(c).
\item \textsuperscript{166} National Health Security Agreement 2008 (Cth): ibid, E48.
\item \textsuperscript{167} Biosecurity Act 2015 (Cth) s 4(b), (according to s 2, sections 3- 645 of the Act came into effect on 16 June 2016.)
\item \textsuperscript{168} Biosecurity Act 2015 (Cth) s 4(a).
\item \textsuperscript{169} Biosecurity Act 2015 (Cth) s 60.
\end{itemize}
their health status;

have restrictions placed on their movement; undergo a medical examination and accept vaccination or medical treatment. However, for the purposes of this discussion it is not necessary to interrogate that new Act as the relevant matter is the interaction between Australian and international legal obligations.

**B International Health Regulations**

Under the *International Health Regulations 2005*, member states are required to report to the WHO (within 24 hours) the appearance of any infectious disease that may give rise to a ‘public health emergency of international concern’. If the WHO becomes aware of an apparent unreported disease outbreak, the IHR allow them to make their own enquiries of the country. The first test for the new regulations came with the announcement of the 2009 pandemic. It is generally accepted that the scientific community (in conjunction with the WHO) performed well, however the events demonstrated that the world was not yet fully prepared for a ‘serious’ pandemic. Some local responses occurred that were contrary to WHO advice in the early stages of the outbreak. This included the failure of some countries to follow evidence-based guidelines, causing unnecessary travel restrictions and trade disruptions which the IHR seek to avoid.

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170 *Biosecurity Act 2015 (Cth)* s 86.
171 *Biosecurity Act 2015 (Cth)* s 61; including being isolated at a medical facility s 97.
172 *Biosecurity Act 2015 (Cth)* s 90.
173 *Biosecurity Act 2015 (Cth)* s 92.
174 The International Health Regulations, above n 161, came into effect in June 2007.
176 *International Health Regulations*, Article 9.1 and Article 10.1.
178 Rebecca Katz and Julie Fischer, 'The revised international Health Regulations: a framework for global pandemic response' (2010) 3(2) *Global Health Governance* 1. The authors suggest ways in which the IHR might be strengthened.
179 Ibid 6-7.
The International Health Regulations had been revised in response to the slow reporting of a new respiratory virus (the SARS virus\textsuperscript{180}) after it first appeared in China, as well as in light of the potential threat of an H5N1 outbreak. Failure of the Chinese authorities to promptly report the outbreak of that disease resulted in dispersal of SARS across the globe.\textsuperscript{181} As noted, SARS had a mortality rate of around 10 per cent with healthcare workers over-represented in the numbers of those infected.\textsuperscript{182}

Like influenza there was no specific treatment available for SARS. Because of the risk, some healthcare workers refused to work, arguing that they should not be obliged to care for SARS patients.\textsuperscript{183} As mentioned in the previous chapter, those who did work were called heroes.\textsuperscript{184} It will be argued that the SARS experience has impacted upon pandemic planning and, also, on fears that healthcare workers have about working during a pandemic.\textsuperscript{185} The SARS outbreak will be discussed more fully in chapter 3.

\section*{V \hspace{1em} THE PANDEMIC OF 2009}

On 25 April 2009 the World Health Organization declared that, in light of evidence that a new influenza had been identified in 5 American States\textsuperscript{186} as well as there being widespread evidence of disease in Mexico,\textsuperscript{187} the H1N1 influenza outbreak was a ‘public health emergency of international concern’.\textsuperscript{188} It was the first time the revised

\textsuperscript{180} David P Fidler, SARS, Governance and the Globalization of Disease (Palgrave Macmillan, 2004).


\textsuperscript{182} Ibid.

\textsuperscript{183} Barbara Sibbald, ‘Right to refuse work becomes another SARS issue’ (2003) 169(2) Canadian Medical Association Journal 141.

\textsuperscript{184} Mark L Clifford, Dexter Roberts and Michael Shari, Heroes of the SARS wars http://www.businessweek.com/stories/2003-06-08/heroes-of-the-sars-wars


\textsuperscript{186} New York, California, Texas, Kansas and Ohio.

\textsuperscript{187} Testing had revealed the existence of cases in 19 out of 32 Mexican States.

International Health Regulations had been invoked.\textsuperscript{189} On 11 June 2009 the WHO classified this new outbreak a pandemic.\textsuperscript{190}

In retrospect, criticism has been levelled at the WHO for ‘lowering the threshold’ for a pandemic\textsuperscript{191} when they changed the definition by removing the requirement for a pandemic to cause ‘enormous numbers of deaths and illness’,\textsuperscript{192} although the WHO deny these claims.\textsuperscript{193} Others suggest that the announcement was simply an unfortunate ‘accident of timing’, as discussion regarding the definition change had been consultative and on-going over a period of 17 months.\textsuperscript{194} As discussed, the fact that there has been a re-assortment of the influenza virus does not automatically mean that this influenza virus will be highly pathogenic. In light of this the widespread appearance of the novel influenza virus justified a pandemic declaration. Despite the criticisms,\textsuperscript{195} this was an outbreak of disease which increased the pressures on health services.

Although the pandemic announcement preceded ‘a sudden explosion’, the virus was already known to be present in at least 74 countries including Australia.\textsuperscript{196} During an early press conference Dr Chan noted:

No previous pandemic has been detected so early or watched so closely, in real-time, right at the very beginning ... we have a head start. This places us in a strong

\textsuperscript{189} Katz, above n 178, 6.
\textsuperscript{190} Margaret Chan, Transcript Press Conference World Health Organization http://www.who.int/mediacentre/influenzaAH1N1_pressytranscript_20090611.pdf last accessed 20 April 2016.
\textsuperscript{192} Ibid [25].
\textsuperscript{193} Ibid [24–26], World Health Organization, ‘Press Conference: H1N1 II June 2009’ (2009). The definition did change shortly before the pandemic announcement removing any reference to number of deaths. While the virus would be shown to have a low mortality (a matter not absolutely certain at the outset) patient presentations caused considerable stressors on the health system. Although the outbreak would ultimately be classified as ‘mild’, the pandemic announcement was justified as the new virus was widespread with 30,000 (identified) illneses in 74 countries by June 2009.
\textsuperscript{194} Honigsbaum, above n 86.
\textsuperscript{195} For example: Jeremy Laurance, ‘Pandemic? What Pandemic?’, The Independent (London), 10 November 2009, 2; Adam Cresswell, ‘The pandemic that never was’, The Australian, 16 August 2010, 2.
position. But it also creates a demand for advice and reassurance in the midst of limited data and considerable scientific uncertainty.\textsuperscript{197}

The interconnected network of reporting obligations (even if not upheld by countries at all times) means a new outbreak of influenza is likely to be detected quickly. Once the virus is readily transmissible the virus will, as was shown in 2009, quickly escape from the country of the initial outbreak.\textsuperscript{198} The advantage of early detection, followed by an announcement of the WHO, is that people can begin to take personal protective measures such as increased hand washing. In the past it is not known how long a virus had been circulating before being recognised as a threat. As an example, in Australia in 1919, it was thought that the virus had just arrived on the shores but it would be shown that 1918 had seen a surge in influenza deaths.\textsuperscript{199}

\textbf{A Mortality rates in 2009}

International pooling of data enables fairly accurate predictions of mortality to be made even at an early stage of an influenza pandemic. In 2009 early data suggested the mortality rate of the evolving pandemic could be a staggering 7 per cent: an estimate which was quickly discounted and replaced with a more accurate prediction of 0.03 per cent.\textsuperscript{200} By the time the pandemic announcement was made the WHO acknowledged scientific uncertainty, but advised that they anticipated the outbreak would be one of ‘moderate severity in comparatively well-off countries’ and that most illnesses would be ‘mild’\textsuperscript{201} Ultimately it is estimated that the global mortality of the 2009 pandemic ranged between 0.001-0.011 per cent.\textsuperscript{202}

\textsuperscript{197} Ibid.
\textsuperscript{198} While increased monitoring may identify the origin of outbreak it may also be possible that the mutation could arise in more than one place.
\textsuperscript{199} A. M. Laughton (Government Statistician), ‘1301.2 - Victorian Year Book, 1918-19’ (Victorian Government, 1920), with influenza credited for 14.8/100.000 deaths (in 1918) compared with 4.7 (1917); 7.0 (1916); 6.7 (1915) and 10.6 (1913), 213.
\textsuperscript{200} Mark Honigsbaum, above n 86. Honigsbaum suggests that mortality rate of 7% would be ‘unprecedented’ and while this is true, in relation to the known experience for influenza, mortality rates greater than 7% have been seen with other disease outbreaks: including with SARS.
\textsuperscript{201} WHO, above n 196, Dr Margaret Chan, Transcript 1-2.
As of December 18, 2009, across Australia there had been 37,537 positive tests for pandemic influenza (H1N1) and 191 deaths, the majority of which (64 per cent or 121/190) occurred in persons with co-morbidities. Across four countries it is estimated that 26-68 per cent of patients who died had at least one underlying chronic health condition. Interestingly the Australian Bureau of Statistics recorded a different number of deaths as a result of the pandemic — perhaps because death certificates relegated influenza to be a secondary cause of death. Even when a death certificate lists influenza as a cause of death, the disease may not have been laboratory confirmed. So, even in a county as developed as Australia, there can be confusion as to how many deaths actually occurred during a pandemic due to influenza.

B Pre-pandemic exposure of health workers

Despite the current global level of sophisticated viral surveillance, a novel influenza virus will have been circulating for some time before a pandemic is announced. As a result, in the contemporary era of rapid international air transport, an influenza virus is unlikely to be contained to one country or continent and it is highly probable that the virus will be present, albeit perhaps undetected, in Australia prior to any pandemic announcement. As a result, healthcare workers (particularly those who treat patients with respiratory illnesses) may have been exposed to the virus early during the course of the disease. This was demonstrated in 2009 when, by May 13 (nearly one month before the WHO pandemic declaration) 48 healthcare workers in the United States had been diagnosed with the pandemic influenza strain: 50 per cent


204 Australia, New Zealand, Chile and South Africa: Van Kerkhove et al, above n 45, e496.


206 Even in 1922 it was recognised that the influenza virus might have been in Australia prior to the 1919 outbreak of influenza. The Board of Public Health (Victoria) noted there had been ‘an abnormal increase of the disease in 1918, indicating that conditions favourable to the production of increased mortality had been at work for some time prior to the notable epidemic of 1919, and prior, also, to the arrival of imported cases’: Victoria Department of Public Health, ‘Report of the Commission of Public Health’ (1922) 22.
believed (although not proven) to have been exposed in the workplace.\textsuperscript{207} Once people start to present to the hospital with symptoms of influenza the risk of exposure exists in the community. Ironically the ‘pandemic announcement’ is likely to make the workplace safer in that this alerts workers to consider using protective behaviours and equipment when faced with a patient who presents with a respiratory infection.

\textbf{VI CONCLUSION}

The announcement of a pandemic is likely to be the catalyst which causes workers to become fearful of the risks of attending work. Irrespective of the viral origin of the influenza pandemic the scientific reality is that — prior to the announcement — people already have been at risk.\textsuperscript{208} Announcing a pandemic simply tells the population that the virus is now known to be widespread. In 1918 the virus was circulating before the unexpected eruption of disease, whereas today we may have the luxury of some pre-warning. Once an announcement is made, people can be reminded about the importance of actively taking steps to protect themselves by way of ensuring good cough hygiene, hand washing and social distancing.\textsuperscript{209} Hand washing and social distancing would reduce the risk for healthcare workers both while they are within the hospital and while in the community. Early detection also allows for work to commence on the production of a targeted vaccine.

This chapter has considered the nature of the influenza virus and the fact that sophisticated monitoring means scientists can discover evidence of a viral mutation quickly.\textsuperscript{210} Yet close monitoring, combined with high sensitivity of testing, may ultimately lead to an increased frequency of declared influenza pandemics. Regardless of the viral makeup of a new influenza virus the disease has known characteristics; it is

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\textsuperscript{207} CDC, *Novel Influenza A (HINI) Virus Infections Among Health-Care Personnel --- United States, April--May 2009* http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5823a2.htm last accessed 1 June 2016.

\textsuperscript{208} It is suggested that the virus was circulating in late 2008, prior to the Mexican outbreak and well before any pandemic announcement: David M Morens et al, 'The 1918 influenza pandemic: lessons for 2009 and the future' (2010) 38(4 Suppl) *Critical Care Medicine* e10, 21.

\textsuperscript{209} Hopefully they have already started to do this as the outbreak obtains more media attention and the public health message is circulated.

\textsuperscript{210} It took around 2 years to identify the HIV virus, yet it was only a matter of months before the SARS virus was isolated.
not a new disease. A novel virus is not necessarily highly pathogenic. Although there has been a focus on H5N1, no one knows what the precursor of the 1918 influenza virus looked like before it started to infect humans or what its early mortality rate was — perhaps that also neared 50 per cent in the acutely ill in the first few early cases of an unrecognised outbreak.  

Obviously healthcare workers would be sensible to fear a disease with a mortality rate of 50 per cent. If there was such a high death rate the likely reality is that people (not only healthcare workers) would simply stay home. Yet, a virus that kills a large percentage of hosts will fail to replicate as it will die with the host. Such a virus is not destined for longevity. If a novel influenza causes a pandemic, a number of key facts should be remembered. The first is that even with a high mortality rate, such as that reported in 1918, 97-98 per cent of those infected survived. Many more people may not have been affected, or only experienced a mild infection. The chance of surviving exposure to the virus, even in 1918, was therefore statistically better than 97-98 per cent. Second, by the time a virus achieves pandemic status, it is highly probable that it has been circulating (undetected) for some time and staff may already have some degree of immunity. Third, medical care has progressed since 1918 and even ‘routine’ care available today in Australia (and other industrialised countries) is likely to improve the survival rate.  

Arguments that a healthcare worker has an obligation to work (or not) during an influenza pandemic often fail to consider that the hospital workplace is not the only

211 In 1918, a medical practitioner in Haskell Kansas USA, reported an outbreak of savage influenza with 3 deaths out of 18 persons seriously infected giving a mortality rate of 16.6%: United States Public Health Service ‘Weekly Reports’ Public Health Reports April 5, 1918, 502. Barry suggests that this may have been the first outbreak of the 1918 pandemic: see John M Barry, The Great Influenza: The Epic Story Of The Greatest Plague In History, (Viking Penguin, 2004) 97-98.

212 Sipress, above n 94.


214 G Dennis Shanks et al, ‘Low but highly variable mortality among nurses and physicians during the influenza pandemic of 1918–1919’ (2011) Influenza and Other Respiratory Viruses 213. The workers most likely to be affected were those who were ‘new’ to the army.

215 In recent years such diseases have sometimes arisen in places which have health systems which are very different to Australia: for example Avian ‘flu in China (excluding Hong Kong), Vietnam, and Laos as well as Swine flu which was first seen (and had a reportedly very high mortality rate) in Mexico.
point of exposure. Rather the focus is on inpatient exposure and the (potential) risk of a high mortality. Perhaps the focus should be on the reality that any influenza virus can make you extremely sick rather than emphasising what might turn out to be, a very small risk of death.

The next chapter will consider the experience of nurses in the pandemic of 1918, contrasting those events with the SARS outbreak. In 1918 working conditions meant workplace exposure was high, however while many nurses became ill with influenza, the mortality rate of the group was not exceptional.
Chapter 3
INFLUENZA 1918

I INTRODUCTION

It has been observed that ‘[t]he past is a foreign country; they do things differently there’.¹ This observation is particularly relevant for medicine. Chapter 2 outlined some of what is known about the characteristics of the influenza A virus, the illness it causes and the role influenza surveillance plays both in Australia and internationally. This chapter takes a step back and explores the experience of the 1918² influenza pandemic when virtually nothing was known about influenza and there was no effective medical treatment. Yet, despite that pandemic having had a huge impact on the global population, little was written about the events at the time.³ The appearance, in 1997, of a highly pathogenic influenza infecting humans has seen the events of the 1918 pandemic re-emerge as a point of interest. From our different perspective, the events of that time are viewed with alarm.

The thesis argues that, although the experience of 1918 may be illustrative of issues that might arise during a pandemic, the passage of time means significant differences exist which are likely to improve patient survival rates. Consequently we cannot simply extrapolate events of 1918 to today, for not only have medical changes occurred but attitudes of the population to interventions may be different. This chapter will explore the 1918 pandemic, approaches taken to protect the public and the impact of the pandemic on the health care workforce and in particular nurses. Importantly, this chapter argues that, despite primitive working conditions and high

² Although the pandemic started in 1918 influenza was not thought to have reached Australia until January 1919. However, for simplicity, except when dates are important, reference will be made to 1918.
³ Honigsbaum notes that while ‘the influenza pandemic is considered one of the most deadly disease events in the history of humanity, it does not seem to have inspired significant works of poetry or literature or left many traces in public memory either—hence its historiographical characterisation as the ‘forgotten pandemic’” - Mark Honigsbaum, A History of the Great Influenza Pandemics: Death, Panic And Hysteria, 1830-1920. (I.B. Tauris, 2014) 2.
rates of exposure, the nurse workforce did not appear to be at a considerably greater risk of death than were other members of the community.

Finally the chapter briefly considers the experience of SARS and the primary differences between SARS and influenza. It is argued that SARS has impacted upon pandemic planning and, in particular, the question of whether healthcare workers will be prepared to work during a pandemic. The SARS discussion provides a useful contrast to 1918, by illustrating a health emergency where the health workforce was clearly placed at a greater risk of illness than were members of the general community.

A Science and infectious disease prior to 1918

Before looking specifically at the 1918 pandemic, it is useful to understand the development of knowledge about infectious disease generally. Today, at least in countries like Australia, infectious disease is a relatively uncommon cause of death and life expectancy is long.\(^4\) Lifespans in the early 19th century, particularly of the poor and disadvantaged, were often short. Many early deaths were due to infectious disease.\(^5\)

Edwin Chadwick and other reformers\(^6\) believed it would be possible to improve the general health of the public through the implementation of legislation to reduce ‘atmospheric impurities’. In 1842 Chadwick investigated and contributed to the first report into sanitary conditions. The report claimed disease was caused and spread:

... by atmospheric impurities produced by decomposing animal and vegetable substances, by damp and filth, and close and overcrowded dwellings ... [and] ... where those circumstances are removed by drainage, proper cleansing, better ventilation, and other means of diminishing atmospheric impurity, the frequency and intensity of such disease is abated; and where the removal of the noxious agencies appears to be complete, such disease almost entirely disappears.\(^7\)

While the belief in the causative agent was incorrect, eradication of the causes of smells ('miasmas') reduced exposure of the population to micro-organisms now

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4 In 2015 in Australia there are still groups who continue to bear a high burden of infectious disease. Such groups may also have a lifespan below that of the wider community: See for example, Jules Morgan, 'Indigenous Australians and the struggle for health equality' (2015) 3(3) The Lancet Respiratory Medicine 188.

5 The other cause of high mortality was childbirth.

6 Including Dr Farr, as mentioned in Chapter 2.

known to cause disease. Removal of waste materials also eliminated food supply for vermin who, through fleas, could spread disease outbreaks. The Public Health Act (UK) was passed in 1848 with Australia (Victoria) following suit in 1854.\(^8\) This legislation focused on cleanliness, the removal of smells and adequate ventilation.

Over a relatively short timeframe there was a virtual explosion of scientific knowledge. Theories of disease transmission evolved as discoveries were made by Louis Pasteur,\(^9\) Joseph Lister\(^10\) and Robert Koch.\(^11\) However, it was many years before germ theory totally replaced miasmatic theory.\(^12\) It is estimated that, ‘[b]etween 1875 and the beginning of the 1900’s, around 50 specific elements of infectious disease ... had been identified, isolated and cultured ...’.\(^13\) Diseases such as smallpox,\(^14\) rabies and anthrax\(^15\) could now be prevented (or disease severity reduced) by way of inoculation or vaccination.\(^16\) The rapid advancement of knowledge meant that, at the beginning of the 20th Century, there was: ‘an era of ‘curative confidence’, where doctors could

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\(^8\) 18 Vic No 13: *An Act for promoting the Public Health in populous places in the Colony of Victoria*, Assented to 19 December 1854.

\(^9\) Pasteur (1822-1895) developed the process of ‘pasteurisation’ in 1863: [http://www.historylearningsite.co.uk/a-history-of-medicine/louis-pasteur/](http://www.historylearningsite.co.uk/a-history-of-medicine/louis-pasteur/) last accessed 27 April 2016.

\(^10\) Lister (1827-1912) is regarded as the ‘father of antiseptic medicine’ [Joseph Lister](http://www.historylearningsite.co.uk/joseph_liste.htm) last accessed 17 February 2015.

\(^11\) Robert Koch (1843–1910) is credited (in 1883) with identifying the organism responsible for cholera outbreaks, [http://www.historylearningsite.co.uk/a-history-of-medicine/robert-koch/](http://www.historylearningsite.co.uk/a-history-of-medicine/robert-koch/) last accessed 27 April 2016.


\(^14\) Although smallpox inoculation had been practiced outside England for centuries — see Peter Razzell, *The Conquest of Smallpox* (Firle: Caliban Books, 1977) — in the 1790’s a rural English GP, Edward Jenner, promoted a safer form of protection by use of cowpox (a disease that was not lethal but provided a degree of protection against the more serious smallpox virus). Jenner Edward, *An inquiry into the causes and effects of the variolae vaccinae* (Classics of Medicine Library, 1978).

\(^15\) Development of this vaccine is usually attributed to Pasteur (1881) but it is suggested that the discovery really belonged to a veterinarian researcher in 1880: Nadine Chevalier-Jussieu, ‘Henry Toussaint and Louis Pasteur rivalry over a vaccine’ (2010) 44(1) *Histoire des Sciences Médicales* 55.

\(^16\) The issue of vaccination will be more fully explored in chapter 8. While technically slightly different inoculation and vaccination have the same aim which is to produce immunity to a disease. The two words were often used interchangeably – especially at the turn of the 20th Century.
proudly enumerate the advances in medical science that had resulted in remedies for many of the world’s most dreaded infectious diseases.17

In the 50 years prior to the 1918 pandemic, considerable progress was made in identifying the cause and prevention of many infectious diseases, yet influenza continued to elude investigators. The pandemic of 1889-1894, and most particularly the year of 1892, was described at the time as being the ‘most virulent [outbreak] ever’.18 News of that pandemic was transmitted by telegraph with death statistics, and names of the dead, published in newspapers.19 The widespread reporting gave rise to a ‘dread that could spill over into panic and hysteria’.20 Despite the concern at the time, a recent evaluation suggests there was a relatively low mortality rate during that pandemic.21

Although extensive research was undertaken ‘during [and after] the great pandemic of 1889–1892’ no single bacteria had been identified as a causative agent.22 One body of researchers believed that Pfeiffer’s Bacillus23 caused influenza: others disagreed.24 It was hypothesised that influenza might be caused by a substance (a ‘virus’) that could not be caught in a filter.25 By 1918 failure to identify the cause of the disease, in an era where scientific knowledge had been rapidly improving, was an embarrassment for medical practitioners and bacteriologists. The earlier pandemic was no doubt in the forefront of memory when, in 1918, the newly found ‘curative

19 Honigsbaum, above n 3 in particular chapter 2 where the growing literacy of the general population is explored: 32-81.
20 Ibid 81.
21 The study concludes that the mortality rate of this outbreak was closer to that of the pandemics of 1957 and 1968 ‘thereby making the 1918 pandemic even more exceptional’: Alain-Jacques Valleron et al, ‘Transmissibility and geographic spread of the 1889 influenza pandemic’ (2010) 107(19) Proceedings of the National Academy of Sciences 8778, 8780.
24 Mathers, above n 22.
25 Anon, ‘The Etiology of Influenza’ (1918) 2(3018) British Medical Journal 494, 495; Graeme H Gibson, FB Bowman and JI Connor, ‘A filterable virus as the cause of the early stage of the present epidemic of influenza’ (1918) 2(3024) British Medical Journal 645.
confidence' of the medical profession was shattered. Given the absence of an effective treatment, a great deal of effort was expended to keep pandemic influenza out of Australia.

B Australian efforts to exclude or contain influenza in 1918

During, and prior to, the 1918 pandemic, suggestions were made in an attempt to protect the public. This included border control and vaccination, as well as short term restrictions on large gatherings and the use of face masks in public spaces.26

I Border control 1918

Border control remains one way a government may be seen to be trying to protect citizens. However, the ability of border control to be of use depends upon several factors, including whether a disease causes symptoms before a person is infective.27 As noted in chapter 2, people with influenza may be asymptomatic but infective; a fact which means that border control is likely to be of little value.28 Border control can also be labour intensive. In 1918-1919 valiant, but ultimately futile, attempts were made to exclude the virus.

Then, as now, quarantine of the external borders is a federal responsibility.29 By October 1918, occupants of ships from New Zealand and South Africa, even if not unwell, were quarantined for 7 days.30 Ships from further away were quarantined if there was any evidence of influenza on board. This maritime quarantine was a

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26 See, as an example, 'Influenza restrictions theaters, open-air meetings, and racing further masking rules a fresh inoculation campaign', The Sydney Morning Herald, 3 April 1919, 7.
28 This fact was recognised when in May 2009 (one month before the pandemic announcement) travel restrictions were not recommended: World Health Organization, 'Influenza A (H1N1) - update 22' (2009) http://www.who.int/csr/don/2009_05_08a/en/ last accessed 5 May 2014. It was estimated that, for each single case of influenza identified at airports in Sydney during the 2009 pandemic, the cost was around $50,000: Praveena J Gunaratnam et al, 'Airport arrivals screening during pandemic (HINI) 2009 influenza in New South Wales, Australia' (2014) 200(5) The Medical Journal of Australia 290.
29 Quarantine Act 1908 (Cth). (See now the Biosecurity Act 2015 (Cth) which came into effect 16 June 2016).
massive undertaking. Between October 1918 and April 1919 across all Australian ports, 228 vessels and a total of 73,844 persons were subjected to quarantine.31

By virtue of geographical isolation and through the imposition of strict quarantine, it was falsely believed that the virus had been excluded from Australia until early 1919.32 In January 1919,

... Australia is fortunate in possessing a highly efficient Quarantine Service, which has succeeded in excluding the disease. This success has not been dependent on good fortune, but is the direct result of the stringent measures of isolation and careful supervision.33

However, by January 28, 1919, 4 cases of influenza were being treated at the Randwick Military Hospital (NSW). All cases were traced to a Melbourne outbreak. In fact, Melbourne had seen evidence of the disease for ‘at least thirteen days before any cases occurred in Sydney’ and while, not declared, the disease was ‘perfectly well known by public repute’.34 The NSW residents blamed Victoria, claiming ‘our precautions have been vain, our vigilance stultified, and our hopes frustrated by Melbourne’s failure to be sufficiently on her guard’.35

In an attempt to stop further cases entering from Victoria, NSW officials imposed restrictions on all travel between the states. As the shared border is 4,635 kilometres in length,36 border control may not have been terribly effective. Quarantine camps were established along the border, with people and train traffic stopped, while passengers on ships arriving from Victoria were detained.37

32 However, in Victoria (1918) the death rate attributed to influenza was the highest it had been for 12 years: A. M. Laughton (Government Statistician), ‘1301.2 - Victorian Year Book, 1918-19’ (Victorian Government, 1920), 213.
33 ‘The Incidence of Mortality of Pneumonic Influenza’ Medical Journal of Australia January 4 1919, 12.
34 Paton, above n 30, 161. Quarantine was implemented across other state lines. Tasmania, in particular, suffered as the state was unable to receive (or export) food products see: Sue Brown, ‘Influenza Pandemic’ in Paul Richards, Barbara Valentine and Tom Dunning (eds), Effecting a cure: aspects of health and medicine in Launceston (Myola House of Publishing, 2006) 361.
37 Paton, above n 30, 161.
Of course, although well intentioned and a physical reminder to the populace that the government was taking steps to protect the community, border quarantine—at either national or state level—is of no value against a virus as rapidly transmissible as influenza.\textsuperscript{38} Strict quarantine for incoming passengers (and along state borders) did little, if anything, to curb the spread of disease. By February 1919 Victorian public health officers had identified that ‘influenza was responsible for 210 deaths in 1918, against an average of 101 for the preceding five years’.\textsuperscript{39} While for its part, the NSW public health department recorded 223 influenza related deaths in September and October 1918, compared with the usual 34 as averaged over the previous 5 years.\textsuperscript{40}

\section*{II Vaccination\textsuperscript{41}}

Given the success of vaccination against other diseases, inoculations were actively promoted as a preventative in 1918. The \textit{British Medical Journal} reported that inoculations were unanimously considered by the War Office as worthwhile.\textsuperscript{42} Despite the recommendation the intervention gave rise to debate between medical practitioners.\textsuperscript{43} As the causative agent was unknown it is highly unlikely that this intervention would have been of any value.\textsuperscript{44} Nevertheless the hope was that it might ‘mitigate against the severity of the affection [sic] and ... diminish its mortality by raising the resistance of the body’.\textsuperscript{45}

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\textsuperscript{38} Linda A Selvey, Catarina Antão and Robert Hall, ‘Evaluation of Border Entry Screening for Infectious Diseases in Humans’ (2015) 21(2) \textit{Emerging Infectious Diseases} 197. \\
\textsuperscript{39} ‘STATIST’S FIGURES Increase of Influenza in 1918’, \textit{The Argus}, 21 February 1919, 5. \\
\textsuperscript{40} Paton, above n 30, 173. \\
\textsuperscript{41} See chapters 8 and 9. \\
\textsuperscript{42} Anon, above n 25, 495. \\
\textsuperscript{43} In support see, for example, David Arthur Welsh, ‘Immunity and Resistance’ (1919) vol 1, 6th year, no 9, \textit{Medical Journal of Australia} 182; against: Henry G Chapman, ‘In Response’ (1919) vol 1, 6th year, no 9, \textit{Medical Journal of Australia} 183. \\
\textsuperscript{44} Paton, above n 30, 144. It was suggested that inoculation presented little risk and might have offered some protection: Edward Carl Rosenow, ‘Prophylactic inoculation against respiratory infections: During the present pandemic of influenza preliminary report’ (1919) 72(1) \textit{Journal of the American Medical Association} 31. The value of anti-bacterial vaccination for secondary infection following influenza is still questioned: Dennis W Metzger et al, ‘Limited Efficacy of Antibacterial Vaccination Against Secondary Serotype 3 Pneumococcal Pneumonia Following Influenza Infection’ (2015) 212 \textit{Journal of Infectious Diseases} 445. \\
\end{flushleft}
of those infected, supplemented with bacteria. There was no one version of this biological soup.

Laboratory workers at the Royal Prince Alfred Hospital (RPAH) were actively involved in the development of a vaccine for the residents of NSW. By as early as December 1918, the laboratory had 171 bottles ‘each containing enough vaccine to inoculate from fifteen to forty people’. By February 1919, there were 40,000 first or 20,000 double doses available. Bottles of vaccine were provided to medical practitioners ‘free of charge’.

Times were different when, during the 2009 pandemic, nearly one third of people surveyed indicated they would be unlikely to accept an influenza vaccine. Ultimately around 21 per cent of the population had been vaccinated against the pandemic strain by February 2010.

Yet, in 1918 when a terrified population had faith in both science and the medical profession, inoculations, despite some dissent, proved extremely popular. People were assured that the local vaccine was as good as any available in the world. Members of the Sydney public queued for hours for their injections. Using volunteer medical practitioners, 1,260 depots were established across NSW with more than 404,843 people inoculated and 819,636 doses administered over a period of around 6

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47 Paton, above n 30, 154.
48 The Royal Prince Alfred inoculation composition had [each cubic centimeter of the vaccine contains [approximately]: Bacillus Influenzae 250 Million; Pneumococci 500 Million; Gram-Negative Micrococcus 100 Million; Staphylococcus Citreus 250 Million.’ Royal Prince Alfred Hospital Gazette, December 16, 1918, 12.
49 Royal Prince Alfred Hospital Gazette Dec 16, 1918, 12; See also Robyn Arrowsmith and Athol Yates, A Danger Greater Than War: NSW and the 1918-1919 Influenza Pandemic (Homeland Security Communications Groups, Australian Homeland Security Research Centre, 2007) [Includes a photograph showing production of the vaccine at 34].
50 Royal Prince Alfred Hospital Medical Superintendent’s Minutes, 11 February 1919.
51 Royal Prince Alfred Hospital Gazette December 16, 1918, 12.
54 Chapman, above n 43.
55 It is suggested that people eagerly accepted the vaccine as they believed it would improve their ‘rheumatic and catarrhal conditions’: Paton, above n 30, 154.
56 'The right vaccine', The Sydney Morning Herald, 17 April 1919, 8.
months. Paradoxically, overcrowding at inoculation depots is likely to have assisted in the spread of disease. An eyewitness reported:

The long queues of waiting people attract one to the spot. A guard at the door vainly tries to keep the members of this seething mass of humanity at the regulation distance from one another, but very often it is a case of the survival of the fittest, and the less determined find themselves further back in the line than when they first arrived.

Despite apparent evidence that inoculation diminished ‘the more severe complications’, it was unlikely to have been effective. This was because the cause of the disease cause was unknown. Inoculation was supplemented by way of physical protection through the wearing of masks.

### III Masks

For a short time the NSW authorities sought to impose the compulsory wearing of masks in public spaces. However the directive was dropped when the practice appeared to be rejected by the exercise of ‘public opinion’. One medical practitioner was even arrested and, having been bought before the police court, accepted a term of imprisonment rather than wear a face mask which he argued to be of no value. A later study suggested there was insufficient evidence to compel the use of face masks. As discussed in chapter 7, the question of whether masks, and if so which type, are a useful means of protection continues to be unclear to the present day. There is now clear evidence that cloth masks, such as those used in 1919, potentially

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57 It was estimated that around a quarter of the NSW population were inoculated. In the Sydney area an estimated ‘35 and 40 percent’ of the population were covered. These estimates were said to be ‘conservative’: Paton, above n 30, 154.


59 Paton, above n 30, 145. A recent investigation into bacterial immunisation found that (at least in rats) the intervention was not particularly effective: Metzger et al, above n 445.

60 Paton, above n 30, 163.

61 Dr Fox refused to pay a bail of £20, said he would continue to refuse directions to wear a mask in public. He was transferred, in his own vehicle, to Long Bay Jail to await trial: ‘Refused to Wear Mask. Doctor Committed for Trial. A Matter of Principle’, *The Sydney Morning Herald*, 8 February 1919, 14. Dr Fox later sued for false imprisonment, arguing the magistrate had acted ‘without Jurisdiction or authority in law’. The Jury found for Dr Fox, awarding him £150 (he was seeking £2000): ‘Doctor Sues Magistrate: Fox v Adrian’, *The Sydney Morning Herald*, 18 December 1919, 5.

increase the risk of infection for the wearer.\textsuperscript{63} The Royal Prince Alfred Hospital, used the opportunity to fund raise by establishing a mask sterilising room in central Sydney where, for the sum of twopence a mask could be sterilised on site, an initiative that ‘proved [to be] an instantaneous success’\textsuperscript{64}

\textbf{C \quad The 1918 influenza pandemic}

The 1918 pandemic was not a single event. As sometimes happens with influenza, rates of infection waxed and waned, meaning that the outbreak occurred in a series of waves. Australia faced two waves of outbreaks\textsuperscript{65} but, in some countries a third wave was also experienced.\textsuperscript{66} In Sydney, influenza took three distinctly different forms: ‘simple influenza’, ‘pneumonic’ or ‘broncho-pneumonic’: the latter being the most virulent or pathogenic.\textsuperscript{67} Patients in the most severe category were likely to die suddenly. The telegraph heralded the impending danger, so Australians knew that a vigorous strain of influenza was causing deaths in Europe in 1918, well before any outbreak in Australia.\textsuperscript{68} More frighteningly, the disease was travelling quickly. In South Africa a disease outbreak in September 1918 caused numerous deaths, with Cape Town reported to be ‘like a dead city’.\textsuperscript{69}

While no one is certain of the origin of the pandemic, the first outbreak is thought to have occurred in an army camp in Northern France in November 1917,

\footnotesize{63 \quad C Raina MacIntyre et al, ‘A cluster randomised trial of cloth masks compared with medical masks in healthcare workers’ (2015) 5(4) \textit{British Medical Journal Open} e006577.}

\footnotesize{64 \quad 'Sterilising the masks', \textit{The Sydney Morning Herald}, 8 February 1919, 14. The money went to the RPAH Jubilee Fund.}

\footnotesize{65 \quad If the disease of 1918 is excluded there were two main waves in Sydney NSW. Hospital admissions virtually doubled from 15 March 1919 and started to wane 17 May. 24 May 1919 saw an increase in presentations with a higher, and longer, peak of admissions. The second wave started to drop away by August 1919: Paton, above n 30, 147.}

\footnotesize{66 \quad Jeffrey K Taubenberger and David M Morens, ‘1918 Influenza: the mother of all pandemics’ (2006) 17 \textit{Revista Biomédica} (First published in \textit{Emerging Infectious Diseases} 2006; 12:15-22. (Authorized reproduction)) 69, 72.}

\footnotesize{67 \quad Paton, above n 30, 146.}

\footnotesize{68 \quad For example the following headlines appear in major NSW papers months prior to the disease being actively identified as being present in Australia: Influenza Epidemic Spreading in England: \textit{The Sydney Morning Herald}, 29 June 1918, 4; ‘Influenza Outbreak (English towns and in Germany)’, \textit{The Sydney Morning Herald}, 2 July 1918, 7.}

\footnotesize{69 \quad 'Influenza in South Africa', \textit{The Sydney Morning Herald}, 11 October 1918, 7. Followed by later headlines such as: 'Influenza. No Fresh Cases In Quarantine. Ravages In South Africa. 15,000 Deaths In 24 Days.', \textit{The Sydney Morning Herald}, 18 December 1918, 11.
which might make this the epicentre. In army camps, presumably because of the close proximity of personnel, outbreaks spread rapidly and the return of troops on crowded ships and trains facilitated viral transmission. It is now argued that, in the absence of air traffic, the virtually simultaneous appearance of influenza in places as geographically separate as Britain, South Africa and Australia during the short period of September–November 1918 indicated that an earlier process of ‘seeding’ must have occurred: perhaps from as early as 1916. This finding is supported by evidence of spikes of influenza activity in the USA in 1915 and 1916.

In retrospect it appears that a virus, with high mortality rates, may have been in circulation for some time before the pandemic ‘exploded’. An outbreak in the Aldershot military camp between March–April 1917 saw a ‘mortality [rate of] 25-50%’. While, in 1918, a medical practitioner in Haskell Kansas USA, reported an outbreak of influenza with 3 deaths out of 18 persons seriously infected: a mortality rate of 16.6 per cent.

The pattern of deaths noted during the 1918 pandemic was unusual. The age of death curve was ‘W-shaped’ with deaths at either end of the age spectrum (as would be usually expected in influenza) but with a ‘distinct peak of deaths in young adults ≈ 20-40 years of age’, although some noted that high risk started as early as 15 years of

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70 John S Oxford et al, ‘A hypothesis: the conjunction of soldiers, gas, pigs, ducks, geese and horses in Northern France during the Great War provided the conditions for the emergence of the “Spanish” influenza pandemic of 1918–1919’ (2005) 23(7) Vaccine 940. Outbreaks of influenza were also noted in Kansas (USA).
71 John S Oxford et al, ‘World War I may have allowed the emergence of “Spanish” influenza’ (2002) 2(2) The Lancet Infectious Diseases III.
72 Richard Collier, The Plague of the Spanish Lady (Macmillan, 1974) notes that (81) isolated areas such as ‘Maatsuyker Island (six miles off the Tasmanian Coast, ‘where the keeper and his wife hadn’t seen a soul for three months’) experienced influenza.
73 Oxford et al, above n 70. Given the ‘seeding’ of the 1918 influenza virus they suggest that a lead in time (which, in 1918 was around 18 months) might provide notice for a future outbreak (945). Presumably, given the prevalence of air travel, any lead in time today might be short but could still be valuable as it would allow early commencement of vaccine production.
74 Taubenberger and Morens, above n 66, 71. The authors note out that, if these earlier spikes were due to a similar virus, a pandemic might have evolved earlier or the population would have been less responsive in 1918 as they should have had a degree of immunity.
77 Taubenberger and Morens, above n 74, 74.
In the Hunter Region (NSW) 66 per cent of deaths were said to have occurred in persons aged between 20–45 years. Although mortality rates varied dramatically — from a likely 0.3 per cent across 24 American states, to 6.2 per cent in Bombay — the World Health Organization estimates an overall 2-3 per cent global mortality.

The disease was widespread and it was estimated that the attack rate, in the Sydney metropolitan area, was 36.6 per cent. Deaths were reported daily in the newspaper. Notwithstanding the serious manifestations of disease for some people, the majority of NSW residents who became unwell had a short term illness of fever, chills and shakes and recovered quickly. Despite the high attack rate the mortality rate was estimated to be 1.3 per cent. In 1920 it was estimated that 11,989 Australian deaths occurred as a direct result of the 1919 pandemic. The bulk of these (10,493) deaths were due to ‘pneumonic influenza’. This death rate equated to 233 deaths per 100,000 people, which was 23.8 times higher than the average rate of deaths from influenza over the previous 12 years.

II INFLUENZA AND LIMITED MEDICAL CARE 1918

The main concern in 1918 was that there was then, as now, only symptomatic treatment for influenza. While today there are medical treatments that have the capacity to significantly improve survival, even the most basic of these were not readily available (if at all) in 1918. In the absence of any supportive treatment a person

78 Collier, above n 72, 40.
79 Paton, above n 30, 172.
82 Paton, above n 30, 152.
83 'Influenza: Nursing Sister's Death. Two more nurses ill.', The Sydney Morning Herald (Sydney, 4 December 1918, II; 'V.A.D. Heroine. Succumbs To Pneumonic Influenza.', The Sydney Morning Herald, 22 April 1919, 7.
84 Paton, above n 30, 152.
85 Ibid 153.
86 Commonwealth of Australia, 'I301.0 - Year Book Australia, No. 12, 1919', II30.
87 Ibid 1129.
struck down by influenza, particularly of the pneumonic variety, could become dramatically unwell.

In 1918 Isaac Starr was a third year medical student.\(^{88}\) After a single lecture he and his fellow students were directed to a makeshift hospital to provide patient care. He described the rapid deterioration of some patients:

... the clinical features of many soon changed drastically. As their lungs filled with rales the patients became short of breath and increasingly cyanotic. After gasping for several hours they became delirious and incontinent, and many died struggling to clear their airways of a blood-tinged froth that sometimes gushed from their nose and mouth. It was a dreadful business.\(^{89}\)

Josie Brown noted that nurses spent ‘endless hours trying to relieve the high fevers and nosebleeds before the lungs filled with blood and faces turned blue’.\(^{90}\) It is now believed that the fluid-filled lungs and nosebleeds were caused as a result of a ‘cytokine storm’ where the immune system seriously over-reacts to a virus.\(^{91}\)

Oxygen is essential for the survival of the human organism. Room air contains 21 per cent oxygen. In healthy individuals haemoglobin is saturated (at 98 per cent or higher) with oxygen. As the blood circulates oxygen is released and made available to the tissues of the body. Hypoxemia refers to a reduced amount of oxygen in the blood, and this may occur with a saturation of 90 per cent or less.\(^{92}\) Central cyanosis, where there is a blue tinge of the lips, mucosa and nail-beds, will generally not be seen until

\(^{88}\) He went on to have a distinguished career in research and teaching: ‘Dr. Isaac Starr, 94, Heart Researcher, Dies’, The New York Times (online) 28 June 1989.

\(^{89}\) Isaac Starr, ‘Influenza in 1918: Recollections of the Epidemic in Philadelphia’ (2006) 145(2) Annals of Internal Medicine 138, 139. The description sounds like acute pulmonary oedema, a condition where fluid seeps into the alveoli interrupting the ability to exchange gases into, and out of, the blood stream. The patient can cough up blood stained froth as they effectively start to drown. Rales are wet, crackly noises heard in the lungs with the accumulation of fluids in pulmonary oedema. There are many causes of pulmonary oedema divided into two main categories: cardiac and non cardiac problems (for an explanation of the causes and symptoms see http://www.mayoclinic.org/diseases-conditions/pulmonary-edema/basics/definition/con-20022485 last accessed 21 April 2016). The sudden respiratory deterioration could also have been a syndrome: Acute Respiratory Distress Syndrome (ARDS) treatment of which has dramatically improved over the past 50 years: Gordon R Bernard, ‘Acute Respiratory Distress Syndrome: a historical perspective’ (2005) 172(7) American Journal of Respiratory and Critical Care Medicine 798. Other researchers have shown that the 1918 virus caused a fatal ARDS in monkeys; Darwyn Kobasa et al, ‘Aberrant innate immune response in lethal infection of macaques with the 1918 influenza virus’ (2007) 445(7125) Nature 319.


oxygen saturation levels fall to around 73–78 per cent. It is evident that cyanosis is a late sign of oxygen deprivation.

Sudden cyanosis was an unusual feature of this pandemic. Survival of a patient showing signs of the so-called ‘helitrope cyanosis’ was extremely rare. Although cyanosis was said to be the most striking symptom of the severe case and some degree of cyanosis was common, observers noted that ‘[w]ith the onset of definite pneumonia the patient often became lilac or lavender hued’. As the brain is highly dependent upon oxygen, clinical signs, including confusion and agitation will occur as the oxygen levels drop. These signs appear prior to the development of cyanosis.

It was recognised in 1918 that the patient most likely to die was the one who suffered from ‘delirium’. Today that patient would be recognised as having clinical signs of severe hypoxia. Hypoxia is treated by the administration of supplementary oxygen: a therapy not readily available in 1918.

Although a mechanism for the efficient delivery of oxygen had been published in 1917 Starr recalls that in 1918 ‘[w]e had some tanks of oxygen but no effective way of administering it’. In fact it was not until 1932 that oxygen had become established as a treatment. This resulted in a call for ‘oxygen [to] be given a trial in serious heart and pulmonary conditions’. By 1938 oxygen therapy, while expensive, was said to have, over a period of fifteen years, ‘assumed great medical importance’.

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93 Lawrence Martin and Hany Khalil, ‘How much reduced hemoglobin is necessary to generate central cyanosis?’ (1990) 97(1) Chest Journal 182, 184.
94 Paton, above n 30, 146.
95 Ibid 147.
96 Hypoxia is defined in the Macquarie Dictionary as ‘any state where a physiologically inadequate amount of oxygen is available to or utilised by tissue’. Signs of agitation and aggressiveness are generally short lived as an untreated hypoxic patient will rapidly loses consciousness.
97 John S Haldane, ‘The Therapeutic Administration Of Oxygen’ (1917) 1(2928) British Medical Journal 181; the author notes that the ‘wide application of oxygen … [was] not realized’: John Scott Haldane, ‘A Lecture on the Symptoms, Causes, and Prevention of Anoxaemia (Insufficient Supply of Oxygen to the Tissues), and the Value of Oxygen in its Treatment’ (1919) 2(3055) British Medical Journal 65, 70.
98 Starr, above n 89, 139.
100 Margaret J Hawthorne et al, ‘Oxygen Therapy: A Study in Some Nursing Aspects of the Operation of an Oxygen Tent’ (1938) 38(II) The American Journal of Nursing 1203, 1203. Oxygen was expensive, with costs ranging from $US2 a day (nasal catheters) to $US10 a day for a room, 1204.
While oxygen levels are important, the effective removal of carbon dioxide is also critical. The process of gas exchange at the cellular level is called respiration while the movement of a volume of air into, and out of, the lung is ventilation.\footnote{Difference Between Ventilation and Respiration (24 July 2012)\textit{http://www.differencebetween.com/difference-between-ventilation-and-vs-respiration/} last accessed 28 April 2016.} Carbon dioxide imbalance changes the chemical pH of the blood and, as human survival is dependent upon a narrow pH range, both respiratory insufficiency (as seen by an increase in carbon dioxide) as well as severe hypoxia can cause death.\footnote{The normal pH of human blood is 7.35 - 7.45; less than 7.35 is acidotic; higher than 7.45 is alkaline. The pH of blood can be affected by many diseases, not only respiratory. The Healthline Editorial Team, \textit{Respiratory Acidosis} (3 December 2015)\textit{http://www.healthline.com/health/respiratory-acidosis#Overview1} last accessed 27 April 2016.} In the absence of supplementary oxygen or the capacity to ventilate the patient there was no way to reverse either of these processes. Patients would simply die.

Photographs of influenza wards in 1918 show patients densely packed. Many patients are lying in a supine position, with none of the paraphernalia, such as oxygen, that would be regarded as fairly standard treatment in 2016. In the absence of any effective medical treatment, commercial remedies\footnote{The best known of which, at least to legal students, was the Carbolic Smoke Ball. In the 1890-1 outbreak of influenza the Carbolic Smoke Ball Company advertised saying that their product, if used properly, would ensure that the user did not contract influenza. In addition, any person infected while using the product appropriately would be entitled to claim £100. A Mrs Carlill purchased the product, using it in accordance with the given directions for two months but succumbed to influenza in January 1891. Despite the advertising the company refused to pay. She succeeded in a breach of contract claim at both first instance and upon appeal: \textit{Carlill v Carbolic Smoke Ball Company} [1892] 2 Q.B. 484; Appeal [1893] 1 Q.B. 256. No explanation of what a carbolic smoke ball actually 'was', was provided during either court case. This matter has since been rectified: see Alfred William Brian Simpson, 'Quackery and Contract Law: The Case of the Carbolic Smoke Ball' (1985) 14(2) \textit{The Journal of Legal Studies} 345, especially 348–350. Apparently the 'smoke ball' allowed the user to inhale a spray of carbolic acid (or phenol) into the nasal cavity in an attempt to destroy substances that caused illness. Carbolic was a very popular disinfectant at the time and used everywhere. In around 1886 'Carbolic spray was used in the theatre, sponges were rinsed in carbolic, hands were scrubbed with carbolic, carbolic dressings were put on wounds; accident cases in Casualty were bathed in carbolic': Dorothy Armstrong, \textit{The First Fifty Years: A History of Nursing at the Royal Prince Alfred Hospital Sydney From 1882 to 1932} (Roden Print, 1982), 49.} and ‘quack’ products continued to be popular.\footnote{Lori Loeb, ‘Beating the Flu: Orthodox and Commercial Responses to Influenza in Britain, 1889–1919’ (2005) 18(2) \textit{Social History of Medicine} 203.} The few drugs that were thought useful were in short supply as hospitals were unable to source ‘necessary supplies, especially in the matter of drugs

\footnote{Despite the treatment having attained ‘medical importance’ the nurse was often responsible for regulating the amount of oxygen administered to the patient: 1203-4.}
and other requirements for the possible treatment' because of the war. High dosages of salicylates (aspirin) which were used to reduce fever may have contributed to the levels of pulmonary oedema and influenza deaths which occurred early in the disease process. Soldiers, exposed to poisonous gases during warfare, may have been at a greater risk as their lungs were already damaged. However, the reality is that during the 1918-1919 influenza pandemic there were no effective treatments: there were no antibiotics to treat pneumonia, no anti-viral drugs, and supplementary oxygen a new idea with very limited clinical application. Starr records 'our attempts at therapy were exercises in futility'.

In 1918, medical advice for the care of influenza victims was simple: 'rest in bed, free movement of the bowels and light diet are the most important measures'. Rest, taking simple analgesics and remaining well-hydrated continues to be the primary advice for uncomplicated influenza today. It is apparent that, for the most part, good nursing care provided the bulk of possible interventions and skilled nurses were in

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106 See explanation, n 89.
108 Oxford et al, above n 70, 944 (table 2).
110 Julian M Leigh, 'Ideas and anomalies in the evolution of modern oxygen therapy' (1974) 29(3) Anaesthesia 335, 337 while there had been experimentation with oxygenation, the use of the therapy and correlation with blood gases did not really commence until the late 1920s - early 1930s. See also Louis Eisenberg, 'History of inhalation therapy equipment' (1966) 4(3) International Anesthesiology Clinics 549, especially 557-558. Potts, above n 99, 616 said (in 1932), that 'oxygen therapy ... [had had] a rather intense 10 year probation [i.e. trial] period'. Clearly the clinical use of oxygen started around 1922 and so after the Pandemic.
111 Starr, above n 89, 139.
112 Royal Prince Alfred Hospital Gazette No 64, Vol. XVI, Sydney, December 16, 1918, 38.
113 At the time of the 1919 pandemic, intravenous (IV) therapy for hydration was not available. IV therapy has only been readily available over the past 45 years: Doris Millam, 'The History of Intravenous Therapy' (1996) 19(1) Journal of Infusion Nursing 5.
demand. ‘Nursing was nine-tenths of the battle in recovering from influenza’\textsuperscript{114} and nurses ‘had to be constantly in attendance upon the patients, working with unusual activity’.\textsuperscript{115} While medical staff expressed a ‘sense of helplessness’, nurses had the satisfaction of knowing good nursing care could provide comfort.\textsuperscript{116} Yet, despite the high number of influenza cases which involved complications, the majority of those infected recovered without incident.\textsuperscript{117}

### III THE AUSTRALIAN NURSING WORKFORCE

#### I Nursing workforce at the time of the 1919 pandemic

While the modern hospital sector employs a fully qualified nursing staff\textsuperscript{118} the workforce of 1919 was very different. Like today, the nursing workforce was almost exclusively female, but they were generally young. Once accepted a trainee nurse simply started work in the hospital as a probationer.\textsuperscript{119} There was no set curriculum or standardised training. A course of training could occur over a period of 2, 3 or 4 years.\textsuperscript{120} Nurses qualified\textsuperscript{121} by completing an apprentice style education, learning ‘on the job’ from the senior nurse while also attending lectures delivered by medical staff.

\begin{itemize}
  \item \textsuperscript{114}Morrisey, above n 90. Morrisey interviewed her great aunt (Josie Mabel Brown), a nurse who served at the Great Lakes Naval Hospital during the peak of the disease outbreak. Morrisey draws heavily on the work of Crosby.
  \item \textsuperscript{115}Royal Prince Alfred Hospital Gazette No 66, Vol. XVI, Sydney, July 26, 1919, 3.
  \item \textsuperscript{116}Nancy K Bristow, ‘You can’t do anything for influenza’ Doctors, nurses and the power of gender during the influenza pandemic in the United States’ in Howard Phillips and David Killingray (ed), The Spanish Influenza Pandemic of 1918-19: new perspectives, (Routledge, 2003) 58, 59.
  \item \textsuperscript{117}Jeffery K Taubenberger and David M Morens, ‘Influenza: the once and future pandemic’ (2010) 125 (Suppl 3) Public Health Reports 16, 125.
  \item \textsuperscript{118}The nursing workforce of 2016 will be discussed in chapter 6.
  \item \textsuperscript{119}A nurse was ‘on probation’ (and so a probationer) until they demonstrated they had the capacity to train as a nurse. See the recollection of Probationer Steel’s first day in 1906 (she was not paid for the first year of training): Armstrong, above n 103, 117.
  \item \textsuperscript{120}Training length was determined by each hospital: Cordelia Maylean, Nurses at Little Bay (Prince Henry Trained Nurses’ Association, 2nd ed, 1990), 57-58.
  \item \textsuperscript{121}Registration of the nursing workforce was not yet implemented: see chapter 6.
\end{itemize}
and trained nurses. Patient needs always came before lectures and it was expected that nurses would attend lectures in their off duty time.

That the ratio of qualified nurses to trainees was extreme can be illustrated by the nurse staffing of the specialist infectious diseases hospital in Sydney: The Coast Hospital. In 1913 the nurse workforce had 14 sisters (including the Matron and her Deputy), 4 staff nurses (junior sisters) and 151 pupil nurses. Likewise in Victoria it has been estimated that trainees comprised over 80 per cent of the Victorian hospital workforce in 1915. Consequently, during the 1918 pandemic, the bulk of care administered to patients was by trainees not qualified nurses. It would not have been considered unreasonable to utilise volunteers to supplement staff. Volunteers, already being used for the war effort, were not expected to ‘come in contact with influenza cases’ but to care for other patients. Minutes at the Sydney Hospital record that trainee nurses with at least 2 years of experience would staff the ‘isolation compound’.

The nursing workforce operated under a strict hierarchy. Trainee nurses were expected to ‘be obedient and respectful to all in authority, doing willingly, without protest or comment whatever duties might be assigned to them by the sister or staff nurse’. A nurse could only leave the ward with permission of the senior nursing staff. In effect nurses were indentured servants who had to obey in order to

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122 Maylean, above n 120, 153. Doctors were often concerned that the nurse may attempt to ‘usurp the role of the medical man’: JK Watson, *Handbook for Nurses* (Scientific Press, 5th ed, 1940), 7-8.
123 Armstrong, above n 103, 166.
124 Located at Little Bay, Sydney, NSW.
127 Nurses, staying on at a hospital once trained, were ‘expected, if not obliged, to look elsewhere’ after a year or two: Maureen Kathryn Minchin, *Revolutions and Rosewater: The Evolution of Nurse Registration in Victoria, 1923-1973*, (Hart Hamer, 1980), 7.
129 House Committee Meeting Minutes dated March 24th 1919, 501.
130 Rules and Regulations of the Public Hospital Launceston (Circa 1906) Part XVII Nurses, rule 156.
131 Ibid rule 160.
complete their period of servitude and eventually gain a qualification. As a result, the hospital nurse workforce of the time was unlikely to rebel against requirements to work — even if they were frightened.

II Employment of nurses during the pandemic

Conditions of employment for nurses at the time of the pandemic varied, as hospitals set their own salaries and conditions. It would not be until 1936 that the employment conditions of nurses in NSW would be governed by an industrial Award. Nurses were required to live on-site, which meant they could be called on at any time. Provision of accommodation and board also meant that nurses needed permission to leave hospital grounds. Opportunities for nurses to mingle with people outside the hospital were limited. Working with and tending to the sick, for prolonged time periods, nurses were continually exposed to infective influenza patients. Unlike many nurses of today, they did not have children and home care responsibilities.

While conditions varied, a nurse was not generally entitled to paid sick leave. Consequently any days off ‘sick’ simply extended the period of training. In a time when infectious disease was fairly common, it was not unusual for nurses to become ill and, during the influenza pandemic, Matron Watson (at The Coast) insisted nurses

132 Trainees were not always paid (and sometimes paid the hospital for the privilege of training). If they fell sick in their final years their experience and expense was wasted as they would ‘fail to obtain the hospital certificate’: Minchin, above n 127, 6-7.

133 However, some nurses in private practice apparently did refuse ‘point blank, to handle cases of pneumatic influenza’: ‘Nurses Wanted for Fight against Pandemic: Urgent Appeal For Help. The Real Danger’, The Sydney Morning Herald, 7 April 1919, 6.

134 Passage of the NSW Hospital Nurses’ (State) Award 1936 was not easy. Mary Dickenson, An Unsentimental Union: The NSW Nurses Association 1931-1992 (Southwood Press, 1993), Chapter 3.

135 Until well after WWII nurses were unmarried: Richard Trembath and Donna Hellier, All Care and Responsibility. A History of Nursing in Victoria 1850-1934 (Globe Press, 1987), 88. It was generally accepted that a nurse who married would not work in the hospital system (they could work privately). As late as the 1950’s one hospital in Victoria put the Matron (who was already employed) on ‘probation’ for a year after her marriage: Minchin, above n 127, 99.

136 Rules and Regulations, above n 130, Part XVII (Nurses) paragraph 168 that ‘Any nurse, when ill, shall be exempted from duty by the Superintendent. Should she be incapacitated by accident or illness for more than three days, such nurse may be received as an in-patient and thenceforth shall be entitled only to full salary for a period not exceeding one month when payment of salary will cease until she is able to resume her duties’.

137 See Dickenson, above n 134, 64.

138 This continued to be the case for many years see, for example, Sheryl Brennan, Contradictory Stories: an oral history of a group of 1960’s nursing students (School of Nursing and Midwifery, University of Tasmania, 2006) 51.
keep a bag packed containing sufficient toiletries for ‘two weeks’ in case they were hospitalised.\textsuperscript{139} Certainly many health workers became unwell during the pandemic and, in NSW it was found that 55 per cent of the influenza staff (doctors, nurses and wardsmen) experienced sickness.\textsuperscript{140}

Even in the absence of a public health emergency, nurses worked long hours. Days averaged 10.5 hours, but 12 hour shifts were common. During the pandemic one nurse recalls having, a ‘clear memory of nurses in masks wearing ... dresses stained dark brown to the waist in sweat. No special hours, sometimes ten or more hours a day.’\textsuperscript{141} Nurse numbers at the Coast Hospital were further depleted as nurses were allocated to ambulance duty.\textsuperscript{142} Although generally entitled to take one day off a week which, because of the distance to The Coast, was taken as 4 consecutive days after a month, this leave was cancelled for nurses during busy times including the pandemic.\textsuperscript{143} It was therefore not unusual for nurses to work 7 days a week\textsuperscript{144} or a 70 hour+ week, with trainees from The Coast recalling that during epidemics nurses would be given 4 days off after 3 months of continuous night duty.\textsuperscript{145}

In addition to their nursing duties, nurses did most of the general domestic chores on the wards.\textsuperscript{146} Cleanliness was paramount, particularly given the absence of antibiotics. Wards were generally styled in the ‘Nightingale’ fashion, with long rows of beds facing each other with a central ‘sisters’ desk. The advantage was that all patients could be easily seen by the nurses. One disadvantage was that the ward usually only had a single sink for hand-washing. This lack of easy access to running water is likely to have impacted upon the frequency of hand cleansing, as no alcohol based hand-cleansing solutions existed.

\textsuperscript{139} Boughton, above n 125, 37.
\textsuperscript{140} Paton, above n 30, 153.
\textsuperscript{141} Recollection of Nurse Kate Austen (1986) in Maylean, above n 120, 76.
\textsuperscript{142} The ambulance trams ran twice daily from the city; many patients died before reaching the hospital: ibid 75. See also Boughton, above n 125, 37.
\textsuperscript{143} Boughton, above n 125, 94.
\textsuperscript{144} Maylean, above n 120, 61.
\textsuperscript{145} Boughton, above n 125, 94.
\textsuperscript{146} For example at Prince Henry Hospital (formerly The Coast). Nurse Norma Iverach recalled that ‘Wardsmaids were not appointed until 1930’: Maylean, above n 120, 83.
III Compulsory inoculation of healthcare workers

While hospitals at the time were not bound by Work Health and Safety legislation, staff protection was a concern for the employer. Workers were obliged to accept a three dose course of inoculation in order to work in the hospital during the pandemic. Inoculation of staff at the Royal Prince Alfred Hospital had commenced six weeks earlier than the acknowledged arrival of the disease. At the Superintendents’ meeting of January 28 1919, employees were directed to have their ‘final dose of inoculation before Monday 3rd February’. While some tried to ‘evade the orders’ only one employee, the out-patient porter, flatly refused. Dr Clayton (Medical Superintendent) recorded ‘I have got over this difficulty by employing him in town at the Jubilee Office Rooms for sterilising masks’. As dirty masks were taken to that office for cleaning and sterilizing, ironically the reluctant porter may have faced a higher viral exposure virus than might have been the case had he remained at the hospital.

IV Influenza mortality rates 1918 and healthcare workers

Nurses had considerable exposure to influenza victims during their working day. Because wards were over-crowded it was said that nurses could face a ‘fog of infective droplets’, meaning that any ‘temporary or accidental displacement of a mask’ might lead to exposure. It is difficult to work in a mask and, even during the pandemic, nurses did not always comply. It has been shown that nurses worked long hours during the pandemic caring for many patients. Nurse numbers were further depleted because of sick leave, so workloads would have been heavy. While volunteers were used, particularly in the community settings, influenza wards were preferentially

147 Despite not being covered by WHS legislation hospitals had always taken steps to protect staff against infectious disease. See chapter 7.
148 Royal Prince Alfred Hospital, Medical Superintendent Minutes, 28 January 1919.
149 Royal Prince Alfred Hospital, Medical Superintendent Minutes, 28 January 1919.
150 Royal Prince Alfred Hospital, Medical Superintendent Minutes, 11 February 1919.
151 At this time hospitals relied on donations in order to continue operating.
152 Paton, above n 30, 163.
153 Matron’s report to the Sydney Hospital House Committee 24 February 1919 records ‘some nurses lax in wearing masks’, at 14.
staffed with nurse trainees.\textsuperscript{154} For example a hospital in Waratah (NSW) had 88 nurses during the pandemic ‘but at no time even when the total number of in-patients rose to 189 did the number of nurses on duty exceed 23’.\textsuperscript{155} It might be assumed that, as a result of the length of continued exposure and the young age demographic, nurses would be over-represented in the death statistics. However this does not appear to be the case.

In 1919 the Royal Prince Alfred (RPA) and Sydney Hospitals were the two major hospitals in NSW that accepted influenza victims. While many nurses became ill,\textsuperscript{156} only three nurses (one at RPA\textsuperscript{157} and two from Sydney Hospital\textsuperscript{158}) are recorded as having died of influenza. At the Coast Hospital in 1919, 2,966 patients were admitted with influenza, with 313 deaths — a case fatality rate of just over 10 per cent — yet no staff died.\textsuperscript{159} Likewise Starr (in Philadelphia) noted that, workers were ‘largely spared’ and not one died.\textsuperscript{160} A public health review undertaken after the pandemic determined that, across NSW, 814 nursing and medical staff (of a total 1488)\textsuperscript{161} became unwell. Only 12 died of influenza.\textsuperscript{162} In other words, while 55 per cent of staff became unwell, there was a case fatality rate of 1.5 per cent, which is not significantly higher than the estimated 1.3 per cent for the general populace.\textsuperscript{163}

An anthropological study undertaken in 2010 looked at the 1918 pandemic in Toronto (Canada) and determined that nurses were not at a greater risk of death compared with other groups. Unfortunately information given is as total deaths, and no mention is made of the population of each group (therefore it is not possible to

\textsuperscript{154} Royal Prince Alfred Hospital Medical Superintendent Meeting Minutes (10 June 1919) records that staff sickness meant ‘The Matron has found it impossible to fully staff the wards, with the exception of some of the influenza wards’.

\textsuperscript{155} Total staff for 24 hours: Paton, above n 30, 172.

\textsuperscript{156} Boughton, above n 125 states that, ‘among the nurses of the 25 metropolitan hospitals ... there was a 55 per cent attack rate’: 36. However this statistic most probably applies to all staff see n 140 above.

\textsuperscript{157} Royal Prince Alfred Hospital Medical Superintendent Meeting Minutes 18 April 1919 records: ‘At present there are 12 nurses ill in hospital and 29 nurses on sick leave while one nurse has died of the disease’. A nurse had also died of enteric fever on 11 March 1919.

\textsuperscript{158} A plaque was erected at the Sydney Hospital in memory of the two nurses who died.

\textsuperscript{159} Boughton, above n 125, 36-37.

\textsuperscript{160} Starr, above n 89, 140.

\textsuperscript{161} Paton, above n 30, 153.

\textsuperscript{162} Ibid 157.

\textsuperscript{163} Ibid.
determine the case fatality rate), but out of 10 occupations listed, nurses came ranked 6th with 18 deaths. This was numerically far short of soldiers (131 deaths), clerks (50), students (30), housewives (27) and retirees (22).¹⁶⁴

That is not to say there were not instances when a high proportion of staff caring for influenza victims died. This situation was likely to arise in cramped and enclosed living conditions. One such example was the return to Western Australia of the troopship *Boonah*. The *Boonah* had 1,200 soldiers on board, as well as crew, and was travelling to war when they berthed in Durban (South Africa) to learn that the armistice had been signed. The ship abandoned its journey and returned to Australia. During the return many crew and soldiers became unwell, seriously delaying the voyage. By the time the vessel had returned to Freemantle around 25 per cent of the persons aboard were infected. Federal authorities (who had been informed of the situation by radio) refused to allow the ship to dock. After some delay, the 300 worst affected individuals were transported to the Woodman Point Quarantine station. The station was under-resourced and hastily established with volunteer as well as army nursing staff. During the time the station was open, 4 of the 40 nurses lost their lives: a mortality rate of 10 per cent.¹⁶⁵ However such pockets of high mortality were isolated and there was generally a mixed, but low, mortality of healthcare workers in military camps. Those most likely to succumb to disease were workers who arrived fresh at camps: presumably because they had little prior immunity.¹⁶⁶

A The once ‘forgotten’ 1918 influenza pandemic

In 1994 at an international meeting to discuss infectious disease a concern was raised that the ‘the reappearance of a 1918-like lethal influenza … could well lead to an even more explosive spread … given the current population density and rapid movement of

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¹⁶⁵ Ian Darroch, *The Boonah Tragedy* (Access Press, 2004), the nursing staff included 20 volunteer civilian nurses and 20 army nurses. There was obvious discord between the two groups, as shown by the letter dated 21 December 1918, included at 172-173.

The appearance of a highly pathogenic avian influenza, which remains poorly transmissible between people, may have been the impetus (in 1998) for academics from a range of disciplines to gather to discuss the 1918 pandemic from different perspectives. Curiously, while well reported in the newspapers of the day, the 1918 pandemic afterwards attracted little in the way of academic attention. Crosby points out that (even during the crisis) ‘[p]erhaps the most notable peculiarity of the influenza pandemic is the fact [there were] no traces of panic or even of excitement’. McNeill suggests that there was some collective consciousness whereby doctors and historians determined to forget the experience for ‘[n]o one had much to be proud of’.

But what if the situation was not so complex? What if the pandemic was simply not that memorable? Honigsbaum rephrases the question asking: ‘[W]hat if for most people the Spanish flu was not particularly traumatic? What if, instead of being forgotten, it was simply not sufficiently striking to be remembered in the first place?’ Regardless of the reasons for the historical amnesia it is apparent that, even if there was a lack of ‘awe’; or if, in the alternative (particularly compared to the carnage of World War I) the pandemic was not that notable — the outbreak caused considerable disruption to the normal workings of the Australian society: a society already facing turmoil and scarcity as a result of World War I.

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170 In Tognotti, above n 13.

171 Honigsbaum, above n 3, 225. Haldane, above n 97, 70, lecturing about the use of oxygen in July 1919, notes that despite his ‘paper of 1917, the symptoms and significance of a failing respiratory centre were still unknown, so that the wide application of oxygen in a great variety of medical and surgical cases were not realized’.

172 For example mail deliveries were cancelled because of the sickness of staff; inside gatherings – including church services, cinemas – were cancelled in an attempt to reduce transmission of infection. Notices were published in the papers, for example ‘Influenza Restrictions. Medical Recommendations. Closing the Theatres, Prohibition of Race Meetings’, The Sydney Morning Herald, 2 April 1919, 13.

173 Curson and McCracken, above n 46, 105; Arrowsmith and Yates, above n 103.
mention in several hospital histories, references tend to be quite short, although increased workloads are mentioned.\textsuperscript{174}

The 1918 pandemic has been elevated to a prominent position in modern historical consciousness that seems to be out of proportion to the impact at the time. Although, as noted earlier, mortality rates varied considerably from place to place, the upward revision of the numbers thought to have died from the pandemic is startling. Early estimations of the numbers dead as a result of influenza range from 6 million in 1919\textsuperscript{175} to 20 million deaths in 1927.\textsuperscript{176} These figures were revised in 1991 to a (conservative) 30 million\textsuperscript{177} and then (in 2007) to 50-100 million (which the authors thought to be an underestimation).\textsuperscript{178} It is likely that the true number of those who died as a consequence of the influenza outbreak will never be known. Of course, if large numbers of the population are infected, a 1-2 per cent mortality rate will result in many deaths. In Sydney close attention was paid to charting the progress of disease and it was noted that ‘[t]he actual case mortality was not extremely high’.\textsuperscript{179} It was estimated that, while the attack rate was high (around 36.6\%) in the Sydney metropolitan area, the death rate was ‘only 1.3 per cent’.\textsuperscript{180}

In a developed continent such as Australia, a disease outbreak with a 1.3 per cent mortality rate seems high. But 1919 was a time when infectious disease was commonplace. At the Coast Hospital in 1920 the mortality rate for diphtheria was 1.7 per cent, and 11.2 per cent of children under 5 years of age with measles would die.\textsuperscript{181} The comparatively ‘low’ case fatality rate for the influenza outbreak must be understood in the context of a society where infectious disease was common and treatments primitive. The primary difference between influenza, and other diseases

\textsuperscript{174} For example: Boughton, above n 125, 36-38; Maylean, above n 120, 76; Armstrong, above n 103, 138; Yolande M J Collins and Sandra A Kippen, Aprons and Arches: A History of Bendigo Hospital Trained Nurses 1883 to 1989 (Holland House, 1998) at 52, 64, 69.

\textsuperscript{175} Honigsbaum, above n 3 at 224, by reference to a publication of The Times in 1919.


\textsuperscript{179} Paton, above n 30, 144.

\textsuperscript{180} Ibid.

\textsuperscript{181} Boughton, above n 125, 37-38.
such as cholera and typhoid, was that everyone (not only the poor who traditionally have borne the brunt of infectious disease) faced a similar risk of disease and death from influenza.\textsuperscript{182} Today, like other developed countries, Australians have limited experience of a widespread outbreak of infectious disease causing death. Kolata writes: ‘[t]he 1918 influenza epidemic is one of history’s greatest conundrums, obliterated from the consciousness of historians, who traditionally ignore science and technology but not, for the most part, plagues’.\textsuperscript{183} However the 1918 pandemic was not a plague — it was influenza and, despite the number of deaths, most people had a relatively mild illness and recovered.\textsuperscript{184}

\section*{IV INFLUENZA AND SARS}

The resurgence of interest in the pandemic of 1918-19 appears to have occurred as a result of two outbreaks of deadly respiratory disease. In 1997 a highly pathogenic avian influenza (or ‘bird flu’) was first identified by the World Health Organization.\textsuperscript{185} As the isolated cases increased in number there was a fear this could be the start of a new pandemic. In anticipation, global pandemic planning commenced in 1999.\textsuperscript{186} By March 2003 the WHO identified that things were not progressing sufficiently quickly, noting that, while a ‘few Member States are formulating national plans for pandemic preparedness ... only one [has] completed a formal, legally sanctioned plan’.\textsuperscript{187}

While the WHO was raising concerns about the slow progress of pandemic preparedness, a new respiratory disease emerged. ‘Unconfirmed reports’ of an atypical

\textsuperscript{182} Honigsbaum discusses the public mourning that occurred after the influenza deaths of important personalities: Honigsbaum, above n 3, 140-179.
\textsuperscript{183} Gina Kolata, \textit{Flu: The Story of the Great Influenza Pandemic} (Simon and Schuster, 1999), x.
\textsuperscript{184} Paton, above n 30, 144.
\textsuperscript{186} WHO, ‘Influenza Pandemic Plan. The role of WHO and guidelines for National and Regional Planning’ (WHO, April 1999).
\textsuperscript{187} WHO, ‘Influenza Report by the Secretariat’ (17 March 2003), [11], 3.
pneumonia had been circulating in China since November 2002. As mentioned in the previous chapter, the wider medical community became aware of the potential risk in March 2003. The first warning came from the World Health Organization on March 12, 2003. By March 17, the (as yet still) unidentified disease had spread globally, with the WHO urging countries to strengthen their surveillance measures. As mentioned in chapter 1, the disease was labelled Severe Acute Respiratory Syndrome (SARS). The causative virus was identified within months. In May of the same year the WHO facilitated a gathering of experts to pool the body of knowledge about the new disease. Like influenza there is no curative treatment for the SARS virus. Globally the outbreak caused approximately 8000 infections and 744 deaths: a mortality rate of around 10 per cent and considerably higher (50 per cent) in those over 65 years of age.

Yet while the SARS outbreak highlighted the danger a respiratory based infection could cause, we need to be cautious when considering the potential impacts of SARS or influenza on the health workforce. There are significant differences between the two diseases. These differences are particularly important for the questions of containment and the issue of possible disproportionate exposure of the health workforce.

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190 WHO, 'Acute respiratory syndrome in Hong Kong Special Administrative Region of China/Viet Nam. WHO issues a global alert about cases of atypical pneumonia', (WHO, 12 March 2003).
191 World Health Organization, 'Severe Acute Respiratory Syndrome (SARS) – multi-country outbreak – Update 2. WHO coordinates international effort to identify and treat SARS', (March 17, 2003).
193 This meeting (along with additional meetings held in June 2003) generated the WHO, 'Consensus Document on the Epidemiology of Severe Acute Respiratory Syndrome (SARS)' (World Health Organization Department of Communicable Disease Surveillance and Response, 2003).
While both are transmitted by way of respiratory droplets, the primary difference is rate of spread. It is estimated that, in the case of influenza, ‘quarantine and contact tracing ... would probably be unfeasible because of the very short incubation (2 days) and infectious (3-4 days) periods of that disease’. \(^{195}\) In contrast, SARS has a relatively long incubation period (a mean of 4-6 days\(^ {196}\)) with people not infective until symptomatic. \(^ {197}\) Although time-consuming, intensive contact tracing of exposed persons was effective. \(^ {198}\) As the outbreak progressed, people known to have been exposed were isolated or quarantined. If they became symptomatic, treatment would commence, which meant infective patients became concentrated in the hospital sector.

The ability to isolate people until they showed signs of infection meant the healthcare workforce was exposed to a higher risk than were other community members. They were also more likely to be exposed to the seriously ill. \(^ {199}\) Many workers were exposed prior to the virus being identified. \(^ {200}\) In one very early outbreak, health workers made up 50 per cent of patients: 6 died and staff quarantined themselves to protect others. \(^ {201}\) In a Canadian outbreak, healthcare workers comprised around 37-63 per cent of the SARS patient group, some of whom died. \(^ {202}\) In Hong Kong, in the early stages of the outbreak, 43.6 per cent of those admitted were healthcare workers; overall the health workforce made up 22.1 per cent of the local patient cohort. \(^ {203}\)

SARS was very frightening for health care professionals because transmission in the acute care hospital setting was high. Many of these exposures occurred early in

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195 Fraser et al, above n 27, 6151.
196 There were some cases falling outside these dates – some as short as 1 day or as long as 14 days of incubation: WHO, above n 193, 7-8.
197 Ibid.
198 Fraser et al, above n 27, 1651.
199 The group who were likely to be ‘most’ infective: WHO, above n 193, 8-9. As discussed in chapter 7, acute presentations may see healthcare workers being less scrupulous with use of PPE.
201 Reilley et al, above n 192.
the disease outbreak and before the strict use of protective equipment.\textsuperscript{204} Because of the risk health workers sometimes refused to work.\textsuperscript{205}

There are suggestions that in some workplaces individuals were given no choice but to work.\textsuperscript{206} In some countries specific hospitals were designated as being for SARS victims; in other places specific ward(s) within the hospital catered for SARS patients.\textsuperscript{207} Nurses were asked to volunteer to work and, in the absence of sufficient volunteers, were directed to work.\textsuperscript{208} 600 workers in a major Beijing hospital were told they were not free to leave.\textsuperscript{209} Yet, despite significant personal risks, most health professionals did continue to work during the 2003 SARS outbreak.\textsuperscript{210}

With few exceptions,\textsuperscript{211} most historical explorations of the 1918 pandemic have been published after the SARS outbreak.\textsuperscript{212} Compared to the ‘pre-SARS’ era, numbers of articles about influenza have also increased dramatically.\textsuperscript{213} The enormous upsurge

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\item \textsuperscript{204} Koh, Lim and Chia, above n 200, 241-242; WHO, above n 193, 19-20.
\item \textsuperscript{205} Barbara Sibbald, ‘Right to refuse work becomes another SARS issue’ (2003) 169(2) \textit{Canadian Medical Association Journal} 141.
\item \textsuperscript{206} Koh, Lim and Chia, above n 200, 242.
\item \textsuperscript{207} WHO, above n 193,20.
\item \textsuperscript{208} Sibbald, above n 205.
\item \textsuperscript{211} For example Collier lists, in the bibliography, some earlier publications about the pandemic. It is clear his research was extensive and he notes, in the Acknowledgement section, that ‘1770 people helped with the compilation of this book’ and ‘forty-seven dedicated men and women made up my research team in twenty-nine countries’: Collier, above n 72, 310-311; Alfred W Crosby, \textit{Epidemic and Peace 1918: America’s Forgotten Pandemic} (Cambridge University Press, 1976); William Ian Beardmore Beveridge, \textit{Influenza: the last great plague. An unfinished story of discovery} (Heinemann Educational Books, 1977).
\item \textsuperscript{212} John M Barry, \textit{The Great Influenza: The Epic Story of The Greatest Plague In History}, (Viking Penguin, 2004); Arrowsmith and Yates, above n 49; Mark Honigsbaum, \textit{Living with enza: the forgotten story of Britain and the great influenza pandemic of 1918} (Macmillan Science, 2008); Nancy K Bristow, \textit{American Pandemic: The Lost Worlds of the 1918 Influenza Epidemic} (Oxford University Press, 2012); Niall Johnson, \textit{Britain and the 1918-19 influenza pandemic: a dark epilogue} (Routledge, 2006); Honigsbaum, above n 3.
\item \textsuperscript{213} While very unscientific, and articles have only been considered as a number, a quick google scholar search seeking articles with ‘influenza’ in the title over two five year periods 1997-2002 and 2003-2007 (after SARS but prior to the H1N109 influenza outbreak) returns about 4,870 and 13,600 items respectively. Between 2009 and 2013 the same search lists around 31,300 items; it is
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of interest in the 1918 influenza pandemic after the 2003 SARS outbreak has the potential to conflate the two diseases.

The possible (or likely unavoidable) conflation of the two diseases may cause the health care workforce to consider that they (and their family) would be at a high risk during an influenza pandemic. It was the refusal of some workers to work during the SARS outbreak which led academics to consider whether, and if so on what basis, a healthcare worker would have a duty to work during an influenza pandemic.

V CONCLUSION

The outbreak of 2009 showed that, once an influenza virus becomes rapidly transmissible, international surveillance is likely to detect the new strain quickly. Border control and containment is unlikely to be of any value, as the virus may well be circulating globally prior to the pandemic announcement being made. Although there remains no specific treatment for the influenza virus, there are today multiple apparent that many relate to viral characteristics and treatment so may simply reflect an increase in scientific activity.

214 It is not suggested that the WHO conflated the diseases, however it is contended that academic consideration of the question of a duty to work during a pandemic has been influenced by the SARS experience.

interventions (for example: oxygen, intravenous therapy and antibiotics\textsuperscript{216}) with artificial ventilation relatively commonplace including, in some specialised intensive care units, extracorporeal membrane oxygenation (ECMO) which can address symptoms and minimise complications that may arise following viral exposure. Even if a virus as aggressive as that of 1918 reappeared, this treatment would, at least in developed countries such as Australia, mean the mortality rate is likely to be considerably lower than that of 1918.\textsuperscript{217}

The characteristics of any influenza pandemic are such that it will be virtually impossible to avoid coming into contact with the virus in the community. Nurses are no longer sequestered and many have children (and grandchildren) of their own. As a result, unlike their 1918 counterparts, nurses are highly likely to be exposed to the virus in the community. While there may be a small increase in risk while at work, this is unlikely to be significant. Nurses caring for influenza patients in 1918 were exposed to high levels of viruses while caring for patients. The nursing group worked long hours and were very short staffed. Yet, despite this (with limited exceptions) the mortality rate of the group was very similar to that of the ‘ordinary’ citizen.

The situation was completely different in the SARS outbreak, when healthcare workers were at a considerably higher risk while at work. In that situation workers who ‘agreed’ to work faced a higher risk than those who did not work and were, quite rightly, lauded for their efforts.

Chapter 4 will consider arguments that have been put forward to ground a ‘duty to treat’ or ‘care’ during a pandemic. In light of the 1919 pandemic experience it is argued that there is no need to generate a new duty to treat and that the employment contract is sufficient to compel work attendance and performance during an influenza pandemic.

\textsuperscript{216} Morens, Taubenberger and Fauci, above n 109. Without antibiotics the secondary bacteria that caused so many deaths could not be treated. Given the current concerns about antibiotic resistance we may enter an era where bacterial infections regularly kill individuals: Janette Randall, ‘Back to the future; life without effective antibiotics’ (Paper presented at the The National Press Club, Canberra, 26 April 2012).

Chapter 4

CONTRACTUAL OBLIGATION TO WORK

I  INTRODUCTION

Surveys undertaken into the work intentions of health workers during an influenza pandemic reveal that some may be unwilling to attend the workplace because they perceive that the outbreak will present a serious risk to their health. However, past experience suggests that during a pandemic the risk (of death) may not be all that high, even for healthcare workers. Despite this, healthcare workers may find it difficult to accept or understand that when compared with the general population, they are unlikely to face a greater risk when providing care.

In effect, if the usual baseline of infective risk is small, the baseline risk is raised for the whole community during an influenza pandemic. In fact, the evidence will show that health workers tend to experience similar levels of illness compared with the public. If that is understood, the question of whether an individual has an obligation to attend work, regardless of any potential personal risk, effectively becomes moot. Therefore the question becomes that of whether healthcare workers are obliged, simply by reference to their employment contract, to attend the workplace during an outbreak of pandemic influenza?

This chapter argues that a contractual obligation to work in the relevant health setting in circumstances where people need health care is a fundamental underpinning of the nurses’ employment contract. All healthcare employees should be expected to work their contracted hours during an influenza pandemic. This chapter explores an employee’s common law obligation to obey the lawful and
reasonable directions' of the employer and argues that, during a pandemic, a direction to work would be both lawful and reasonable.

I Infectious diseases: a note

Not all infectious diseases are the same. It is therefore difficult to argue that there can be a ‘one-size’ fits all approach to the question of when and how a health worker may be compelled to work. At times, as was the case with SARS, the risk to the health workforce, and their families, may be much higher than that which will face the community. At other times, with other diseases, the risk to the workforce will not be significantly higher than that faced by the general public. Nor will caring for affected patients necessarily increase the risk to workers or their families. As noted, the thesis is focused on the obligation to work during an influenza pandemic and so the discussion cannot be extrapolated to all outbreaks of infectious disease. This point is further illustrated by the following observations.

Disease outbreaks that can be contained by way of quarantine and contact tracing — such as SARS or MERS or Ebola (or even smallpox, the emergence of which is highly unlikely) — present different challenges for the health system (and workforce) than does influenza. In each of these diseases, the mortality rate is high and full protective equipment is likely to be utilised. Unlike influenza, these diseases have long incubation periods where patients are not contagious until they are symptomatic. Consequently, as contact tracing can be effective, those believed to have been exposed can receive appropriate treatment before they become symptomatic. In some jurisdictions this obligation is enshrined in statute. For example see: State Service Act 2000 (Tas) s 9(6) ‘an employee must comply with ... any lawful and reasonable direction given by a person having authority to give the direction’.

1 In some jurisdictions this obligation is enshrined in statute. For example see: State Service Act 2000 (Tas) s 9(6) ‘an employee must comply with ... any lawful and reasonable direction given by a person having authority to give the direction’.
2 See for example the discussion at chapter 8 about ‘ring vaccination’ being used to extinguish smallpox.
4 See chapter 2 part III Influenza in the Human Population. A New Zealand survey determined that 42.5 per cent of those tested had sero-converted (ie had been exposed) in response to the pandemic influenza but had had no symptoms: Ange Bissielo et al, Seroprevalence of the 2009 influenza A (H1N1) pandemic in New Zealand http://thehub.superu.govt.nz/sites/default/files/40650_seroprevalence_flu_2009_0.pdf, 21.
5 See chapter 3 re SARS (MERS has a similar incubation period); Ebola incubation period is 2 to 21 days; Smallpox 7–17 days; WHO, Ebola Virus Disease http://www.who.int/mediacentre/factsheets/fs103/en/; WHO, Frequently asked questions and answers on smallpox http://www.who.int/csr/disease/smallpox/faq/en/ both accessed 12 May 2016.
have been exposed to the disease can remain on home quarantine and monitor their health\textsuperscript{6} while being directed to call a central reference point if they develop symptoms. If the quarantined person identifies symptoms they may be able to be treated at home.\textsuperscript{7} Because quarantined people remain at home, they present a limited risk to the population at large. If their condition deteriorates they are likely to be admitted to a hospital.

As was the situation in 2003 during the SARS outbreak, this will mean that the number of infected people in the hospital sector will increase, and hospitals will receive the most seriously ill (and therefore most infective) of the patient cohort.\textsuperscript{8} Consequently, in an outbreak of a contact traceable disease with comparatively lengthy incubation periods, health workers in the hospital sector are likely to have a greater risk of exposure to the disease compared to the general population. While these workers are at risk at work there is also a real possibility that they may take the virus back to family members who otherwise would not have come into contact with the disease.

Where a comparatively small number of people are infected (particularly when the disease has a high mortality rate) it may not be reasonable, or indeed necessary, to expect all workers to care for these patients. In such a situation, nurses (and other workers) could be asked to volunteer to provide care. If volunteer numbers are too few then incentives, by way of additional payment, may be needed to promote work performance. Although it has been said (at least as a general principle) that increasing:

\footnotesize{\textsuperscript{6} This situation may raise other issues such as support, food supplies, loss of income etc. If it is believed that a person will breach home quarantine and so be a risk to the wider public, coercive public health powers may be available to the authorities. However use of such power needs to be closely aligned with scientific knowledge. So, for example, an asymptomatic nurse who had returned to the USA after caring for Ebola victims successfully challenged the imposition of quarantine because a person could only infect others once they had symptoms of disease: Mary C. Mayhew, Commissioner State of Maine Department of Health and Human Services v Kaci Hickox (CV-2014-36, Ebola quarantine) (Fort Kent District Court, State of Maine, 2014).}


\footnotesize{\textsuperscript{8} WHO, 'Consensus Document on the Epidemiology of Severe Acute Respiratory Syndrome (SARS)' (World Health Organisation Department of Communicable Disease Surveillance and Response, 2003), 8. See further chapter 3 Part V Influenza and SARS.}
rates of pay is not a proper method of dealing with a health hazard .... The proper remedy for such, if established, seems to me to be either reduction of hours or extension of annual leave, or both, or, best of all, the minimising or removal of the cause of the danger of ill health ...

In the health arena it will not be possible to completely remove the infective danger.\(^9\)

There are various ways in which a preparedness to face an additional risk, over and above that faced by non-participating colleagues, might be recognised and rewarded. For example, as an alternative to extra payment, a lower risk of exposure could be achieved by workers being rostered to shorter shifts (without loss of pay): this approach would require more ‘volunteers’ to sign up. Perhaps longer shifts, with greater time off between shifts, could reduce exposure. However, in order to avoid unnecessary industrial disputation, if additional benefits (or changes to working conditions) are to be implemented then, ideally, the nature and quantum of entitlements should be negotiated with the organisation representing the employees.\(^11\) This will ensure that benefits are allocated in an equitable and consistent manner. But, while an outbreak of a disease like SARS or Ebola necessitates a highly nuanced response in order to maintain a functioning health workforce, pandemic influenza is different.

During an influenza outbreak the virus will be prevalent in the community, therefore any person in an occupation coming into contact with large numbers of the public — such as police, airport staff, teachers, bus drivers, shop workers — will be at risk. As noted in chapter 3, during the 1918 influenza outbreak, despite the fact that nurses worked very long hours under difficult conditions with ineffective personal protective equipment while continually exposed to large numbers of seriously ill patients, they generally experienced mortality rates similar to that of the local population.

Yet despite the difference in disease processes and community risk, pandemic influenza is often raised in surveys implying that healthcare workers are at a much

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\(^9\) *Re Glass Makers (Australian Window Glass Proprietary Ltd) Award (No 2) [1939] AR 164*, per Ferguson J, 177. The exposure risk was to glass dust and it was noted that the employer had been making ‘continuous attempts ... to minimise or remove the dust, nuisance or hazard’: 177.

\(^10\) It may be theoretically possible to remove the risk by way of engineering controls but such an approach would potentially be very expensive: see chapter 7.

\(^11\) Disputation occurred following the SARS outbreak (Canada) because the Nurses’ Association was not consulted prior to the award of additional benefits: *Ontario Nurses’ Assn. v. Sunnybrook and Women’s College Health Sciences Centre*, 2004 CanLII 35717.

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higher risk than are the general population. Although workers are concerned that they may take the virus home to their families,\textsuperscript{12} this fear may be misguided. As will be discussed in chapter 7, healthcare workers with children are likely to face a higher risk of exposure at home than in the workplace.

Asking the question ‘will you work’ implies that workers are being asked to do something ‘extra’ in caring for influenza patients.\textsuperscript{13} This perception is reinforced when surveys include references to other, completely different, infectious agents with long incubation periods.\textsuperscript{14} While workloads are likely to increase, the fact is that workers are unlikely to be at any significantly higher risk (of death) during an influenza pandemic. However, in light of the perceived risk, it is not surprising that some workers indicate they would not be prepared to work.

\section*{II HEALTHCARE WORKERS –WILLINGNESS TO WORK – SURVEY RESPONSES}

Many threats could potentially impact upon the ability, and willingness, of healthcare workers to work. Threats include intentional damage (including terrorism related — from chemical, biological or radiological sources), natural disasters (fires, cyclones, floods, earthquakes, tsunamis) as well as outbreaks of infectious disease: including influenza. Yet the nature of the threat during a pandemic is different than would be experienced in the first two categories, or for outbreaks of diseases other than influenza. The first two categories are likely to result in damage to critical infrastructure (for example roads and transport) while the latter (even if created by way of a bio-terrorism event) will not create structural damage. In all scenarios the

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\item \textsuperscript{12} For example in a recent survey 90\% of nurse respondents indicated they would work but 67\% believed their work would expose their families to an increased risk of infection: Caroline McMullan, Gavin D Brown and David O'Sullivan, ‘Preparing to respond: Irish nurses’ perceptions of preparedness for an influenza pandemic’ (2016) 26 International Emergency Nursing 3.
\item \textsuperscript{13} For example: Kristine Qureshi et al, 'Health care workers’ ability and willingness to report to duty during catastrophic disasters' (2005) 82(3) Journal of Urban Health 378; Holly Seale et al, 'Will they just pack up and leave? Attitudes and intended behaviour of hospital health care workers during an influenza pandemic' (2009) 9(1) BMC Health Services Research 30.
\item \textsuperscript{14} It is also reinforced where responses to surveys about one disease are extrapolated to cover an influenza pandemic. See for example the extraordinary suggestion that responses to a survey about smallpox would translate to influenza in Niklas Mackler, William Wilkerson and Sandra Cinti, 'Will first-responders show up for work during a pandemic? Lessons from a smallpox vaccination survey of paramedics' (2007) 5(2) Disaster Management & Response 45.
\end{itemize}
\end{multicols}
health workforce will be needed. Faced with the first two categories of damage, a nurse may be physically unable to attend (for example because roads are destroyed or fire makes the route impassable), may be unwilling to leave their property if it is under threat from flood or fire, or may face conflicting obligations to family members (including domestic pets). During an influenza pandemic the infrastructure is not damaged so there is no physical impediment to employees attending work, although conflicting obligations may exist.

These differences have been characterised as the worker having either a ‘willingness’ or ‘ability’ to attend: ‘ability refers to the capability of the individual to report to work, whereas willingness refers to a personal decision to report [or not] to work’. During an infectious disease outbreak, studies indicate that nurses may be less ‘willing’ to attend the workplace even though perfectly ‘able’ to do so. In particular, surveys indicate that people may be reluctant to work in the absence of personal protective equipment.

A survey of critical care personnel at two American hospitals found 21 per cent indicated that during an influenza pandemic they would ‘not work because they feel at risk, unprotected or ill equipped’. Public health workers with a non-clinical role were less likely to attend work during a pandemic compared with clinical employees and other workers who perceived their role to be ‘important’. 28 per cent of German healthcare workers believed it would be reasonable to remain at home during an

16 Although public transport may be disrupted if exceptionally high levels of illness were experienced by transport workers.
17 This study used examples including SARS and smallpox but not influenza: Qureshi et al, above n 13, 379.
18 In particular, in the examples of SARS and smallpox, fear and concern about the health of the worker and their family members impacted on the question of willingness to work: Ibid.
19 Sharon Dezzani Martin, ‘Nurses’ ability and willingness to work during pandemic flu’ (2011) 19(1) Journal of Nursing Management 98.
20 Elizabeth L Daugherty et al, ‘Survey Study of the Knowledge, Attitudes, and Expected Behaviors of Critical Care Clinicians Regarding an Influenza Pandemic’ (2009) 30(12) Infection Control and Hospital Epidemiology 1143, 1147.
influenza pandemic in order to protect themselves and their families. Nurses and medical staff indicated they were more likely to work than administrative staff.

A study completed after the 2009 influenza pandemic found nearly 10 per cent of nurses said they would refuse to work. A meta-analysis of 42 studies undertaken in various countries found the stated willingness of health workers to attend during an influenza pandemic ranged from a low of 23 per cent (Hong Kong community nurses) to 95.8 per cent (medical students in the United States). Yet, despite these studies, healthcare workers did continue to work during the 2009 pandemic. Perhaps this is because once faced with a real threat, rather than a hypothetical situation, most people will continue to perform their duties.

However, there may be little knowledge in the community generally as well as within the health workforce, about what pandemic influenza actually means. Prior to the 2009 pandemic one community survey found that 33 per cent of respondents did not know what pandemic influenza was and a further 25 per cent had never heard the term. An Australian study found that most healthcare workers surveyed (80 per cent) believed a pandemic would be ‘very serious’, yet 43.9 per cent were unable to define what an influenza pandemic was. In the US one survey found that, of 256 intensive care staff (nurses, medical and allied health), 52 per cent had little or no knowledge about the risks of pandemic influenza.

I Other approaches to promote work compulsion

In other jurisdictions, by reference to ethical codes and an assertion that healthcare workers by entering the workforce have indicated they are prepared to accept the risk of infection, writers have argued, particularly in the US, that a nurse has an ethical

23 Ibid, 24% of medical staff (including medical students); 26% nurses and 37% administrative staff agreed it would be ‘ethical … to abandon their workplace … to protect themselves and their families’.
24 Martin, above n 19.
27 Seale et al, above n 13.
28 Daugherty et al, above n 20, 1145.
‘obligation’ to work in an influenza pandemic.29 Others have argued that no such obligation exists.30 As noted in chapter 1, in a time when infectious disease formed a large component of health work, it could be said that nurses and doctors voluntarily assumed the risk of exposure. However, this risk diminished as rates of infectious disease abated, hygiene practices proliferated and treatments improved.31 Clearly neither ethical codes32 nor arguments pertaining to voluntary assumption of risk are sufficiently persuasive as to consistently compel performance in the face of a serious personal risk. Having explored five possible grounds33 of a moral or ethical duty to treat, Malm and colleagues in the UK concluded that none ‘provides a convincing basis’ to compel work performance.34

While noting that difficulties with the concept exist, Malm et al have suggested that an ‘express contractual’ (ie legal) obligation to work during ‘a pandemic or other societal medical emergency’ could be included in employment contracts. They say that this clause would overcome any doubts over whether an instruction to work was lawful and reasonable, the employee having expressly agreed to perform such work at the time of the contract. Malm refers to such express agreement as a ‘duty to treat’.35 In Canada, others argue that the duty to treat (as proposed by Malm) is too narrow a concept and, instead, the emphasis should be on the duty to ‘care’. That group argue that the moral/ethical duty to care is broader than a ‘duty to treat’ and encompasses

31 See chapter 3.
32 Nurses and medical staff are obliged to adhere to the Codes of Conduct (ethical and professional) which are set down by their relevant Boards. In Australia nurses conform to the Code of ethics for nurses (2008) and Code of professional conduct for nurses (2008) (similarly worded codes exist in other countries). While these codes provide ethical guidance (and do not compel work performance) it would be possible for a complaint to be registered, with the appropriate board, asserting that the practitioner had failed in their ethical obligation – which, if proven, might give rise to a professional sanction.
33 The five grounds considered are consent (express or implied); special training; reciprocity (also called the social contract view); oaths and codes. Heidi Malm et al, ‘Ethics, Pandemics, and the Duty to Treat’ (2008) 8(8) American Journal of Bioethics 4, 2-16.
34 Ibid.
all of society. In the United States, Coleman, working on the premise that workers will be at considerable risk during an influenza pandemic, argues that statutes legally compelling health professionals to work would be ‘[b]eyond the call of duty’ as the mere fact a person is a health care professional does not automatically create an ‘ethical duty to work’.37

Yet, as discussed above, making a determination as to whether a person has an obligation to work should be assessed by reference to the characteristics of the disease in question. The potential for disease interruption, coupled with the question of whether a worker faces a higher risk than either another colleague or the community generally, should be explored before asking the question of whether a demand to work is ‘lawful and reasonable’. With respect to Malm and colleagues, an ‘express’ contractual agreement to work during an unknown disease outbreak could potentially be challenged on the basis of uncertainty.

This chapter asserts there is no need to rely on concepts such as a duty to either ‘treat’ or ‘care’ during an influenza pandemic, or any infectious disease where a wide section of the community will be unwell. At common law employees have a legal obligation to obey the lawful and reasonable directions of their employer: including a direction to attend work. Unlike ethical codes,38 which generally apply only to health professionals,39 the lawful and reasonable direction applies to all employees.

39 Non-professionals may also feel they have an ‘ethical duty’ see: Heather Draper et al, ‘Non-Professional Healthcare Workers and Ethical Obligations to Work during Pandemic Influenza’ (2010) 3(1) Public Health Ethics 23.
Nurses, in the Australian public and private hospital sector, will almost always be hired under a contract of employment. That contract may be basic or complicated but, at heart, rests upon the simple formulae of work in return for wages. Employees must be ready, willing and able to work, as directed by their employer.

In Australia this contractual underpinning is overlaid by complex statutory provisions, including the regulation of terms and conditions of employment in industrial instruments (awards and agreements), and the protection of certain individual work rights in statute. In 2009, the majority of the Australian private labour market came under the coverage of federal Parliament after all states, except Western Australia, referred their industrial relations powers to the federal parliament. This means that most of the private sector health workforce is now covered by the Fair Work Act 2009 (Cth) and associated regulations.

However, as will be explained in chapter 5, the bulk of the Australian nursing workforce is employed in public hospitals which are run by the states. With the exception of Victoria, public servants in all state jurisdictions continue to be regulated by state-based industrial legislation. This means that the statutory frameworks governing public sector nursing staff vary from state to state. However, for all purposes, obligations to work, unless statutorily enacted (a matter that will be considered later), stem from contract, the principles governing which are relatively uniform throughout Australia. As such, it is not necessary to consider the statutory terms and conditions of public sector workers because they are almost all irrelevant to

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40 The vast majority of workers will be employees. Primary exceptions, particularly in the private sector, are medical staff who may not be employees but rather contracted for the provision of services: see chapter 5.

41 Statutory rights exist concerning the process and fairness of dismissal and these will be explored shortly.

42 This means that private sector employment is governed by Federal, rather than state, based legislation: Fair Work Act 2009 (Cth).

43 Industrial Relations Act 1996 (NSW); Industrial Relations Act 1999 (Qld); Fair Work Act 1994 (SA); Industrial Relations Act 1984 (Tas); Industrial Relations Act 1979 (WA). Employment in Victoria and the Territories (ACT/NT) is regulated by the Fair Work Act 2009 (Cth). As will be discussed in chapter 5, Public Sector legislation also applies.
the question of whether healthcare workers have an obligation to work during a pandemic.

Fundamental to the fulfilment of a common law contract of employment is a requirement to perform the duties for which you are employed. This includes a duty to be ready, willing and able to perform the entirety of your contractual obligations. With some exceptions, it is only when an employee appears for work, and performs their duties, that they will be entitled to payment.\textsuperscript{44} Failure to appear at the workplace without a reasonable excuse,\textsuperscript{45} may allow the employer to assume that the contract of employment has been abandoned by the employee.\textsuperscript{46}

Obedience is an essential component of the contract, with employees obliged to obey the ‘lawful and reasonable’ directives of the employer.\textsuperscript{47} The question of whether a direction is both lawful and reasonable will be explored shortly. If they no longer wish to be employed, an employee can bring the employment to an end in accordance with the contract. All contracts of employment are terminable on the giving of reasonable notice unless otherwise stipulated.\textsuperscript{48}

Likewise at common law employers have obligations to their employees. An employer can direct an employee to undertake various tasks, however the right to make such directions is not unfettered. Tasks required by the employer must fall within the scope of duties required of the position held by the employee: i.e that which the employee has agreed to do. An employer may also bring the contract to an end for a number of reasons — one of which is where an employee refuses to comply

\textsuperscript{44} *Automatic Fire Sprinklers Pty Lt v Watson* (1946) 72 CLR 435.

\textsuperscript{45} Most reasonable excuse is by way of authorised leave: annual leave, personal leave (which may also include leave to care for sick dependents), bereavement leave, long service leave, maternity leave, jury leave or leave without pay; Andrew Stewart, *Stewart’s Guide to Employment Law* (4\textsuperscript{th} Edition Federation Press,2013), [10.21].

\textsuperscript{46} Ibid, [16.22].

\textsuperscript{47} Sappideen Carolyn et al, *Macken’s Law of Employment* (Thomson Reuters (Professional) Australia, 2011)[5.790]. There are many terms that may be implied into contract of employment at common law, but the focus of this chapter is the duty of the employee to obey. For a more detailed (but concise) discussion, see Stewart n 45 [6.3]-[6.8].

\textsuperscript{48} The length of the period of notice deemed ‘reasonable’ may vary between positions held as well as whether notice is given by an employer – *Lau v Bob Jane T-Marts* [2004] VSC 69 – or an employee *Zuellig v Pulver* [2000] NSWSC 7.
with a lawful and reasonable direction, as such refusal could constitute a repudiatory breach by the employee.  

IV LAWFUL AND REASONABLE DIRECTION

In order to determine whether a direction is lawful and reasonable it needs to be first established whether the request is ‘lawful’ and, if that is answered in the affirmative, then the order needs to be evaluated from a point of ‘reasonableness’. A request will be ‘lawful’ if it falls within the scope of the contract agreed between the parties and is not otherwise illegal. Whether a request is ‘reasonable’ will depend upon the circumstances of the employment:

If a command relates to the subject matter of the employment and involves no illegality, the obligation of the servant to obey it depends at common law upon its being reasonable. In other words, the lawful commands of an employer which an employee must obey are those which fall within the scope of the contract of service and are reasonable.

As the question of what is ‘lawful’ or ‘reasonable’ depends on the circumstances of each specific employment context, case law may be of little practical assistance. For example, in New Zealand a demand that employees publically reveal their surname was determined reasonable in the circumstances of one employer but not another. In Australia it has been found reasonable and lawful, in order to ascertain work fitness, to direct an employee to attend a medical examination with an employer-appointed

49 Carolyn Sappideen et al, above n 47, [7.150].
50 Ibid, [8430]-[8.440].
51 Commissioner for Government Transport v Royall (1966) 116 CLR 314 per Kitto J at [10]-[12]: The Court pointed out that they had little evidence upon which to make a decision but it appeared that the roles (the role the employee held and the role the employer expected) were ‘completely disparate’.
53 McCosh v National Bank of New Zealand unreported, D King, 21 January 2004, AA 31/04, where it was held that a bank employee had disobeyed a lawful and reasonable order to use his surname when responding to emailed banking enquiries.
54 Makeham & Brand and NZ Amalgamated Engineering Printing & Manufacturing Union v New Plymouth District Council unreported, Shaw J, 17 February 2005, WC 3/05. A policy allowed some employees to not use their surnames on badges for fear of retaliation. Other employees raised genuine safety issues and fears about use of a surname on their name badge. While the policy was lawful and reasonable, inconsistencies in application across groups of employees was found unreasonable.
practitioner\textsuperscript{55} but not to require a group of employees to submit to medical testing as ‘risk assessment’.\textsuperscript{56}

To consider whether an instruction to a nurse requiring them to work during a pandemic would be lawful and reasonable three scenarios are suggested. The first would involve a ‘lawful and reasonable’ order, the second instruction may be lawful but is possibly not reasonable, while the third instruction would be neither lawful nor reasonable. So, for example, it would clearly be lawful to request that a nurse provide care to a patient, as that is the primary reason for their employment. It would also be lawful to ask a nurse to leave their usual ward and work in another clinical area.\textsuperscript{57}

By contrast, a direction to a nurse to clean a floor might be lawful although it is arguably not reasonable in the context of a modern hospital.\textsuperscript{58} While in 1918 nurses undertook most of the domestic work on a ward, today a nurse does not routinely expect to perform duties that are considered to be ‘non-nursing’ in nature, because such duties take a qualified nurse away from their primary role of patient care.\textsuperscript{59}

However asking a nurse to paint a wall (even if this was to promote cleanliness) would not fall within the expectations of the parties because it is difficult to see how this could be considered a nursing role within the scope of the employment contract. Such a request would likely be both unlawful and unreasonable:

The general rule is that a contract by which a person is employed in a specific character is to be construed as obliging him to render, not indeed all service that may be thought reasonable, but such service only as properly appertains to that character of the employment.\textsuperscript{60}

It is likely that the wall painting request would be ‘unlawful’ as it falls outside the scope of the contract and would also be unreasonable. Likewise, in certain disease

\textsuperscript{55} Grant v BHP Coal Pty Ltd (2014) FWCFB 3027. See also Blackadder v Ramsey Butchering Services Pty Ltd (2005) 221 CLR 539.

\textsuperscript{56} Transport Workers’ Union of Australia v Cement Australia Pty Ltd [2015] FWC 158.

\textsuperscript{57} A nurse might raise concerns of competence if are deployed to a ward area which is unfamiliar to them but that does not give them the ‘right’ to refuse. Unfamiliarity may mean that the nurse will undertake ‘tasks’ or work with an experienced nurse rather than take an independent role caring for a patient group.

\textsuperscript{58} However nurses may clean up spills (such as blood, urine or vomitus) which could present an occupational risk to cleaning staff. This would be a preliminary clean and cleaning staff would then clean the area thoroughly.


\textsuperscript{60} Commissioner for Government Transport v Royall [1966] HCA 80; (1966) 116 CLR 314 per Kitto J at [10]-[11]; 322–324. There it was deemed not reasonable to require an employee to accept duties that fell outside the scope of his employment as a bus mechanic.
outbreaks, it is arguably not reasonable to force a healthcare worker to ‘accept’ a higher risk than do their colleagues. They may agree to work (with, or without, financial incentive), but cannot be forced to do so.\(^6\)

In the case of an outbreak of pandemic influenza, it is difficult to see why the employee should not be expected to adhere to the fundamental basis of the employment bargain which is to work at the duties they are contractually engaged to do. The expectation of the employer is that the healthcare worker will work at all times where patients require care. This includes an expectation that the individual will work during an influenza pandemic. The question is not whether the employee has a duty to work, clearly they do; rather the question becomes is it reasonable for the employer to demand performance of the employee?

I Would it be lawful and reasonable to expect HCWs to work during an influenza pandemic?

As discussed it is probably lawful for the employer to expect a healthcare worker to work during a pandemic, but would a direction to work be reasonable? For many years an order of the employer requiring a health worker to care for an infectious patient would have been regarded as both lawful and reasonable: in fact such an order is unlikely to have been questioned.\(^6\) As discussed in chapter 3, infectious disease in the early part of the 20th Century was common. As a result an individual choosing to work in the health care arena could be said to have ‘voluntarily assumed’ the risks of potentially contracting an infectious disease: a risk which was inherent in their job.

But the early 20th century was also an era when the transmission of disease was not well understood. Today a better understanding of disease prevention, coupled with medical developments, including vaccination, has seen the abolition of once common diseases.\(^6\) By 1945 some medical practitioners were convinced that the days

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\(^6\) An order would probably also fall foul of Work Health and Safety legislation. An order may also run into difficulties with other laws such as anti-discrimination: Bennett Belinda, Carney Terry, and Caroline Saint ‘Swine flu, doctors and pandemics: Is there a duty to treat during a pandemic?’ (2010) 17 Journal of Law and Medicine 736, 744.


\(^6\) For example, in 1905 630 people died, across Australia, of typhoid: '1301.0 - Year Book Australia, No. 12, 1919' (Commonwealth Government, 1920) Part V, Vital Statistics, 208; no typhoid deaths
of ‘plague and pestilences’ were past. Coleman argues that awareness of a possibility of an infectious risk in the health workplace diminished from the 1950’s. HIV challenged the notion that infectious diseases had been conquered and gave rise to discussions about whether health professionals were obliged to deliver care to affected individuals. Others note that the question of a duty to treat infectious patients seemed to vanish from bioethical discussions. Yet the SARS outbreak, fears of infectious bioterrorist events and avian influenza, has again reminded healthcare workers of the risk that might arise from infectious diseases.

So today, although infectious diseases are not uncommon, they are (at least in developed countries) an increasingly rare cause of death. In 1922, 15 per cent of Australian deaths were caused by infectious disease compared with only 1 per cent in 2005. From once being an expected duty for any healthcare worker, infectious risk is now generally regarded as a small hazard, with nurses working in paediatric wards and emergency departments most likely to be at risk. Even workers in a specialty that requires them to come into contact with infectious patients are unlikely to expect that they will become infected and risk death: personal protective equipment and (in

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were recorded in Australia in 2008: 3303.0.55.001Causes of Death, Australia: Doctor certified deaths, Summary tables, 2008 (ABS).


65 Coleman, above n 37, 10-11.


68 Smallpox and anthrax being considered the most likely agents. It has been suggested that these matters should be addressed during a medical degree: M Cassoobhoy et al, 'Development of an interactive bioterrorism and emerging infections curriculum for medical students and internal medicine residents’ (2005) 120(Suppl 1) Public Health Reports 59.


70 Ibid 69.
some cases) vaccination reduces the risk; antibiotics, anti-viral medications and modern medical treatments limit any damage.

The question is not likely to be asked whether it is ‘lawful and reasonable’ to expect persons in non-health care workplaces to be ready, willing and able to work during an influenza pandemic. The question is asked of the health care workforce because it is presumed that this group is likely to be at a greater risk of infection. Coleman, for example, simply asserts that health workers ‘are likely to face a significantly greater risk of infection’ during an influenza pandemic, but then goes on to explore a completely different scenario (SARS) where healthcare workers were clearly at greater risk than the population generally.71 People need to ‘fear for their own personal safety and duty to provide care to the sick’72 within the context of the particular disease outbreak and, where an outbreak is widespread, their personal safety may be at risk anywhere.

As discussed in chapter 2, there is now a much better understanding of the influenza virus. Increased sensitivity in testing may see more pandemics identified in the future.73 Yet while many workers may become sick, the chance of dying of influenza is comparatively small: and this was the case even in 1918. In 1918 nurses, and other workers, knew nothing about the influenza virus. There was no effective treatment at all. Likewise SARS was a new disease, and during the SARS outbreak staff were quite reasonably concerned that they might take the virus home to their families. But, as discussed this situation does not arise in an influenza pandemic.

During the 2009 pandemic a Canadian study found ‘no association between working in an acute care hospital and risk for influenza infection,’ but having children at home clearly increased the risk.74 Likewise a New Zealand study found that ‘[b]eing a healthcare worker did not appear to increase the risk of infection compared to the

71 Coleman, above n 37, 9.
73 Professor Leung in Theresa McPhail, The Viral Network: A Pathography of the H1N1 Influenza Pandemic (Cornell University Press, 2014), 187.
general population'. Although some underlying conditions (for example asthma, pregnancy and obesity) may increase the risk for serious disease, a healthcare worker — who falls into a higher risk category, even if they are not working in a clinical role — is not necessarily going to remain influenza free.

Some authors have suggested that by virtue of their employment, nurses, like fire-fighters, are required to face a certain level of danger. On this basis, they say, nurses should work without question during an outbreak of an infectious disease. For example, Fleck states ‘[r]isk is part of the profession of medicine, as it is part of the work of the police, fire-fighter or soldier’. However there are clear differences between working during an outbreak of infectious disease and fire-fighting. The first difference is obvious. Unlike infectious disease, fire presents a clear and visible danger. Fire-fighters are trained to extinguish fires and (when safe to do so) rescue people. They wear cumbersome but effective protective equipment and they attend the fire as a team of trained professionals. Yet, not all healthcare workers are trained to deal with serious infectious diseases and they will be fighting an invisible danger with equipment that often does not provide sufficient protection.

A fire-fighter is not required to do everything possible to rescue a person. The risks fire-fighters take are necessarily calculated, based on an assessment of potential benefit against the apparent danger to the responder. It is certainly the case that some fire-fighters have gone above and beyond that which could reasonably be expected of them and have died as a result. Workers giving their lives while attempting to save others are often called heroes and the same label has been applied to health workers

75 Bissielo et al, above n 4, 21; a study from Taiwan found health care workers showed a higher level of seroconversion than did a control group, 20% (HCW) compared to 3% (others) but there was no mention of any fatalities within the HCW group: Yu-Jiun Chan et al, 'Seroprevalence of antibodies to pandemic (H1N1) 2009 influenza virus among hospital staff in a medical center in Taiwan' (2010) 73(2) Journal of the Chinese Medical Association 62, 62.


77 Leonard M Fleck, 'Are there moral obligations to treat SARS patients' (2003) 25(1) Medical Humanities Report 3, 3. Fleck points out that while the mortality rate of SARS might be high the actual risk to the individual employee may not be as high.

who worked during the SARS outbreak. The title ‘hero’ suggests a person has gone ‘over and above’ what is generally required or expected of them.

However, as noted in chapter 3, while the health workforce experienced high levels of illness in the 1918 influenza pandemic, the overall mortality rate was similar to that of the general population. Even during that pandemic, it was recognised that ‘the chief dangers of influenza lie in its complications’. Many deaths in 1918 were not due to the influenza virus itself but rather from a superimposed bacterial infection which today could be treated with antibiotics, oxygen and advanced respiratory care: including artificial ventilation. These treatments would significantly increase survival rates if a like pandemic occurred today. The situation in influenza is similar to the experience of a fire fighter attending a ‘normal’ fire. There is some risk, but that risk is comparatively small. It is completely different to a situation where a disease impacts upon a small group of patients and the risk for the caring workforce is higher than for others.

In light of the differences between SARS and influenza it is suggested that it would be both lawful and reasonable for the employer to expect a worker to work during an influenza pandemic. Although the mortality rate may be unknown, it should be remembered that the ‘worst’ pandemic, in a time where there was no treatment, had an overall mortality rate of less than 2 per cent. If workers had a better understanding of influenza, and how that disease differs from the SARS experience, they are likely to come to this same conclusion.

II What might be the consequences of ignoring an order of the employer?

The consequences will depend on whether an order is both reasonable and lawful or if it fails one arm of that test. If an employee decides to ignore an order that is lawful and reasonable they may find their employment terminated. Summary dismissal may

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82 Although there were pockets of higher mortality, particularly in early outbreaks and in confined or crowded spaces: see the experiences of the troopship Boonah in chapter 3.
result if an employee exhibits a ‘[w]ilful disobedience of lawful orders’. While all Australian jurisdictions have unfair dismissal legislation allowing an employee to challenge an otherwise lawful dismissal on the basis of unfairness, the existence of a valid reason, such as a failure to follow a lawful and reasonable instruction will be a factor weighing strongly in favour of a finding that the dismissal was fair. This matter will be briefly discussed at the end of this chapter.

In 1845, a housemaid, having been denied permission to visit her dying mother, ignored the order of her master and left. The consequence was dismissal. The Court found the plaintiff had no legal right to leave her place of work and so had been lawfully dismissed. There was no evidence that the employer knew of the sickness of the mother, however the judgment is clear that such knowledge would not have discharged the employee from her obligations:

[i]t is very questionable whether any service to be rendered to any other person than the master would suffice as an excuse: she might go, but it would be at the peril of being told that she could not return.

It was noted that there were only limited reasons which would justify her ‘wilful disobedience’ including:

where the servant apprehends danger to her life, or violence to her person, from the master, or where, from an infectious disorder raging in the house, she must go out for the preservation of her life.

A fellow judge agreed, saying that to leave under those specific circumstances would be acceptable for ‘[i]t is an unlawful order to direct a servant to continue where she is

Carolyn Sappideen et al, above n 47 [8.270].

Fair Work Act 2009 (Cth) Part 3.2; Industrial Relations Act 1996 (NSW) Part 6; Industrial Relations Act 1999 (Qld) Chapter 3 part 2; Industrial Relations Act 1984 (Tas) s 30; Industrial Relations Act 1979 (WA) s 23A.

For example: in Peter Hugo Maxwell Owen v Flemington Fields Pty Ltd T/A GKR Transport [2010] FWA 3654, A refusal to attend work as directed meant there was a ‘valid reason for termination’ [12] and so the dismissal was ‘not harsh, unjust or unreasonable’ [13] DP McCarthy.

Turner v Mason (1845) 14 M & W III; 153 ER 411. (Turner v Mason would probably be decided differently in 2016 as the demand of the employer is unlikely to be assessed as ‘reasonable’. However the decision does not ask if the refusal was ‘reasonable’ rather focuses on the legality of the order).

Pollock CB, 12 M & W II3, II6; I53 E.R, 413.

Alderson B, Turner v Mason at II8; 414 respectively.
in danger of violence ... or of infectious disease'. So it was unlawful, at least as an employee in a private house, to be forced to risk exposure to infectious disease.

Although a primary employee obligation is to obey the lawful and reasonable order of their employer, the right of the employer to direct is not unlimited. In circumstances where the risk of personal danger is very high, and there is a likelihood that a person may be injured by doing the tasks required, an employer may not be able to demand that an employee work.

As shown in chapter 2, there is now a much better understanding of the transmission of infectious disease; however the principle that a person cannot be required to put themselves at the risk of ‘unreasonable danger’ is still good both at common law, and under work health and safety legislation. In *Ottoman Bank v Chakarian*, an employee was found to have acted reasonably, and so not in dereliction of his duty, when he vacated his position in Constantinople as a result of a valid fear of being killed. In those rather unusual circumstances the Court was of the opinion that ‘the risk ... was such that he was not bound to obey the order, which was therefore not a legal one’.

In 1919 during the influenza pandemic a bank clerk (Donald Walter Croal) claimed the order of his employer that he should wear a mask at work was illegal.

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89 Rolfe B, *Turner v Mason* at 118; 414.

90 This may have been so except households could be boarded up and the occupants denied the right to leave if smallpox was detected in the house. When many people were isolated it was more efficient to transfer them to the quarantine station. See Alison Bashford, *Epidemic and governmentality: smallpox in Sydney, 1881* (1999) 9(4) *Critical Public Health* 301 esp 304-5; Marcel Verweij and Angus Dawson, *Shutting Up Infected Houses: Infectious Disease Control, Past and Present* (2010) (March) *Public Health Ethics* 1, DOI 10.1093/phe/phq008.

91 Stewart, above n 45, [12.2] points out that the question of ‘unreasonable danger will obviously depend on the nature of employment. Some jobs necessarily carry an element of risk, such as being a firefighter.’

92 See chapter 7.


94 Mr Chakarian had been sentenced to death at Aidin (Turkey) in 1919 escaping only because of the ‘timely arrival of the Greek forces’. Upon his return to Constantinople in 1922, he was questioned by the off duty police chief, in the street, making him fear for his life: at 228.

95 *Ottoman Bank v Chakarian* [1930] A.C. 227 at 30. In *Bouzourou v Ottoman Bank* [1930] A.C. 271 the court found that the ‘unfavourable attitude of Turkish authorities’ that did not ‘involve any personal danger to him’ was not a sufficient reason to make a direction to remain unlawful: at 272.

96 Court records cannot be found but information about *Croal v Commissioners of the Government Savings Banks of New South Wales* (heard before Justice Ferguson and jury) is found in the Sydney Morning Herald: ‘No 2 Jury Court: The Late Influenza Restrictions’, *The Sydney Morning Herald*.
He refused to wear a mask, saying it would make it impossible to work. He sought permission to take leave but was refused. He failed to appear at work for one month and was advised that this time would be without pay. In ‘reasonable apprehension of danger to his life’ he asserted that his failure to attend the workplace was justifiable. His ‘enforced resignation’ occurred. Croal claimed he had been ‘wrongfully dismissed’ and sued for compensation of £1000.97 A jury awarded him £22/11 (one month’s salary) but only on the ground that his application for leave had not been appropriately referred.98 It appears that, even during the 1919 pandemic, the expectation was that people would work, with the jury not particularly sympathetic to the position of Mr Croal.

The Bank appealed. The Full Court determined that the masking order of the employer could have been challenged by Mr Croal making a complaint to the police or a relevant authority. They overturned the decision of the jury. Mr Croal was ordered to pay costs.99 Effectively Mr Croal had ignored the direction of his employer to wear a mask because, he said, the direction was not lawful. Special leave to appeal was refused.100

III Resignation

An employee who feels that they no longer wish to work may terminate the employment relationship by way of resignation. However, prior to accepting a resignation during an influenza pandemic, it might be wise if the employer asks the employee why they are leaving. If it becomes apparent that the resignation is primarily because of a fear of contracting influenza, the employee may be counselled and encouraged to reconsider their decision. They might be offered use of accrued leave entitlements (or unpaid leave) to consider their position.

97 His annual salary at the time was £270.
98 Above n 96, 5 (16 September 1919).
It has been shown that education\textsuperscript{101} is likely to increase the willingness of staff to continue to report to work during an influenza pandemic. Education would remind staff that they are not only at risk at work and that their work, unlike in other disease outbreaks, does not increase the risk to family members. If the employer refuses to allow the employee to take leave (paid or otherwise) and the person refuses to work but does not resign, the employer might elect to bring the employment relationship to an end.

**IV If terminated, could an employee succeed with an unfair dismissal application?**

In general, if an employee does not resign, but simply refuses to attend the workforce without reasonable excuse, the consequence may be termination of their employment. The mere threat that they could be ‘sacked’ may lead an employee to reconsider their determination to refuse to work. Although studies have indicated that some staff believe they should be able to refuse to work during a pandemic, in one study 77 per cent of people did not believe that people who refused to attend work should be dismissed.\textsuperscript{102} An employer who does decide to terminate the services of an employee in these circumstances may be subjected to pressure from other staff or industrial organisations as well as risking potential negative media coverage.

In light of a threat of terminating the employment of a worker, there is the potential for industrial action to commence: action which could be used to highlight the increased pressure on the nursing workforce at a time of high demand. Termination, if initiated by the employer, could have a negative impact on the morale of the rest of the workforce who may feel their efforts are not ‘appreciated’. As a result an employer may be unwilling to take action against an employee who refuses to work during an influenza pandemic.

If terminated then, provided the individual is eligible to apply,\textsuperscript{103} an employee may be able to successfully challenge a dismissal on the basis that the dismissal was

\textsuperscript{101} Aoygai Yumiko et al, above n 25, who found that education about pandemic influenza increased the willingness of people to remain at work.

\textsuperscript{102} Ehrenstein, Hanses and Salzberger, above n 22, table 1.

\textsuperscript{103} Under the *Fair Work Act 2009* a private sector employee needs to have completed a minimum employment period of 6 months (or 12 months for small employers); and their employment must be covered by an award or enterprise agreement, or be under an income threshold (ss 382, 383).
harsh, unjust or unreasonable.\textsuperscript{104} Although a refusal to attend work as lawfully directed would generally be a valid reason for termination, it is possible that, during an influenza pandemic, an employee may argue that their dismissal was harsh; and may well do so for strategic reasons, even if doubtful of success. It is likely that a union representing nurses would argue that nurses were being placed at risk and, when they exercised their right to protect themselves by refusing to work, the employer acted unreasonably in threatening to terminate their employment (particularly if they had been a model employee for many years). Whether an argument would succeed on its merits would depend upon the specific circumstances of the case.\textsuperscript{105} An employment tribunal may be swayed by evidence of length of unblemished service of an employee or evidence of conflicting family obligations.\textsuperscript{106} A tribunal may take into consideration obligations a nurse has under the relevant codes of practice and ethics which apply to the profession and, on weighing these up, decide a nurse should work. Finally, a tribunal may also determine (on evidence provided) that it is not reasonable, given the widespread nature of an influenza pandemic, for a healthcare worker to refuse to work. Ultimately, a determination will be made on the specific circumstances of the case and while reinstatement is the primary remedy, it may not be appropriate in these circumstances although an order might be given to reinstate the worker once the pandemic abates.

\textbf{V \hspace{1cm} CONCLUSION}

An outbreak of pandemic influenza will, by definition, place all members of the community at risk. Writers, for example Malm,\textsuperscript{107} suggest that the role of medicine has become increasingly specialised (a claim that can also be made of nursing) and so

\textsuperscript{104} For example, see s 385(b) of the \textit{Fair Work Act 2009} which applies to private sector nurses as well as public sector nurses in Victoria. See the discussion in Stewart above n 45, [17.19]-[17.20]. Public sector employees have similar rights under the relevant state legislation: \textit{Industrial Relations Act 1996 (NSW)} Ch 2 Pt 6; \textit{Industrial Relations Act 1999 (Qld)} Ch 3; \textit{Industrial Relations Act 1979 ss24A, 29, 29AA; Industrial Relations Act 1984 (Tas)} ss 29-31; \textit{Fair Work Act 1994 (SA)} Ch 3 Pt 6. As will be discussed in chapter 6, public sector employees may also have additional avenues for review.

\textsuperscript{105} A range of (federal) examples can be found in Stewart above n 45, [17.20].

\textsuperscript{106} In 1845 as decided in \textit{Turner v Mason} the employee obligation to the employer was absolute. This may not be the case today where an employee may be allowed to use their personal leave to care for sick dependents.

\textsuperscript{107} Malm et al, above n 33.
the only person who has truly accepted to be involved in the care of a patient with an infectious disease is a specialist in that area. While that argument is valid for some limited circumstances it is difficult to see that the same rule can apply to an illness that is likely to infect more than 25 per cent of the population. Influenza will impact patients across all hospital specialities. The patient who has had a hip replacement may also become sick with influenza, as might a person with renal failure or a heart attack. Unlike the SARS outbreak, disease containment during influenza will not be possible. The nurse workforce will face a risk of infection whether they are at work or at home. Yet, in the absence of co-morbidities, the probability of dying from influenza is relatively small. The increased risk to a small component of the health workforce (and their families) that arose in the SARS outbreak does not apply in pandemic influenza. Even in 1918 the majority of people who became infected recovered. In light of the widespread nature of pandemic influenza it is arguably both lawful and reasonable to expect all workers, including (perhaps especially) those in the health workforce, to work.

Chapter 5 will explore whether public sector workers have a greater obligation to work during a pandemic than their private sector counterparts.
Chapter 5
PUBLIC SECTOR

I    INTRODUCTION

As noted in the previous chapter, it is probable that patients who need hospitalisation during an influenza pandemic will be admitted to the public hospital sector. The underlying contract of employment would make it lawful and reasonable for the state as employer in this scenario to expect nurses to continue with their duties. While not forgetting that some patients will become inpatients of private hospitals, this chapter argues that public sector employees (including nurses) have, by virtue of their public sector employment, a greater legal obligation to work during a pandemic. Again, this approach will not necessarily apply to all outbreaks of disease, but only where an infectious disease is widely disseminated across the whole community as would be the case in influenza.

This chapter will consider the nature of the public hospital system and public sector employment and the particular reasons why a greater obligation to work during an influenza pandemic may exist for those workers. Such an obligation would apply to all public sector employees — such as clerical, catering, cleaning for example — as well as health professionals. The chapter also briefly considers the role of Essential Services legislation (howsoever titled) found in some Australian States and Territories and asks whether this legislation could be used to demand work performance during a pandemic. Public sector workers should, well before any influenza pandemic arises, be advised of their obligation to work during such an emergency.

II  THE PUBLIC SECTOR

Government, through agencies established by statute for a particular purpose, can deliver services directly to the public. In Australia the reach of the public sector has been in decline, as services once run by the government are diverted to the private
sector either partially or in full.\textsuperscript{1} Where services are provided by the government there is a clear expectation that these organisations ‘serve the public’ and ‘serve the public interest’. As a result, the government-run public sector has a relationship with their client base which differs from that found in the private sector. The relationship is necessarily more ‘complex’ as users of the service are both ‘citizens and voters’.\textsuperscript{2} In health, this complexity is frequently evident as public agitation and criticism can lead to knee-jerk political reactions.\textsuperscript{3}

The Commonwealth government contributes funding for the hospital sector, but Australian public hospitals are run by state governments.\textsuperscript{4} Nurses, and other individuals, working in these public hospitals are public sector employees. It is the particular combination of working for the government and delivering services to the public that gives rise to legislative codes of conduct and practice that can impose certain expectations (as well as protections) upon employees. As will be shown, the concept of serving the public, as well as the issue of ‘public interest’, underpins the role of the public hospital as well as public sector employment. This section will first briefly explore the issue of public sector employment, and codes of conduct, before turning to consider what ‘in the public interest’ may mean for public sector employees during an influenza pandemic.

A Public Sector Employment and the Public Hospital System

While the underlying common law contract of employment continues, employees working within the public hospital system find their employment subjected to an

\begin{itemize}
\item[3] For example in 2007 the Tasmanian state (Labor) government decided to rationalise services at the Mersey Community Hospital. A high profile community campaign opposing the changes commenced. The then prime minister, John Howard, stepped in to ensure services continued. Yet, in reality, the intervention aimed to promote support for the local Federal Liberal Candidate and was arguably contrary to the financial wellbeing of Tasmania: Mandy Leveratt, ‘Aspirational Nationalism: John Howard and the Mersey Hospital’ (2007) (45) \textit{Just Policy: A Journal of Australian Social Policy} 49.
\item[4] The Commonwealth does have a public service, regulated by the \textit{Public Service Act 1999} (Cth). However the Commonwealth does not employ individuals within the public hospital sector, this is the role of the states.
\end{itemize}
additional layer of regulation by statute.\textsuperscript{5} Although jobs in the public sector are no longer for ‘life’,\textsuperscript{6} legislation imposes balances and checks that can make it more difficult for an employer to terminate the services of a public sector employee than might be the case in the private sector.\textsuperscript{7} In addition, public sector employees generally have the right to have decisions, made in relation to their employment, reviewed by an independent party.\textsuperscript{8} The underlying legislation also outlines principles that relate to the role of the public sector in the provision of services to the community. So, a person accepting a job in the public sector receives the benefit of additional employment protections; but the counter to that is the fact that they are undertaking a role where members of the public (as tax payers) have certain expectations. People may have intrinsic reasons motivating them to work within the public, rather than the private, sphere.

Public service motivation has been defined as a ‘general, altruistic motivation to serve the interests of a community of people, a state, a nation or mankind’\textsuperscript{9} or, in the alternative, ‘an individual’s orientation to delivering service to people with the purpose of doing good for others and society’.\textsuperscript{10} Both definitions stress the importance of service. These concepts are incorporated in legislation that governs both the public hospitals as well as public sector employment.

\textsuperscript{5} This regulation is in addition to any provisions found in legislation pertaining to industrial relations: Public Sector Management Act 1994 (ACT); Government Sector Employment Act 2013 (NSW); Public Sector Employment and Management Act (NT); Public Sector Act 2009 (SA); State Service Act 2000 (Tas); Public Administration Act 2004 (Victoria); Public Sector Management Act 1994 (WA) and accompanying state issued regulations.

\textsuperscript{6} Colley, above n 2, 16.

\textsuperscript{7} Provided that the probationary period has been satisfied, termination is regulated by legislation and polices. For example: Government Sector Employment Act 2013 (NSW) s 47; State Service Act 2000 (Tas) s 44.

\textsuperscript{8} Public Sector Management Act 1994 (ACT) Pt II; Industrial Relations Act 1996 (NSW) Pt 7; Public Sector Employment And Management Act (NT) Pt 9; Public Service Act 2008 (SA) Div 4; Public Service Act 2008 (Qld) Ch 7; State Service Act 2000 (Tas) Div 4; Public Administration Act 2004 (Vic) s 64 (however the Commissioner can only make non-binding ‘recommendations’: s 65); Public Sector Management Act 1994 (WA) s 78. The right of appeal may be limited and generally excludes applications for re-employment following termination. A review of termination may lie in the relevant industrial legislation (howsoever titled).


Because hospitals are products of state-based legislation establishing and governing their operation, public hospitals vary across jurisdictions. This legislation provides a guide as to the purpose of the hospital sector and imposes certain expectations on service delivery. Legislation can be comparatively simple or quite extensive.

A local hospital network\(^\text{11}\) is established in the Australian Capital Territory and legislative objectives include encouraging community involvement in health services.\(^\text{12}\) ACT Government agencies are required to provide a service to the public\(^\text{13}\) and to be responsive to the 'needs of the public'.\(^\text{14}\) The general obligations of employees are found in the *Public Sector Management Act 1994*\(^\text{15}\) and a code of conduct provides some guidance to employees.\(^\text{16}\)

In the Northern Territory the Minister may declare a facility to be a hospital.\(^\text{17}\) An ‘apolitical’ public sector in the NT is to provide a service ‘that is efficient and effective in serving the government, the Legislative Assembly and the people of the Northern Territory’.\(^\text{18}\)

In NSW governance of a public hospital can be effected through a variety of agencies including a local health district and a statutory health corporation.\(^\text{19}\) The NSW Government can directly employ staff in their public hospitals.\(^\text{20}\) Section 6(a) of the *Health Service Act 1997* ‘recognises the role of the government sector in preserving the public interest’. A number of core values of the sector are identified in the NSW *Government Sector Employment Act 2013*. These include: placing ‘public interest over personal interest’ providing ‘services fairly with a focus on customer needs’ and a need to be ‘reliable in service delivery’.\(^\text{21}\) The core values are considered of equal weight.\(^\text{22}\)

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11 *Health Care Act 1993 (ACT) s 8.*
12 *Health Care Act 1993 (ACT) ss 10(c), (g).*
13 *Public Sector Management Act 1994 (ACT) s 6(a).*
14 *Public Sector Management Act 1994 (ACT) s 6(b)(ii).*
15 *Public Sector Management Act 1994 (ACT) s 9.*
17 *Medical Services Act (NT) s 6(2)(a)(i).*
18 *Public Sector Employment And Management Act (NT) s 2A(1)(a).*
19 *Health Services Act 1997 (NSW) s 15.*
20 *Health Services Act 1997 (NSW) s 116(1)(a).*
21 *Government Sector Employment Act 2013 (NSW) s 7.*
22 *Government Sector Employment Act 2013 (NSW) s 8(2).*
A Code of Ethics and Conduct has been developed to provide guidance to employees. An online explanatory document published by the Public Service Commissioner (NSW) notes that government employees face ‘certain obligations that are different from, or do not exist in, the private and not-for-profit sectors’ and that employees ‘must act in ways that are lawful, ethical and build trust in the public sector’. 

Victorian public servants (also called public officials) are employed by reference to the Public Administration Act 2004. A public sector employee includes those employed under Part 3 of the Act as well as those who are employed by a public entity. A non-private hospital is a ‘public entity’. A public service body head ‘has all the rights, powers, authorities and duties of an employer’ but must exercise those rights ‘in conformity’ with a number of prescribed restrictions.

The Victorian Public Service Commissioner has issued a Code of Conduct, as well as guidance materials which aims to provide employees with advice and information about their obligations in accordance with the public sector values. The Commissioner notes that, the reformulation of the Code aims to ensure the public sector:

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26 This includes Department and Administrative office heads –Public Administration Act 2004 (Vic) s 12.

27 Public Administration Act 2004 (Vic) s 4(1).

28 Public Administration Act 2004 (Vic) s 5(1).

29 The head must comply with s 20(3)(a) the public sector values (s 7); and (b) any binding code of conduct; and (c) the public sector employment principles (s 8); and (d) standards issued by the Victorian Public Sector Commission; and (e) any other relevant provisions of this Act or the regulations.


32 Public Administration Act 2004 (Vic) s 7(1) the values are listed as a number of broad categories: (a) responsiveness; (b) integrity; (c) impartiality; (d) accountability; (e) respect; (f) leadership and (g) human rights.
retains the key attributes that have allowed it to play its critical role with the full confidence of Government and the wider community for over a century. Those key attributes are its apolitical nature, responsiveness, effectiveness and accountability; and it is precisely these things that the public sector values and this Code seek to reinforce and protect.\textsuperscript{33}

There is no mention of the ‘public interest’ in either the Act or the Code, however Victorian public sector employees are to ‘provide services to the community in an equitable, prompt and professional manner’.\textsuperscript{34} They are also required to:

\begin{quote}
... maintain a high level of trust with the Government, community and other public sector employees. In the performance of their public duties and in their private life, public sector employees avoid conduct that may adversely affect their standing as a public official or which may bring their public sector employer or the public sector into disrepute.\textsuperscript{35}
\end{quote}

A list of Public Hospitals is found in Schedules 1-3 of the \textit{Victorian Health Services Act 1988}. The Act allows for the development and management of public hospitals.\textsuperscript{36} The public hospital system is ‘accountable to the public’.\textsuperscript{37} If it is in the ‘public interest’ to do so, and in line with the objectives of the Act, the Minister can issue directions to the Board of a public hospital\textsuperscript{38} and the Board is obliged to comply.\textsuperscript{39}

Queensland ‘establish[es] a public sector health system that delivers high quality hospital and other health services ... having regard to the principles and objectives of the national health system’.\textsuperscript{40} Queensland public service employees (including heads of departments)\textsuperscript{41} have their employment governed by the \textit{Public Service Act 2008}. It is noted that ‘public service employment involves a public trust’\textsuperscript{42} and employees must also adhere to the principles set down in the \textit{Public Sector Ethics Act 1994}. Section 7 of that Act requires that the public service ‘promot[e] the public good’. Codes\textsuperscript{43} are to be developed in order to provide employees and offices with ‘standards of conduct ...

\begin{footnotesize}
\textsuperscript{33} Code of Conduct (Victoria) above n, 30, vi.
\textsuperscript{34} Ibid, 8.
\textsuperscript{35} Ibid, 13.
\textsuperscript{36} Health Services Act 1988 (Vic) s 1.
\textsuperscript{37} Health Services Act 1988 (Vic) s 9(d).
\textsuperscript{38} Health Services Act 1988 (Vic) s 40B(1)(a).
\textsuperscript{39} Health Services Act 1988 (Vic) s 40B(3).
\textsuperscript{40} Hospital and Health Boards Act 2011 (Qld) s 5.
\textsuperscript{41} Public Service Act 2008 (Qld) s 9.
\textsuperscript{42} Public Service Act 2008 (Qld) s 26.
\end{footnotesize}
consistent with the ethics principles and values’.\textsuperscript{44} Hospitals and health services are ‘public service agencies’.\textsuperscript{45}

For its part, in South Australia the \textit{Health Care Act 2008}\textsuperscript{46} aims to promote an ‘integrated health system that provides optimal health outcomes’\textsuperscript{46} and an incorporated hospital ‘must be administered and managed on the basis that its services will address the health needs of the community’.\textsuperscript{47} South Australian nurses are employed by SA Health and their conditions of employment are governed by the \textit{Public Sector Act 2009}. The first object of that Act is to ‘promote a high performing public sector that focuses on the delivery of services to the public’ as well as to ‘establish — a code of conduct to enforce ethical behaviour and professional integrity in the public sector’.\textsuperscript{48} The introduction to the Code of Conduct notes that:

\begin{quote}
As a public sector employee you are employed to provide services for the South Australian community in line with the policies of the elected government and your organisation. This places you in a unique position of trust, requiring standards of ethical behaviour that reflect community expectations.\textsuperscript{49}
\end{quote}

Delivery of ‘safe, high quality health services and health support services ...’ is a primary objective of the Tasmanian Act.\textsuperscript{50} ‘Health service’ includes a hospital while hospital services are ‘services provided by or on behalf of a public hospital’.\textsuperscript{51} Again, the Minister can issue directions, which must be implemented by way of policy.\textsuperscript{52} Tasmanian nurses are employed by the Minister (who is the Premier) administering the \textit{State Service Act 2000}\textsuperscript{53} and a number of principles are outlined in s 7 of that Act. The ‘State Service’ must perform ‘its functions in an impartial, ethical and professional manner’ and, (d) ‘is accountable for its actions ... to the Government, the Parliament and the community’.\textsuperscript{53} An employee of the state service is obliged to uphold the state

\begin{footnotesize}
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\item Public Sector Ethics Act 1994 (Qld) s 10(20).
\item Public Sector Ethics Regulation 2010, schedule denotes Hospital and Health Services established under the \textit{Hospital and Health Boards Act 2011}\textsuperscript{54} as a public service entity.
\item \textit{Health Care Act 2008} (SA) s 4(a).
\item \textit{Health Care Act 2008} (SA) s 30 although special provision of services may be made for particular groups.
\item \textit{Public Sector Act 2009} (SA) s 4.
\item Code of Conduct SA, 1.
\item \textit{Tasmanian Health Organisations Act 2011} (Tas) s 3.
\item \textit{Tasmanian Health Organisations Act 2011} (Tas) s 4.
\item \textit{Tasmanian Health Organisations Act 2011} (Tas) s 42(1),(2).
\item \textit{State Service Act 2000} (Tas) s 7(1)(a).
\end{enumerate}
\end{footnotesize}
service principles as well as abide by the Code of Conduct. Under the Code the employee ‘must at all times behave in a way that does not adversely affect the integrity and good reputation of the State Service’.

Western Australian public hospitals are governed by the *Hospitals and Health Services Act 1927*. Codes of Conduct can be issued by the Commissioner who can also help individual agencies ‘develop, amend and repeal’ their own Codes of Conduct (in line with the overarching obligations in the Act). The WA Code of Ethics requires all employees to ‘treat people with respect, courtesy and sensitivity and recognise their interests, rights, safety and welfare’.

The Codes discussed to this point are public sector codes of conduct. There are also various professional codes which bind particular members of the health professions (nurses, doctors etc). However, these codes only have a limited reach as they do not apply to the entire workforce. In addition, while a proven breach may see a practitioner sanctioned by the relevant Board (which, for nurses, is the Nursing and Midwifery Board of Australia), codes may have little enforcement value for the employer who is seeking a means to promote work performance. By comparison, the various state-based codes, which are linked to public sector employment, apply to all state service employees. These codes are enforceable by the employer and, if a breach of the code is found to have occurred, this could lead to the imposition of sanctions, including termination of employment. Employees, accepting a position in the public sector may not understand that difference expectations exist between public and

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54 *State Service Act 2000 (Tas)* s 9(13).
55 *State Service Act 2000 (Tas)* s 9.
56 *State Service Act 2000 (Tas)* s 9(14).
57 *Public Sector Management Act 1994 (WA)* s 21(l)(b).
58 *Public Sector Management Act 1994 (WA)* s 21(l)(c).
61 Failure to adhere to the various obligations of the codes, particularly if this is accompanied by a finding of unprofessional conduct, could potentially be a factor in an unfair dismissal application (see chapter 4).
62 For example see *State Service Act 2000 (Tas)* s 10.
It is apparent that, while language varies across the various states and territories, obligations imposed on public sector employees uniformly emphasise their duty to the community and public. The importance of ‘trust’ in the public service as a whole, and the need to promote the ‘public good’ are common themes, as is ‘public interest’.

Chris Wheeler, the Deputy Ombudsman of NSW notes that, while obligations of various positions may differ, public officials ‘must perform their duties and functions ... in a way that is applicable to their public functions’ and he identifies several ‘dimensions’ to this service. Healthcare workers need to satisfy three of these dimensions, the first being ‘to serve the public interest’, the second ‘to serve their employing agency’ and, finally, ‘to serve the public as customers or clients’. All elements are important during an influenza pandemic.

**B What is meant by ‘public interest’?**

As discussed above, public sector hospitals are required to provide services to the public, reflecting that the service is accountable to the public. Some of the governing legislation affecting the hospitals also makes reference to ‘public interest’:

> [t]he concept of the ‘public interest’ has been described as referring to considerations affecting the good order and functioning of the community and government affairs, for the well-being of citizens. The expression ‘for the common good’ is also used.

The issue of public interest often arises in matters dealing with disclosure, privacy and freedom of speech. However ‘public interest is a concept of wide meaning and

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64 The extra dimension being ‘to serve the Parliament and the government of the day (not applicable to all public officials)’ Chris Wheeler, ‘The public interest revisited: we know it’s important but do we know what it means?’ (2013) (72) *Australian Institute of Administrative Law Forum* 34, 34.


66 In relation to public sector employees disclosing information they believe should be made public: *Public Interest Disclosure Act 2013* (Cth); *Public Interest Disclosure Act 2012* (ACT); *Public Interest Disclosure Act 2010* (Qld); *Public Interest Disclosures Act 1994* (NSW); *Public Interest Disclosure Act* (NT); *Public Interest Disclosures Act 2002* (Tas); *Public Interest Disclosure Act 2003* (WA).

67 In particular political freedom of speech – for example: *Hogan v Hinch* [2011] HCA 4; *Lange v Australian Broadcasting Corporation* (1997) 189 CLR 520.
not readily limited by precise boundaries’. In *Hogan v Hinch*, French CJ stated that when ‘used in a statute, the term [public interest] derives its content from ‘the subject matter and the scope and purpose of the enactment in which it appears’.

The subject matter, scope and purpose of legislation pertaining to health services is to promote the health and wellbeing of the community. Provision of health services is clearly for the good of the community and in the ‘public interest’. The obligations applicable to the ‘service’ also flow to the individual employee. The public expect a certain level of a health service will be available and, in order to fulfil that need, employees of the system must continue to work. A refusal of workers, particularly in health, to perform their duties during an influenza pandemic would breach the trust held by the public and would see them fall short of the obligations expected under the relevant public sector codes of conduct.

In a detailed exploration of the topic, Wheeler notes that the concept ‘public interest’ is not necessarily easily defined. As a broad definition he asserts that, traditionally, public interest refers to:

> considerations affecting the good order and functioning of the community and government affairs for the wellbeing of citizens. It has also been described as being for the benefit of society, the public or the community as a whole.

Although concepts such as ‘community’ and ‘common good’ and like terms often feature, he argues that the question of what is the ‘public’ is often left unexplored. In certain circumstances, he suggests, the public may be made up of a ‘relatively small group, class or section of a total population’. In the time of an influenza pandemic those who are ill and requiring care will form a subsection of the total community and so satisfy the idea of ‘public’. Yet, a broader concept may exist, including members of the public who are not unwell, but are necessarily implicated as they have an interest in seeing their friends and family receive treatment and recover. The public generally have an interest in people getting treatment and returning as productive members of the community — as workers, family members and as tax payers. It is arguable that

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68 *Right to Life Association (NSW) Inc v Secretary, Department of Human Services and Health* [1995] FCA 1060 per Lockhart J at [34].
69 *Hogan v Hinch* [2011] HCA 4 at [31].
70 Wheeler, above n 64, 35.
71 Ibid 37.
72 Ibid.
every member of the community has an interest in ensuring health care services continue to be available during an influenza pandemic.

An influenza pandemic will cause widespread illness. Pressures on the public health system will increase. Healthcare workers will also become unwell. However, during an influenza pandemic the community will need (and expect) healthcare workers to remain at work. Arguably expectations underlining public sector employment, including the fact that employees ‘serve the public’, mean that the obligation of this group to work is greater than their private sector counterparts. This could be reinforced by clear statements of responsibility either under the relevant code or by way of policy referenced back to code, and legislative, based expectations.

In some States and territories, legislation exists that allows the government to decree that work in essential services continue in particular circumstances. The chapter will now explore that legislation and question whether, with some modification, it might apply during an influenza pandemic.

III COULD THE AUSTRALIAN GOVERNMENT COMPEL NURSING WORK DURING A PANDEMIC?

Some countries have implemented coercive methods to ensure that healthcare workers continue to work in the time of a pandemic. For example, the Model State Emergency Health Powers Act (MSEHPA), adopted in part by many states in America, is one such example. This Act has the potential to see professionals lose their licence

73 Other legislation may allow for workers to be directed to work during a public health emergency. For example, under s8(2) of the Public Health Act 2010 (NSW) the Minister (once an emergency has been declared under the State Emergency and Rescue Management Act 1989 (NSW), has broad powers (if, on reasonable grounds it is believed a risk to the public health exists) and may (‘s8(2)(a) ...take such action; and (b) ... give such directions, as the minister considers necessary to deal with the risk and its possible consequences’) potentially this provision may allow the Minister to issue a direction compelling health care workers to work during an influenza pandemic. Yet, the focus of public health legislation tends to lean toward the prevention of spread of disease, identification and isolation of those with certain infectious diseases, treatment (including, in limited circumstances, potentially by way of compulsion) and management of environmental risks. It is not certain that the scope of this legislation would be sufficiently broad enough to allow health workers to be directed to work during a public health emergency. Therefore, for the purposes of this discussion, focus is on the Essential Services Act (howsoever titled) that are currently in existence as they are much more industrially attuned.

74 The Act was developed by a committee, led by Professor Gostin: Lawrence O Gostin et al, 'The Model State Emergency Health Powers Act: Planning for and Response to Bioterrorism and
to practice if they refuse to work during times of an emergency.\textsuperscript{75} As a health professional cannot practice without a licence, this loss would be a severe penalty which could be unfair depending on the nature of the disease outbreak. Under the Model Act ‘health care provider’ is widely defined and includes entities such as hospitals and medical clinics, as well as workers.\textsuperscript{76}

While commending the fact that the MSEHPA seeks to address responsibilities of healthcare workers where other emergency plans have not, the approach has been criticised on the basis that the Model Act gives too much (virtually unbridled) authority to the state governor.\textsuperscript{77} Others have challenged the appropriateness of this legislation on a number of grounds, including the fact that it unfairly penalises health care professionals when other workers will also be essential during a pandemic.\textsuperscript{78} The Act may reflect the different health system in America, which lacks the taxpayer resourced public hospital sector found in others countries, such as Australia.

Australia has no legislation along the lines of the MSEHPA, however some states and territories have passed essential services legislation which might be used to compel work during a pandemic. Before turning to that legislation it is necessary to first consider what is meant by ‘essential’.

The Macquarie dictionary defines ‘essential’ as being something that is ‘absolutely necessary’,\textsuperscript{79} and while ‘the concept of essentiality is not an absolute [or] capable of being defined by purely objective criteria’\textsuperscript{80} where health personnel are required to manage a disease that impacts upon a wide spectrum of the community, the meaning of essential is unlikely to be controversial. Although the question of what

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\item Naturally Occurring Infectious Diseases’ (2002) 288(5) \textit{Journal of the American Medical Association} 622. By July 2006 the Act had been adopted, in part or in full, in thirty eight states, other jurisdictions had introduced bills or resolutions
\url{http://www.publichealthlaw.net/ModelLaws/MSEHPA.php}.
\item Ibid.
\item Carl H Coleman and Andreas Reis, 'Potential Penalties for Health Care Professionals Who Refuse to Work During a Pandemic' (2008) 299(12) \textit{Journal of the American Medical Association} 1471.
\item Macquarie Dictionary. ‘Necessities of life’, has been subject of judicial consideration and has been held to encompass medical care in some circumstances. See: \textit{R v MacDonald} [1904] St R Qd 151 at 170 per Cooper CJ: ‘medical aid under certain circumstances, is one of the necessaries of life ...’.
\end{itemize}
\end{footnotesize}
type of service is essential — for example should treatment include ventilation or is it limited to non-invasive treatments — may be debated, the need for people to deliver whatever level of service which is to be provided is not. During a pandemic this could include health care services as well as the delivery of materials (for example, drugs, equipment and other supplies) to those services.

Essential Service legislation is currently state-based. Under the Constitution the Commonwealth has the power to make laws with respect to a listed number of matters: a list that may be amended by way of referendum. In 1926 the Commonwealth government sought to obtain power over essential services, however that referendum failed. At a referendum in 1946, the power of the Commonwealth to appropriate and expend monies beyond ‘[i]nvalid and old-age pensions’ was altered. The wording put to the referendum was:

Maternity allowances, widows’ pensions, child endowment, unemployment, pharmaceutical, sickness and hospital benefits, medical and dental services (but not so as to authorise any form of civil conscription), benefits to students and family allowances.

This provision enables federal Parliament to directly appropriate funds for health care purposes but not ‘so as to authorise any form of civil conscription’. Whatever the reason for their inclusion the words excluding ‘civil conscription’ are said to be a ‘rare ... individual guarantee and protection spelt out in the Australian Constitution’.

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81 For a discussion about the possible complexity see: David M Eddy, 'What care is' essential'? What services are'basic'? (1991) 265(6) Journal of the American Medical Association 782.
82 Commonwealth of Australia Constitution Act s 51.
84 Commonwealth of Australia Constitution Act s 51(xxiii).
85 Commonwealth of Australia Constitution Act s 51(xxiiiA).
87 Wong v Commonwealth of Australia (2009) 236 CLR 537 [128] per Kirby J; or ‘a type of constitutional guarantee’ [252] per Heydon J. Despite this, Hayne, Crennan and Kiefel JJ [193] ‘doubt that it is possible to provide any general definition of what is meant by ‘civil conscription’.”
which mean that medical and dental staff cannot be compelled to work for the Commonwealth or a particular employer under Federal law.\textsuperscript{88}

In \textit{Wong v the Commonwealth}\textsuperscript{89} it was determined that the constitutional provision prohibited any compulsion (including by coercion) requiring medical practitioners to:

\begin{quote}
work or provide services; ... for the Commonwealth itself or a statutory body which is created by the Parliament for the purposes of the Commonwealth ... or for the benefit of third parties, if at the direction of the Commonwealth.\textsuperscript{90}
\end{quote}

So, at a federal level, the government cannot compel medical practitioners to work, nor could they direct the state (as a third party) to demand these individuals provide a medical service. This restriction limits the capacity to demand that health professionals work for the Commonwealth as it is likely to be unconstitutional for the federal government to direct medical workers to provide care (in return for pay) to patients who are sick with influenza. Subsequent controls on payment for services have been made which, it is argued, has devalued the guarantee.\textsuperscript{91}

However, as direct employers, the various Australian states do wield considerable control including control over hours of work and conditions of employment of their public sector medical, and other health, employees.\textsuperscript{92}

\section*{A State and Territory Governments}

Local Constitutions allow legislatures to make laws for the ‘peace, welfare and good government’\textsuperscript{93} of their state\textsuperscript{94} or territory.\textsuperscript{95} Essential Services Acts exist in several

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\textsuperscript{89} (2009) 236 CLR 573.
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\textsuperscript{90} Ibid, per French CJ, Gummow J at [60].
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\textsuperscript{91} Mendelson, above n 86.
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\textsuperscript{92} Excluding those medical practitioners who are granted ‘voluntary’ or ‘honorary’ status such as under Chapter 8, Part 1 and 2, of the \textit{Health Services Act 1997} (NSW) where the medical practitioner is contracted to provide specified ‘medical services’ (s 80(l)).
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\textsuperscript{93} \textit{Constitution Act 1902} (NSW); s 5 same wording \textit{Constitution Act 1867} (Qld) s 2.
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\textsuperscript{94} Wording is slightly different, but the effect the same, in other states: \textit{Constitution Act 1975} (Vic) s 16 make ‘laws in and for Victoria in all cases whatsoever’; \textit{Constitution Act 1889} (WA) s 2(1) ‘peace, order and good government’; \textit{Constitution Act 1936} (SA) ‘shall have and exercise all the powers and functions formerly exercised by the Legislative Council constituted pursuant to section 7 of the Act of the Imperial Parliament, 13 and 14 Victoria, Chapter 59, entitled ‘An Act for the better Government of Her Majesty’s Australian Colonies’; \textit{Constitution Act 1934} (Tas) the preamble provides that it was: ‘enacted for the purpose of securing the peace, welfare, and good government
\end{flushright}
Australian States: New South Wales, Victoria and South Australia as well as in the Northern Territory. The main focus of these Acts is to ensure the supply of utilities to agencies, including health, rather than with the supply of health services. However, in NSW and the Northern Territory, Acts enable the relevant government to make orders, or declarations, in relation to the provision of goods or services including health.

In 1988, the NSW Parliament passed the Essential Services Act. The long title proclaims it to be ‘[a]n act to protect the community from disruption to essential services; and for related purposes’. The second reading speech of the Bill makes it clear that the legislation relates to a ‘disruption ... from industrial disputation, an act of God, equipment breakdown, or otherwise’, so powers under this Act are potentially very broad. In particular, the government was ‘concerned with securing a quick return to work of strikers in an essential service industry’. The ability to compel performance, coupled with the right to take action against the ‘defiant resistance’ of trade unions (and their individual members) saw the Bill labelled of the ... Colony. Also the Australia Act 1986 s 2 provides that laws for the ‘peace, order and good government’ apply to all states.

95 Northern Territory (Self-Government) Act 1978 (NT), s 6, ‘Legislative Assembly has power... to make laws for the peace, order and good government of the Territory’.

96 Essential Services Act 1988 (NSW).

97 Essential Services Act 1958 (Vic) defines essential services as: s 3 (a) transport; (b) fuel; (c) light; (d) power; (e) water; (f) sewerage; (g) any service (whether of a type similar to the foregoing or not) specified from time to time by order of the Governor in Council published in the Government Gazette; The Utilities Act 2000 (ACT) deals with the continuing supply of gas electricity and water: s 149A.


99 Essential Goods and Services Act (NT).

100 Ibid.


102 Parliamentary Debates (NSW), Legislative Council, 2 June 1988, 1349.

103 Regulations can regulate, control, direct, restrict or prohibit the provision of the essential service ‘and the activities of any person involved in the provision of the essential service’: s 9(1)(a).

104 Parliamentary Debates (NSW), Legislative Council, 2 June 1988, The Hon EP Pickering at 1349 states ‘this government is not courting industrial confrontation’ and points out that the bill sought early reference to the Industrial Commission for resolution of a dispute.

105 Under the Essential Services Act 1988 (NSW) when a proclamation (s 8) or an order (s 10) is in force then an employer, who ‘is adversely affected by the disruption’ can, after a period of ‘at least 5 consecutive normal working days’ of non useful employ (s 16(2)); stand employees down without pay (s 16(5)); although employee continuity of service is maintained (s 16(6)). §17 allows for suspension or cancellation of registration of an industrial organisation in some circumstances; in
‘draconian’ and ‘obnoxious’, with some arguing that ‘[d]ictatorial emergency industrial powers in a democratic society seriously undermine a democracy’. The government asserted ‘[t]he bill would not be a responsible piece of legislation if it addressed only disruption by natural disasters but allowed free reign to man-made disruption ...’.

In NSW an essential service includes the provision of: ‘(d) public health services (including hospital or medical services), (e) ambulance services, [and] (f) the production, supply or distribution of pharmaceutical products’. The Act applies to staff of hospitals and other health services. The Act has effect despite anything ‘expressed or implied in any other Act’.

Under s 8 of the Essential Services Act 1988 (NSW) the Governor may make a proclamation about a service, the publication of which will allow the making of regulations to compel service delivery. A proclamation can be made even in the absence of an existing, or anticipated, emergency. The proclamation takes effect on publication, unless a later date is nominated, ‘continues in force for a period not exceeding 30 days’, and can be ‘amended, varied or revoked by a later proclamation’. Even in the absence of an ‘emergency situation’ the Governor can make broad ranging regulations which could compel performance including:

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106 Parliamentary Debates (NSW), House of Assembly, The Hon Mr Barry Unsworth (Rockdale), I134.
107 Parliamentary Debates (NSW), Legislative Council, 7 June 1988 per The Hon JR Hallam, I629.
108 Parliamentary Debates (NSW), Legislative Council, 7 June 1988 per The Hon JD Garland, I633.
110 Essential Services Act 1988 (NSW) s 4(1)(k); s 4(2) provides that the order must be published on the NSW Legislation Website; the order takes effect on the day of publication (s 4(4)). Transport of freight by road has been made an essential service (Gazette No 28 of 12.2.90, 1509); as have the Provision of Funeral, Burial and Cremation Services (Gazette No 59 of 19.4.91, 2961.) Neither child care nor schools are an essential service under the Act. Child care, at least for crucial workforces, could become essential (and so be declared as such) during a pandemic.
111 Essential Services Act 1988 (NSW) s 4(1).
112 Essential Services Act 1988 (NSW) s 5 the following Acts are specifically named: the Industrial Relations Act 1996 (excluding the operation of any Award or Agreement made under that Act), the State Emergency and Rescue Management Act 1989 or the State Emergency Service Act 1989, the Energy and Utilities Management Act as well as any state industrial instrument, contract or deed.
(a) regulating, controlling, directing, restricting or prohibiting the provision of the essential service and the activities of any person involved in the provision of the essential service,

(b) authorising any person to exercise such functions as appear ... to be necessary or expedient ... authorising any person:

(ii) to direct a person who provides or is engaged in the provision of the essential service, to provide it to a person specified in the regulation

Notice of an order or direction is served by way of publication in the Gazette or on the NSW legislation website, although personal service may be used. A regulation continues in force until the proclamation giving rise to the regulation is revoked or expires. The regulation may also make contravention of ‘a provision of the regulation ... an offence’.

In addition, under s 10, the Governor in Council may also ‘by order in writing, declare that a state of emergency exists in relation to the essential service’. Such an order can apply to the whole state or a discrete area; and gives a specified Minister authority to issue directions ‘in relation to the essential service concerned’. The order is effective upon making, or on a day specified, ‘continues in force for such period not exceeding 30 days’ and, after being made, must be ‘published in the Gazette or on the NSW legislation website as soon as practicable’.

Under s 11 of the Act, the declaration of a state of emergency allows the authorised Minister to make and publish directions in relation to the essential service. The provisions are similar to those listed above. Clearly the powers available to the Minister are considerable. The Act would allow for employees of the essential service (nurses, doctors, cleaners, etc) to be directed to work during the time of an emergency if such a direction was made. A person who fails to adhere to a regulation or who does not act in accordance with a published direction can be required to pay a penalty of up to 10 penalty units, currently a total figure of up to $1,100.

113 Essential Services Act 1988 (NSW) s 9.
114 The notice can also be personally served (s 8(4)(b)).
115 Essential Services Act 1988 (NSW) s 9(5).
116 Essential Services Act 1988 (NSW) s 9(6).
117 Essential Services Act 1988 (NSW) s 11(3)(a) published in the Gazette or on the NSW legislation website; and [if the direction applies to a specific person] (b) by personal service.
118 Essential Services Act 1988 (NSW) s 29.
119 Crimes (Sentencing Procedure) Act 1999 (NSW) s 117 a penalty unit is $110.
Similar provisions exist in the Northern Territory under the *Essential Goods and Services Act*. Goods are defined widely including in s 2(1)(c) to include ‘any other foodstuff or commodity required for the maintenance of public health or of a service, being a foodstuff or commodity prescribed under s18 as a good for the purposes of this Act.’ A service includes ‘hospitals’ and facilities ‘concerned with the maintenance of public health or a public utility’. Section 18 allows for regulations to be made which ‘prescribe goods or services as goods or services for the purposes of this Act’. A declaration can be made once a shortage ‘is, or is likely to become, less than sufficient for the reasonable requirements of a community’. A declaration can last for up to one month and is renewable. Once the declaration is made the Minister can make a broad range of orders including (in relation to services) to ‘direct persons and bodies to operate and maintain services to the extent and upon the terms specified in the direction’. The notice must be served personally (this is deemed to include by publication in the Gazette). The notice can also be ‘directed to a body or association of persons of a specified class’ in which case it is deemed to have been served on all members of that group.

Unlike in NSW, a person who, in complying with the direction, is unable to attend his normal place of work has protection against ‘dismissal’ and loss of entitlements, even if the absence is without the consent of the usual employer. This protection may be important where employees work for more than one employer. The Act also provides for compensation if a person, complying with a direction, suffers

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120 *Essential Goods and Services Act* (NT) s 2(1)(a)(iii).
121 *Essential Goods and Services Act* (NT) s 2(1)(b)(i) with the possibility to extend (s 2(1)(b)(ii)) the application under s 18.
122 *Essential Goods and Services Act* (NT) s 5(1) by notice in the Gazette.
123 *Essential Goods and Services Act* (NT) s 5(2) and (3). The Minister has to present the notice to the Legislative Assembly within 3 sitting days of publication. The Assembly may revoke the declaration: s 6.
124 *Essential Goods and Services Act* (NT) s 7(2)(d).
125 *Essential Goods and Services Act* (NT) s 16(1).
126 *Essential Goods and Services Act* (NT) s 16(3).
127 *Essential Goods and Services Act* (NT) s (8)(1).
128 This situation arose in Canada where nurses employed by one facility were unable to attend because they became part of the SARS staff in another hospital.
A person, failing to comply with a direction can be fined if found guilty of such an offence.\footnote{Essential Goods and Services Act (NT) s 11(1).  Compensation is payable also for death that occurs in these circumstances: s 11(2).}

In South Australia where circumstances exist (or may exist) that could ‘cause, interruption or dislocation of essential services in the state, the Governor may’ proclaim a state of emergency including a declaration identifying which services are ‘essential’.\footnote{Essential Goods and Services Act (NT) s 1(13).} Under s 4 of the Essential Services Act 1981 the direction ‘may relate to proclaimed essential services generally, or to a particular proclaimed essential service’; ‘may be given to a specified person, or class of persons, or members of the public generally’; ‘may be expressed to be of general application or limited according to time, place or circumstances’; and ‘may impose a restriction or prohibition (which may be absolute or conditional)’. A direction can only be given if it relates to the ‘provision or use of proclaimed essential services’.\footnote{Essential Services Act 1981 (SA) s 3(1).} Failing to adhere to a direction may see an individual fined up to $20,000.\footnote{Essential Services Act 1981 (SA) s 4(3).  A direction can be served personally or via fax or newspaper s 4(4).} A person, who incurs costs as a result of compliance with a direction, can seek recovery of that money (as a debt) from the Minister.\footnote{Essential Services Act 1981 (SA) s 4(5) and a body corporate up to $120,000.}

Where the Minister determines it to be in the ‘public interest to do so’ they can, under s 5 of the Act, provide or assist in the provision of that service, including employing people at ‘not less than award rates’ to undertake duties as required. The Minister can also requisition the use of property during the period of emergency. To protect against profiteering the Minister can set maximum rates for services or goods.\footnote{Essential Services Act 1981 (SA) s 7.} Under threat of a potential fine of up to $5000 it is an offence to intimidate or interfere with or impede a person undertaking duties as part of an essential service.\footnote{Essential Services Act 1981 (SA) s 8.} The governor can make regulations, which can include a fine of up to $500 for a breach or non-compliance.\footnote{Essential Services Act 1981 (SA) s 13.}
Clearly, in New South Wales, South Australia and the Northern Territory it is possible for the relevant authorities to publish decrees which require performance of duties in the time of an actual, or anticipated, state of emergency affecting an essential service. This means that nurses, and other employees of the Government, could be directed to work. In South Australia, persons who interfere with the work of these individuals could be subjected to a fine. None of these Acts prohibit ‘industrial conscription’.

While, by virtue of state government referral, all Victorian workplaces are covered by the *Fair Work Act 2009*, s 27 of that Act provides that state legislation which deals with the ‘provision of essential services or to situations of emergency’ including directions as to work (or not) will be the province of state law. Victoria has passed an *Essential Services Act 1958* although the reach of that Act appears limited to utilities and transport. However, under the Victorian *Public Safety Preservation Act 1958* the Governor in Council can declare a state of emergency, if it is believed that action is being taken, or threatened, ‘by a person or body of persons’ may imperil the ‘public safety or order’. The State of Emergency can exist for one month and is renewable. Once an Emergency is declared under the Act broad regulations can be made:

> for or with respect to securing the essentials of life to the community or any substantial portion of the community; and such regulations may confer such powers and impose such duties ... for the preservation of peace or order, for securing and regulating the supply and distribution of food water fuel light and other necessities, for maintaining the means of transit transport locomotion or other services, and for any purposes essential to public safety or order or the life of the community; and such regulations may contain such provisions incidental to the powers aforesaid as may appear to the Governor in Council to be required for making the exercise of those powers effective.

Although seeking to maintain ‘public safety’, the Act clearly prohibits industrial conscription: ‘[n]othing in this Act shall be construed to authorize the making of any

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139 *Essential Services Act 1958* (Victoria), s 3 definition essential service.
140 *Public Safety Preservation Act 1958* (Vic) s 3(1).
141 *Public Safety Preservation Act 1958* (Vic) s 3(2).
142 *Public Safety Preservation Act 1958* (Vic) can be made by the Governor-in-council under s 5.
regulations imposing any form of industrial conscription’. Would this provision preclude the government from requiring healthcare workers to continue with their duties if the ‘life of the community’ was at risk?

What then is ‘industrial conscription’? In order to consider this the various types of conscription ‘civil’, ‘military’ and ‘industrial’ are illuminating. In *British Medical Association v The Commonwealth*, Latham CJ noted that civil conscription is a concept ‘wider than industrial conscription’ as it would apply in the case of ‘any civilian service, ie non-military, work or service’. Practical compulsion, in that case the use of a particular prescription form, could be sufficient to give rise to civil conscription.

In times of war, the Commonwealth may use the Defence Power to pass legislation compelling individuals, ‘against their will, to serve in any capacity in the armed forces’. Military conscription, in times of war, can be augmented by industrial conscription which may require the forcible ‘transfer [of] laborers from the industries that are unimportant to the fields of production that are imperatively necessary’. Failure to comply with a direction to work may have consequences, including imprisonment.

In *Reid v Sinderberry*, the NSW Supreme Court determined that (in the time of war) a regulation under the *National Security Act 1939-1943* (Cth) requiring individuals to work for a particular employer was too broad, akin to slavery or serfdom. The High Court disagreed:

> The generally willing subjection of the people as a whole in a time of grave national crisis to control in respect of their occupations by public authorities acting under law as authorized by the Commonwealth Parliament is not, in our opinion, properly characterized as amounting to a condition of serfdom .... It is true, however, that a power so far-reaching is capable of great abuse.

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143 *Public Safety Preservation Act 1958* (Vic) s 7.
144 (1949) 79 CLR 201.
145 Ibid, [72].
146 *Reid v Sinderberry* (1944) 68 CLR 504, per Latham CJ, McTeirnan J, 512.
148 *Ex parte Sinderberry, Re Reid* (1994) 44 SR (NSW) 263.
149 *Reid v Sindeberry*, above n 146, 510.
The applicant had argued that regulation 15\(^{150}\) was contrary to the Act where section 5(7) stated ‘[n]othing in this section shall authorize the imposition of ... any form of industrial conscription’. The High Court found s 5(7), enacted in 1934, was overturned by section 13A which was added in 1940. Section 13A provided that ‘[n]otwithstanding anything contained in this Act the Governor-General may make ... regulations’ and this rendered section 5(7) defunct.

It is arguable that a person already employed is simply being required to continue with their duties are not being ‘conscripted’ if directed to work. Yet, as the Act currently provides for a penalty (a fine of ‘not more than $200 or to imprisonment of ... not more than 3 months or to both’\(^{151}\) if they refuse, an order to work under that Act could be seen as industrial conscription. If this is the case, the *Public Safety Preservation Act 1958* (Vic), unless amended, may be of little practical value if workers refused to work during a pandemic.

All persons employed by a corporation are employees under the national (*Fair Work Act 2009*(Cth)) scheme. Therefore individuals employed by private hospitals are national sector employees. The national scheme operates to the exclusion of all state and territory workplace relations laws.\(^{152}\) However, the *Fair Work Act 2009* provides that state laws which:

\[... \text{relate to provision of essential services or to situations of emergency; \} \]

(i) directions to perform work (including to perform work at a particular time or place, or in a particular way);

(ii) directions not to perform work (including not to perform work at a particular time or place, or in a particular way),\(^{153}\)

are not excluded from the operation of the *Fair Work Act*. If there is a power, as appears to be the case in New South Wales, South Australia and the Northern Territory, to declare the services of a private hospital as necessary to ensure the safety of the community, then these state laws could potentially apply to those workers.

It is apparent that state legislation gives some jurisdictions the power to direct the delivery of services and, given the general role of the states to make laws for the

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152 *Fair Work Act 2009* (Cth) s 26(1).
153 *Fair Work Act 2009* (Cth) s 27(2)(k).
‘peace, welfare and good government’ it would be possible for other states to pass similar statutes. If such legislation is to be of maximum value it would be best for it to be uniform and consistent across jurisdictions. The potential benefit lies in the possible wide reach of like legislation to cover services deemed to be ‘essential’, which may include non-public sector employees. However, public sector employees (particularly in health) should be reminded of the particular obligations that arise because of their public sector employment which is linked to protecting the ‘public interest’ and ‘serving the public’. This could be done by way of regulation or local based policies and, to have any effect, would need to incorporate appropriate penalties — which could include a period of exclusion from public sector employment if an employee refused to work during the time of a health emergency such as an influenza pandemic.

IV CONCLUSION

While essential services legislation may be of value, and could potentially be expanded to all jurisdictions, a common point in the hospital sector is the statutory scheme setting up public hospitals. This legislation stresses the role these organisations play in providing services to the public. Employees within public hospitals are obliged to adhere to codes of conduct. Public sector employees have employment protections that do not apply in the private sector and it is arguable that this benefit comes with additional responsibilities. As each state and territory public sector has a code of conduct and/or ethics, clear statements could be generated to remind employees of their particular obligations to ‘serve the public’ and protect the ‘public interest’.

A statement of work expectation could be circulated by way of a ministerial directive or policy and would need to be tailored to the particular code of each jurisdiction. As a breach of the code may lead to the imposition of sanctions (which could include termination of employment) employees could be warned that a failure to attend work (without a lawful excuse) during an influenza pandemic may see their employment bought to an end.

Public sector employees who refuse to work during an influenza pandemic should be provided with advice and education about the nature of an influenza
outbreak. They should be reminded that they face contracting the virus in the community — particularly if they have children in the home; and that (completely unrelated to their hospital employment) family members will be exposed to the disease. They should be reminded of the importance of their role. If alternative duties are available, within the scope of their usual duties, they should be offered an opportunity to work elsewhere.

If, despite being provided with education and an opportunity to consider their position, an employee fails to uphold the expectations of the code as expressed in policy, resulting in their dismissal, it is suggested that consideration be given to imposing some further limitations on options for review, perhaps even restricting dismissed workers from being entitled to seek public sector employment for a set period of time. This would not be a restraint of trade (as might be the case under the MSEHPA where a professional could lose their right to practice) as the healthcare worker could still find employment in the private sector. The advantage of an approach grounded in code-based and statutory provisions to ‘serve the public’ would mean that all public sector healthcare workers across Australia would be treated the same. Should a public sector employee refuse to work they are not only failing to obey a lawful and reasonable instruction of their employer but are also failing to uphold the principles expected of a public servant.

Chapter 6 will consider whether, as in 1918, the nurse workforce would need to be augmented by the use of volunteers or whether there is today a pool of registered nurses who might be willing to work.

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154 As is the case in Tasmania following a voluntary or targeted redundancy where people are excluded from state sector employment (including consultancy work) for a period of time equal to the weeks of payment made under the redundancy: http://www.dpac.tas.gov.au/divisions/ssmo/Managing_Positions_in_the_State_Service/targeted_and_negotiated_voluntary_redundancies last accessed 1 June 2016.
Chapter 6
NURSE WORKFORCE

I INTRODUCTION

As explained in chapter 3, at the time of the 1918 pandemic the nurse hospital workforce was almost exclusively made up of young women engaged in a period of ‘on the job’ training. Very few hospital nurses were qualified. The vast majority were effectively indentured servants undertaking their training. In a time when public hospitals existed primarily as charitable institutions, large numbers of trainees helped to keep costs low.

This chapter considers the nursing workforce in 1918 where most job opportunities for the newly trained nurse existed outside the hospital environment. The majority of qualified nurses were employed in private homes, and as proprietors of small private hospitals. In addition many had travelled overseas as part of the war effort. As a result, the pool of extra nursing staff to call upon in the time of that influenza pandemic was very small. Consequently, when hospital presentations increased, volunteers were engaged to supplement the workforce.

Volunteers were primarily used to care for non-influenza patients as, before professional regulation, any person could take on a nursing role. Today the nursing workforce is subject to significant regulation, and advances in medical care mean that nurses require considerable technical expertise. Nowhere is this more apparent than in critical care areas. As such, in the event of a pandemic influenza outbreak, the widespread use of volunteers is unlikely. While the potential use of volunteers is considered here, it is argued that expanding the qualified nursing workforce will be a better option in a time of pandemic.

During a contemporary influenza pandemic, the primary need will be to ensure adequate numbers of nursing staff who are capable of taking care of patients with severe respiratory and multi-organ failure. Unlike 1918, today a pool of qualified nurses exist who (during a pandemic) could be approached to return to the workplace.
Making a comparison between the nurse workforce in 1918 and 2016 is useful because it reveals that the different circumstances of that time, which resulted in acute nurse shortages, no longer exist. Fortunately, in 2016, the qualified Australian nurse workforce has capacity to meet patient needs during a sustained public health emergency such as a pandemic.

A Hospitals versus home care

At the turn of the twentieth century if people could afford to pay for a private nurse then even the most serious cases ‘(including infectious diseases) were nursed in homes’. Public hospitals were poorly regarded, with ‘most people prefer[ing] care in any sort of private institution’. Charitable public hospitals were for those who did not have family to care for them or the capacity to pay for care. Even during the year of the pandemic the majority of people died at home. By 1919 Australia had 347 ‘institutions’ (general hospitals) with a total of 17,390 beds for a population of around 5 million. Only 46 of these were identified as government run. Many private hospitals, including small (or cottage) hospitals, also served the population.

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1 Dorothy Armstrong, *The First Fifty Years: A History of Nursing at the Royal Prince Alfred Hospital Sydney From 1882 to 1932* (Roden Print, 1982), 57.
3 In 1919 around 24% of deaths occurred in hospital: ‘1301.0 - Year Book Australia, No. 13, 1920’ (Commonwealth Government, 1921), s 5 ‘vital statistics’, 165 and Year Book 1922 Section XXIV ‘Public Benevolence’, 786.
4 Early Australian hospitals were either run by charitable organizations or, with some government subsidies, supported by wealthy residents. Patients paid according to their means and the medical profession admitted patients on a service for fee basis (plus an accommodation payment to the hospital). The ‘right’ for medical staff to admit patients was balanced by the fact that they agreed to provide free (so called ‘honorary’) services for public patients. Anne Crichton, *Slowly taking control? Australian governments and health care provision 1788-1988* (Allen & Unwin, 1990) esp Chapter 1, 11-23 and Chapter 2, 24-31; Sax, above n 2, 21-28.
5 These were ‘ordinary beds’ and additional accommodation (‘for certain classes of cases’) might be created by use of verandahs and other outside spaces: ‘1301.0 - Year Book Australia, No. 14, 1921’ (Commonwealth Government, 1922). Section XXIV ‘Public Benevolence’, 834.
7 Year Book above n 5, Section XXIV ‘Public Benevolence’, 833.
It has been said that ‘nurses trained, at this time, primarily for the purpose of becoming trained nurses for private nursing’. It is clear that, in the early twentieth century work opportunities for trained nurses in the hospital sector were very limited. Yet, as historical accounts of nursing tend to capture histories of work in large organizations, the role of the nurse as an independent worker is often overlooked. Madsen suggests that, particularly prior to 1920, the importance of private nursing in Australia has been vastly understated. By 1915 trained nurses made up only 19.55 per cent of Victorian hospital nurse employees. During a major public health emergency, a small trained nurse workforce distributed across private homes is not an efficient way to provide care for large numbers of patients.

Today, hospitals are a central part of the Australian health system and, despite most people stating a preference to die at home, 54 per cent of deaths occur in hospital. In 2013-14 there were 747 public and 612 private hospitals with an estimated 86,000 beds — the bulk of which (58,600) are found in the public sector. The services provided by hospitals vary, not all have overnight beds and around 71 per cent, have less than 50 beds. Across Australia there are 103 (level III) intensive care units. The ability of private hospitals to accommodate seriously ill patients is likely

9 Armstrong, above n 1, 57.
10 In part because that is where information can be readily sourced: for example: ibid; Sheryl Brennan, Contradictory Stories: an oral history of a group of 1960’s nursing students (School of Nursing and Midwifery, University of Tasmania, 2006); Isadore Brodsky, Sydney’s Nurse Crusaders: A Century of Trained Nursing in Sydney (Old Sydney Free Press, 1968); Helen Gregory, A Tradition of Care (Boolarong Publications, 1988); Cordelia Maylean, Nurses at Little Bay (Prince Henry Trained Nurses’ Association, 2nd ed, 1990).
13 14 per cent of people die at home. 32 per cent of deaths occur in residential aged care. The increased prevalence of hospital deaths has been considered by others including: Hal Swerissen and Stephen J Duckett, ‘What can we do to help Australians die the way they want to?’ (2015) 202(1) The Medical Journal of Australia 10; Atul Gawande, Being Mortal: Illness, Medicine and What Matters in the End (Profile Books, 2015).
15 Ibid, chapter 3.
16 AIHW, n 14, 26. There are more intensive care units in Australia than the 103 level III units. Levels I and II units can also provide intensive care although level I units may have limited capacity to provide long term care: http://meteor.aihw.gov.au/content/index.phtml/itemId/327234 last accessed 16 June 2016.
to be limited by the fact that (except for some large private hospitals) medical staff are rarely rostered over a 24 hour day.\textsuperscript{17} The re-assessment of deteriorating patients, and corresponding changes to medical treatment, requires on-site medical staff. So maintaining adequate nurse staffing of public hospital beds is particularly important.

Since 1990, when transfer of nurse education to the Australian university sector was completed,\textsuperscript{18} hospitals have fully qualified nursing staff.\textsuperscript{19} Compared to their 1918 counterparts, few nurses now work independently and nurses comprise 45 per cent of the total public hospital workforce.\textsuperscript{20} Nurses in 2016 are much older, with the average Australian nurse 44.4 years of age, with 39 per cent of the group aged over 50 years.\textsuperscript{21} While during the 1918 pandemic nurses worked 12 hour days without days off for months at a time, in 2014 the average nurse worked 33.5 hours a week and 48.8 per cent work part time.\textsuperscript{22} The fact that so many nurses now work part time may prove valuable during a pandemic.

\section*{II Other issues impacting on care delivery (1918)}

The state of the hospital system, distribution of beds and lack of qualified nurses was not the only problem in 1918. Travelling across the city and between households to provide care would have been difficult as motor vehicles were uncommon (with only 20,000 across all of NSW—most being used for business).\textsuperscript{23} Calls were made for private vehicles to transport independently employed nurses who were ‘visiting up to 50 cases per day, on foot’.\textsuperscript{24} To meet public demand various private ambulances were brought into a central response system under the department of health, while special

\begin{footnotesize}
\begin{itemize}
\item[17] In 2013-14 2 per cent of private hospital employees were salaried medical staff. Nurses made up to 57 percent of the private hospital workforce: ibid, 53.
\item[20] Ibid, medical staff in the public sector are around 13 per cent of the workforce, 47.
\item[22] The average hours worked varied slightly across states http://www.aihw.gov.au/workforce/nursing-and-midwifery/work-characteristics/ last accessed 11 June 2016. A comparatively small number of nurses work part time in more than one nursing job.
\item[23] ‘Motorists’ Protest’, \textit{The Sydney Morning Herald}, 2 September 1918, 8.
\end{itemize}
\end{footnotesize}
Tramcar arrangements were made to transport patients to The Coast hospital.\textsuperscript{25} Other items taken for granted today, such as home telephones, were not commonly available which made it difficult for people to call for assistance.\textsuperscript{26}

\textbf{B Hospital occupancy rates}

In the 1918 pandemic, the pressure on the hospital system was immense. Given the lack of beds (many distributed in very small private hospitals), temporary emergency beds were organised. However the capacity to expand services was limited because of the lack of nurses.\textsuperscript{27} It was also a time when hospital stays could be lengthy.\textsuperscript{28}

Australia now has more hospital beds, including several large public hospitals. Transport of people between facilities is comparatively easy, while communication (by mobile phones and internet) allows for co-operation between facilities. Telephones and video-conferencing technologies allow practitioners in remote areas to receive advice. Yet, even under ‘normal’ conditions the Australian health system operates with high bed occupancy rates and even small increases in patient numbers can produce problems.\textsuperscript{29} During the 2009 pandemic, patient presentations increased by ‘less than 0.1\% of yearly admissions and bed days,’ which caused strain on the hospital system.\textsuperscript{30} Intensive care units were particularly busy.\textsuperscript{31}

There is potential to expand available hospital beds by cancelling non-urgent surgeries or transferring less acute patients to the private sector. These tactics were

\begin{itemize}
  \item [\textsuperscript{25}] Ibid, 158.
  \item [\textsuperscript{26}] A system of cards in windows asking for food, medical assistance etc was developed: Robyn Arrowsmith and Athol Yates, \textit{A Danger Greater Than War: NSW and the 1918-1919 Influenza Pandemic} (Homeland Security Communications Groups, Australian Homeland Security Research Centre, 2007), 23.
  \item [\textsuperscript{28}] Hospital stays during the pandemic were long, see the recommendation for ‘two weeks of toiletries’ Chapter 3, part III, II above, for nurses requiring hospitalisation.
  \item [\textsuperscript{29}] Bed occupancy refers to the number of hospital beds occupied over a 24 hour period. Some hospital beds (emergency room, operating suites (including recovery), delivery suites) as well as aged residential, community and respite care beds are excluded from this calculation, see ‘Annual Report 2008-09’ (NSW Department of Health, 2009), note 5, 259.
  \item [\textsuperscript{30}] Peter Collignon, ‘Swine flu: lessons we need to learn from our global experience’ (2011) 4 \textit{Emerging Health Threats Journal}, 7169 - DOI: 10.3402/ehtj.v4i0.7169.
  \item [\textsuperscript{31}] Ibid.
\end{itemize}
partly implemented during the 2009 pandemic. Patients can also be deflected away from hospital settings. For example, the use of nurses to visit private homes to assess patients (as a form of pre-medical triage) might be of benefit, as the ‘worried well’ caused considerable problems for GP services during the 2009 pandemic. Nurses, including those who are work-injured or at a higher risk of influenza complications, could answer telephone hotlines. Hotlines were valuable (but overwhelmed) during 2009. These measures might reduce patient admissions but would require significant resources to implement. Further, hospitals would still experience high occupancy rates with seriously ill patients increasing demand for nursing care. All of these factors would place great strain on the existing nursing workforce.

During the 1918 pandemic, although the mortality rates of nursing staff were similar to the wider population, around 30 to 50 per cent of the nurse workforce required sick leave. It can be reasonably predicted that the need for replacement staff during a modern pandemic is likely to be high. Further, unlike their 1918 counterparts, many nurses today have children (or care responsibilities) and may need to take personal leave to care for family members. Therefore the issue, which will be explored below, is whether the local nursing workforce can be increased at short notice in the event of a pandemic.

33 It has also been suggested that ambulance paramedics could provide advice and direction other than treatment followed by automatic transfer of the patient to hospital: Peter O’Meara et al, The rural and regional ambulance paramedic: moving beyond emergency response-report to the Council of Ambulance Authorities Inc. March 2006 (Charles Sturt University, School of Public Health, 2006); Mark Chilton, ‘A brief analysis of trends in prehospital care services and a vision for the future’ (2012) 2(1) Australasian Journal of Paramedicine 5.
35 See chapter 3 ‘Influenza mortality rates 1918 and health care workers’.
36 Even during 1919 nurses were sometimes relieved from their duties to return home to care for sick family members: Judith Roddick, ‘Delirium and fever in the antipodes’ (2006) II(4) Journal of Research in Nursing 357, 362 and 368.
37 Care responsibilities are often seen to be the responsibility of women. Nearly 90% of the nurse workforce is female which may lead to conflict between professional and personal obligations. See eg Tracey O’Sullivan et al, ‘If schools are closed, who will watch our kids? Family caregiving and other sources of role conflict among nurses during large-scale outbreaks’ (2010) 24(4) Prehospital and Disaster Medicine 321; cf Julie Considine et al, ‘Pandemic (HINI) 2009 Influenza in Australia: Absenteeism and redeployment of emergency medicine and nursing staff’ (2001) Emergency Medicine Australasia doi: 10.1111/j.1742-6723.2011.01461.x.
C Early nurse registration

Today, it is not possible to work as a nurse without a valid registration certificate but this was not the case during the early twentieth century. Early Australian nursing associations agitating for regulation had two primary objectives: ‘authentication of properly trained nurses and protection of the public’; objectives that remain current today. Nurses satisfying the training requirements could identify as ‘registered nurses’. The independent nature of nursing work was a major factor behind a move toward regulation to ensure that a person employing a nurse would receive a minimum standard of expertise.

State based regulation of Australian nurses occurred at different times. With the exception of Queensland, which first regulated nursing in 1911, nurses were not regulated at the time of the pandemic. The initial Bill proposing regulation in NSW was presented to parliament in 1909, although not enacted until the Nurses Registration Act 1924. Victoria had passed similar legislation in 1923. The passage to state based registration was not easy but, by 1927, all states had a registration system in place for nurses and midwives. Registration is now national.

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38 It is an offence under the Health Practitioner Regulation National Law Act 2009 (Qld) s 113 to claim to be a nurse without holding the relevant qualification.
39 The Australian Trained Nurses Association (ATNA) and the Victorian Trained Nurses Association (VTNA).
40 Brodsky, above n 10, 86. See also Mary Dickenson, An Unsentimental Union: The NSW Nurses Association 1931-1992 (Southwood Press, 1993), esp Chapter 1 Australia’s first nurses association, 17-32; Trembath and Hellier, above n 12, Chapter 2 The Association as Unofficial Registration Authority, 1901-1914, 39-71.
41 Trembath and Hellier, above n 12, 43-4.
42 The Health Act Amendment Act 1911 (Qld) ss 82-92 introduced a system of nurse registration. This was replaced by the Nurses and Masseurs Registration Act of 1928.
43 Nurses Registration Act 1923 (Vic).
44 For example, see the Victorian Account: Maureen Kathryn Minchin, Revolutions and Rosewater: The Evolution of Nurse Registration in Victoria, 1923-1973 (Hart Hamer, 1980).
45 Nurses Registration Act 1920 (SA); Nurses Registration Act 1921 (WA) and Nurses’ Registration Act 1927 (Tas).
II FROM STATE TO NATIONAL REGISTRATION

Prior to July 2010 nurses, like other health professionals, were regulated at the individual state or territory level.\textsuperscript{46} If a practitioner wished to work in more than one state, they needed multiple registrations: a process that could be time consuming and costly. Multiple registrations also made it difficult to accurately determine the number of Australian practitioners.

In July 2010 a national registration scheme of Australian health professionals was introduced.\textsuperscript{47} The \textit{Health Practitioner Regulation National Law Act 2009} (Qld) (\textit{National Health Law}) is enacted as schedule 1 of the Queensland Act. At first, ten professions, all previously regulated at state level, entered the national scheme: nursing and midwifery, medical, dental, chiropractic, osteopathy, optometry, physiotherapy, pharmacy, podiatry and psychology. The Australian Health Practitioner Regulation Agency (AHPRA) supports each of the, now 14, national professional boards.\textsuperscript{48} The register is publically available and lists the name of the qualified practitioner, their primary practicing location, date of first registration and relevant qualifications.\textsuperscript{49} The register allows someone to immediately confirm that a practitioner holds a current practicing certificate and whether any restrictions have been imposed.\textsuperscript{50}

\begin{footnotesize}
\begin{enumerate}
\item Acts in force (covering Nurses and Midwives) immediately before adoption of the \textit{Health Practitioner Regulation National Law Act 2009} (Qld) (\textit{National Health Law}) were: Nurses Act 1988 (ACT); Nurses and Midwives Act 1991 (NSW); Health Practitioners Act 2004 (NT); Nursing and Midwifery Practice Act 2008 (SA); Nursing Act 1995 (Tas); Nurses and Midwives Act 2006 (WA); Nurses Act 1993 (Vic).

\item Louise Morauta, ‘Implementing a COAG Reform Using the National Law Model: Australia’s National Registration and Accreditation Scheme for Health Practitioners’ (2011) 70(I) \textit{Australian Journal of Public Administration} 75. Individual jurisdictions passed: Health Practitioner National Law Act 2010 (ACT); Health Practitioner Regulation National Law Act 2009 (NSW); Health Practitioner Regulation National Law Act 2010 (NT); Health Practitioner Regulation National Law Act 2010 (SA); Health Practitioner Regulation National Law Act 2010 (Tas); Western Australia was late to join the system, doing so in October 2010: Health Practitioner Regulation National Law Act 2010 (WA).

\item Aboriginal and Torres Strait health workers along with Chinese Medical practitioners, radiographers and occupational therapists were added as of 1 July 2014.


\item If deemed necessary to ‘protect the public’, Boards can implement restrictions or conditions on a practitioner.
\end{enumerate}
\end{footnotesize}
One major benefit of the national scheme is the capacity to ‘mobilise practitioners in response to major public health threats’. In a localised outbreak of disease, interstate workers could be diverted to provide immediate assistance. The capacity to move workers could be invaluable, particularly when specialist services (for example critical care nurses) are required.

From March 2012 all registered healthcare workers have had a single registration number which stays with the practitioner for life. Administratively a single registration number should make the process of reactivating registration easier. Reactivation of registration may be necessary during a public health emergency, as this would allow for augmentation of the health workforce. Reactivation of professional status will be considered shortly. Prior to exploring that question the role of the Board is considered.

III ROLE OF THE NMBA

Each national board is responsible for ensuring that the public are not placed at risk by the actions of a regulated professional. Nurses are professionally responsible to the Nursing and Midwifery Board of Australia (NMBA). A practitioner is eligible for general registration provided that they are: appropriately qualified; a ‘suitable person’; not ‘disqualified’ from making an application; and meet ‘any other requirements … stated in an approved registration standard ….’

There are several factors which may make a person ‘unsuitable’ to hold general registration, including significant impairment (mental or physical); a criminal conviction; insufficient competency in English; or conditions on registration imposed (or pending) elsewhere. In addition, a person may be ineligible for registration if the ‘nature, extent, period and recency of any previous practice’ are deemed insufficient to meet the relevant ‘approved registration standard’. Finally a person may be unsuitable

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52 For example, fire-fighters are not regulated. Where a state faces an extreme fire danger interstate fire-fighters can be mobilised: Helen Kempton, ‘Cavalry flies in to support firies’, Mercury (online), 16 February 2016.
54 Section 52(1) of the National Health Law 2009, see n 47.
55 National Health Law 2009 s 55(1).
because they fail to meet an ‘approved registration standard’ or, in the opinion of the relevant Board they are ‘not a fit and proper person’ or not able ‘to practise the profession competently and safely’.

The NMBA has published a number of registration standards including English language, criminal history and recency of practice. Each standard needs to be satisfied in order to achieve (or maintain) general registration. A registrant must demonstrate they have worked, as a nurse, for ‘a minimum of 450 hours’ in the preceding five years and completed an annual minimum of 20 hours of Continuous Professional Development. Nurses, who do not wish to work for up to 12 months, can apply for a ‘non-practising registration’. A nurse can surrender their registration. Registration will lapse if the annual fee is not paid.

Professional codes of conduct and ethics applying to nurses and medical staff are sometimes seen as ‘aspirational’ rather than binding. However, under the Australian National Health Law, codes and guidelines ‘provide [professional] guidance’ to the practitioner and an approved code is ‘evidence of what constitutes appropriate professional conduct or practice’.

57 Ibid, the 450 clinical hours can be spread over the five year period.
58 Ibid.
60 National Health Law 2009, s 137.
63 National Health Law 2009, s 39(1).
64 National Health Law 2009, s 41.
If the action(s) of a health professional potentially constitute ‘a significant departure from accepted professional standards’ then, under the National Law, this is conduct which must be reported by another health professional or an employer. Given this is a mandatory requirement ‘[t]he threshold required to trigger the requirement to report notifiable conduct … is high and the practitioner or employer must have first formed a reasonable belief that the behaviour constitutes notifiable conduct’.

In the alternative, behaviour considered inappropriate, although falling short of ‘notifiable conduct’, can be raised via a voluntary notification. If an investigation determines a regulated health professional failed to uphold the professional codes, this could potentially lead to the imposition of a professional sanction. The employer may report a practitioner to the NMBA but the decision as to sanction, if any, lies with the NMBA. Many sanctions (reprimand, caution or even conditions) will not prevent the practitioner from continuing to be employed in their profession. If the matter is found to be sufficiently serious as to constitute professional misconduct the matter must be referred to a tribunal. It is at the tribunal level that a finding could lead to revocation, or suspension, of registration, meaning the practitioner could no longer work in the profession.

Although enforceable the codes provide little in the way of clear advice in the context of an infectious disease outbreak. Under the Code of Professional Conduct

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65 National Health Law 2009, s 140(d).
66 National Health Law 2009, ss 141 (health practitioner), 142 (employer).
68 National Health Law 2009, s 144.
69 Sanctions range from a reprimand, accepting an undertaking or conditions imposed on registration (National Health Law 2009 s 178(2)).
70 Under s 5 of the National Health Law 2009, Professional misconduct is defined as being: ‘(a) unprofessional conduct … that amounts to conduct that is substantially below the standard reasonably expected of a … practitioner of an equivalent level of training or experience; and (b) more than one instance of unprofessional conduct that, when considered together, amounts to conduct that is substantially below the standard reasonably expected of a … practitioner of an equivalent level of training or experience; and (c) conduct of the practitioner, whether occurring in connection with the practice of the health practitioner’s profession or not, that is inconsistent with the practitioner being a fit and proper person to hold registration …’.
72 National Health Law 2009, s 196(2)(d)&(e).
nurses are required to ensure that they ‘maintain and build on the community’s trust and confidence in the nursing profession’. Obviously a failure to attend work and provide care during a pandemic could clearly impact upon trust of the community. Yet the code of ethics reminds nurses that they ‘have a moral and legal right to practice in a safe environment, without fear for their own safety or that of others’. While it has been argued that the health worker is not at a significantly higher risk of infection (or death) when working during an influenza pandemic, an increase in workloads may cause the nurse to fear that they are unable to care safely for patients, particularly if additional suitably qualified and experienced staff cannot be found. Of course failure of some individuals to work would further increase the risks, to patient and staff, and lead to additional stress for staff remaining at work.

As a public sector employee, a nurse has an obligation to undertake their duties to the best of their ability as well as in accordance with the codes and guidelines issued by the NMBA. A nurse who refuses to work during an influenza pandemic could be sanctioned by their employer and potentially also by the NMBA. By way of fact sheet or general statement, the NMBA could of course clarify this expectation that workers will continue to work during a pandemic. The difficulty here lies in ensuring that nurses continue to work during a pandemic without reverting to the kind of sanctions like de-registration or termination that would paradoxically lead to fewer nurses being available. But what about mobilising those nurses who are outside the health sector during times of influenza pandemic? For this purpose, some form of easily accessible temporary registration is needed.

A Limited registration in the Public Interest

The National Law allows a Board to provide an applicant with limited registration including ‘limited registration in the public interest’. In the explanatory notes accompanying the Bill, this provision is said to be for the purposes of providing

73 Statement 9 Code of Professional Conduct for Nurses in Australia, NMBA.
74 Statement 6, Code of Professional Ethics for Nurses in Australia, NMBA.
75 As discussed in chapter 4.
76 National Health Law 2009, s 65. This includes registration for training or supervised practice (s 66); limited registration for area of need (s 67); registration for teaching or research (s 69); limited registration can only be held for one purpose (s 71).
77 National Health Law 2009, s 68.
additional resources ‘[f]or example, in an unexpected situation where a natural disaster has occurred, or a pandemic was declared, and health practitioners were urgently needed’.

The period of limited registration is not more than 12 months although may be renewed up to 3 times. The relevant provision provides that the registration can be for a limited time or scope, provided it is ‘in the public interest’ to do so.

Nurses who are not entitled to general registration (for example students or those who have been out of the profession for more than 5 years) may be eligible for such a limited registration. This registration is likely to include conditions upon their scope of practice. The NMBA has not yet addressed this issue. The Medical Board has produced an application form, but it is unlikely to lend itself to genuine fast track registration (and, indeed, that does not seem to be its goal). The form is 14 pages long. As with the application for general registration, many questions require the provision of additional information. For example, question 36 requires a ‘detailed statement and/or other documentation confirming why it is in the public interest to grant this application’ and a prospective employer needs to complete part C in order for the application to be accepted. It appears that this form is mainly for the use of international applicants never before registered in Australia.

Had Australia been faced with an outbreak of SARS, where the illness was contained to a relatively small number of global areas, a limited registration ‘in the public interest’ (as appears to be contemplated by the Medical Board) might have been of some use if medical specialists with experience in managing the disease agreed to fly to Australia to offer advice. However, the use of technologies (such as video-conferencing) means advice can be provided in real time without a professional needing to leave home. ‘Limited registration in the public interest’, for the purposes of attracting international applicants during an influenza pandemic, is not likely to be of

78 Health Practitioner Regulation National Law Bill 2009 Explanatory Notes, 49.
79 National Health Law 2009, s 72(1).
80 National Health Law 2009, s 72(3). Although the application cannot be renewed more than 3 times, it is possible for the professional to make a new application for limited registration.
81 National Health Law 2009, s 68.
82 Application for limited registration in the public interest as a medical practitioner (ALPI-03) while the form enabling Application for general registration as a Medical Practitioner (AGEN-03) is only 10 pages.
value given the health emergency will be global rather than local. However, a shortened and pandemic-specific application form might be of value for the purposes of allowing local practitioners to re-enter the health workforce with a limited registration.

In the time of an influenza pandemic it would be possible to generate a short form enabling an individual to request limited registration. If there was a shortage of health professionals, the ‘public interest’ is likely to be satisfied in the granting of registration. There are two categories of people who may be eligible. The first being individuals who, in the four years before their registration lapsed, were of good standing. These individuals may also be eligible to seek general registration (if they satisfy the recency of practice and CPD requirements). If they do not meet those standards an application for limited registration could require a support statement from a registered professional who could attest to the competence of the individual when they were last in the workplace. The second category is any person last registered over 5 but less than 10 years ago (so not eligible for general registration). Registration may come with conditions (which could be pre-determined) such as a requirement to work under supervision of a registered nurse. As the limited period registration period is going to be for a short time (12 months or less), consideration should be given to a reduced (if not waived) registration fee.\(^83\)

There are also other options for expanding the regulated nurse workforce. These might be given precedence because they are capable of delivering the required boost of experienced nurses to the workforce.

**B Reactivation of registration**

The primary purpose of the regulation of health professionals is to ‘protect the public’.\(^84\) While this mandate will not change during a pandemic, faced with a widespread medical emergency, the NMBA may be prepared to be more flexible with registration criteria. One major advantage of the centralised national system is that it is now possible to identify, with a high degree of accuracy, the number of nurses

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\(^83\) The annual registration fee for a nurse is $150 as of May 2016.

\(^84\) Which includes registration, the promulgation of standards, audits, investigating complaints and education: [http://www.ahpra.gov.au/About-AHPRA/What-We-Do.aspx](http://www.ahpra.gov.au/About-AHPRA/What-We-Do.aspx) last accessed 5 March 2016/
registered in Australia. This information is regularly updated, with 98 per cent of all health care practitioners completing the annual online workforce survey in 2014/15.\(^8^5\)

The high response rate means there is an accurate picture of the numbers of health professionals. It also demonstrates that a high proportion of the workforce is computer literate so the NMBA is likely to have email contacts for practitioners.

In 2015, there were 360,008 nurses (registered and enrolled) and midwives on the register.\(^8^6\) Nurses, currently not employed in nursing, fall into 1 of 4 categories:

a) Registered but not working as a nurse
b) Holding a non-practicing registration
c) Registration ‘lapsed’ by non payment OR surrendered; or
d) Students of nursing

1 Registered but not working as a nurse

This category of nurse is already registered and therefore eligible to work as a nurse. However, for personal reasons they have chosen not to. In the alternative they may want to work but have been unable to obtain employment. Provided they meet the requirements of 450 hours of practice in the past 5 years\(^8^7\) and the CPD criteria of 20 hours per year, and satisfy the ‘approved registration standards’\(^8^8\) they are able to work. The NMBA may be prepared to waive, or alter, some of these requirements during a pandemic.

Every year a survey is undertaken of registrants. In 2015, 8,930 people on the register were actively seeking nursing work.\(^8^9\) A further 14,981 were taking a period of leave of 3 months or longer.\(^9^0\) Finally 28,993 people were not in the nursing workforce,\(^9^1\) with a further 29,437 registrants working but not in clinical roles.\(^9^2\)

\(^{86}\) AIHW Nursing and Midwifery Workforce 2015 (2016)
\(^{88}\) A nurse provides an annual declaration confirming they meet the standards. Random audits are undertaken by AHPRA.
\(^{89}\) AIHW, above n 86.
\(^{90}\) Ibid.
\(^{91}\) Ibid.
\(^{92}\) Ibid.
It appears that, unlike the situation in 1919 when qualified nursing numbers were already low and further depleted because of the war effort, today there is a considerable pool of registered nurses to approach in the context of a pandemic. The easiest way for this approach to be made would be by direct email from the NMBA outlining the public health emergency and asking if the individual if they would be prepared to re-enter the workforce.

II Holding non-practising registration

Nurses holding non-practising registration are registered but have formally advised the NMBA that they do not intend to work as a nurse. This group is not required to complete any CPD hours. Nurses may only hold this form of registration for ‘up to’ 12 months, so anyone/all in this category would be eligible to make an application to have their practicing certificate restored. The single registration number should mean that a ‘fast track’ approach to re-registration could be implemented. As of June 2015 there were 5,561 nurses (registered or enrolled) and midwives who held a ‘non-practising’ registration.

III Registration has lapsed/been surrendered

During a pandemic, nurses who have been out of practice for longer than 5 years may be prepared to reactivate their registration. Nurses who have lost, or voluntarily surrendered registration because of concerns relating to their competence and/or health, would be no doubt be excluded from reapplying for general registration although they may be able to be utilised (and registered specifically for this purpose) in a non-clinical role. As discussed above this registration could be in a ‘limited’ category.

C Increasing the professional workforce

For nurses in groups (a) and (b) there is no prohibition on them working as a nurse and they could immediately seek employment. As AHPRA encourages nurses to have

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93 AHPRA above n 85, 5. The majority (3,845) were registered nurses.
94 Depending on the circumstances of their registration being ‘lost’ a nurse may be able to practice with restrictions but this would be a matter for the Board to consider – in light of the obligation to protect the public. They might be able to have a role with limited direct clinical care responsibilities: for example on a phone line or offering advice/pre-assessment in a GP surgery.
an email address, a generic email could be sent to those in the non-working category, asking if they would be prepared to consider re-entering the workforce on a temporary basis because of the public health emergency. This email might not reach all non-working nurses but would find a large percentage of them. Leaving aside the 14,981 nurses who are having a period of leave from nursing, there is still a pool of 37,923 (those not working + those seeking work) of potential workers. Not all will want to work, many may be unable to work, some might work part time. So there is considerable potential for expansion of the workforce within this group alone. However there are also two other groups that might be mobilized.

I Retirees

As the nurse workforce continues to age there will be more nurses who have recently retired. If they were prepared to re-enter the workforce, for the purposes of service delivery it would be particularly useful if they could return to the workplace from which they had retired, as they will have knowledge about the physical layout of wards, requirements and expectations of the hospital (including policies and protocols) as well as having a working relationship with colleagues. This would be particularly useful in respect of critical care nurses. A restriction to the ‘former place of employment’ could be a condition attached to a proposed fast track re-registration process. If an approach such as this was adopted, the NMBA could have greater confidence that the public would be ‘safe’, as the willingness of the former employer to re-engage the worker indicates that they felt the nurse to be a competent and safe practitioner.

The skills a nurse has gained over many years of working in a critical care environment would be an invaluable skill-set during a pandemic. Critical care is a highly technical workplace and requires skills not usually expected in ward areas. The nurse caring for a critically ill patient needs good assessment skills; an ability to manage multiple infusions (including titrating drugs to achieve set outcomes in heart rate and blood pressure); and competently use (and quickly troubleshoot problems

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95 The question of who they will be employed by is outside the ambit of AHPRA but this generic email may lead some nurses to consider whether, or not, they would be prepared to work.

96 Not all nurses will have automatically surrendered their registration upon retirement, so may form part of the ‘not working’ category.
with) equipment such as ventilators, cardiac monitors, haemodynamic monitoring and dialysis. These are not skills that are readily acquired.

If the nurse was of ‘good standing’ when they retired, a ‘fast track’ restoration might include a brief application confirming identity and qualifications (although not requiring the provision of certified copies of qualifications as these have already been provided to the NMBA). This could be supplemented by an endorsement from the hospital nursing management stating that they would be willing to employ the nurse for the period of the emergency.

Difficulties with such a plan may not only occur at AHPRA/NMBA level but also with respect to the Human Resources employment policies of the potential employer. If this approach was to be effective, it would require employers to consider whether an approval to reappoint staff could be devolved to the relevant nurse manager.

**IV Students of Nursing**

Surveys of nursing students have indicated that many may be willing to work during an influenza pandemic. In Australia, students studying to be a health professional must be registered. The student group is quite large, and registered nursing students in 2014 totaled 64,850. As part of their application for study, students have already made a declaration of their criminal status. If studying at an Australian university, it would be reasonable to expect students will have sufficient command of the English language to work in nursing. This group therefore satisfies two of the NMBA registration standards. However they would not be entitled to general

97 ICU experienced nursing staff are important as, during the 2009 pandemic, Extra-Corporeal-Membrane Oxygenation (ECMO) was needed to oxygenate blood for those with serious cardiac and respiratory failure: ANZIC, 'Critical Care Services and 2009 H1N1 Influenza in Australia and New Zealand' (2009) 361(20) New England Journal of Medicine 1925. Despite this intervention, in a small study, the quality of life of survivors was rated as poor, with only 26% of ECMO recipients (average age 36.3 yrs) returning to work. Carol L Hodgson et al, 'Long-term quality of life in patients with acute respiratory distress syndrome requiring extracorporeal membrane oxygenation for refractory hypoxaemia' (2012) 16(5) Critical Care R202.


100 AHPRA, above n 85, III. Although the report notes these may be some small difference between the registered numbers and the actual number of students. This number includes all vocational as well as students of undergraduate courses.
registration because they are not yet qualified.\textsuperscript{101} The NMBA could provide students with a limited registration in the public interest. Conditions attached could include to work only under the direct supervision of a registered nurse and not to administer medications. These two caveats would help to ensure that the public are protected.

In order to be considered for limited registration, students should have undertaken some acute based clinical placements, with third year undergraduate students most likely to have the requisite skills.\textsuperscript{102} If a student nursing workforce was to be mobilized it would be preferable for their scope of practice to be clearly delineated.\textsuperscript{103} Ward staff, who will work in conjunction with students, would also need direction as to what duties can be expected of these workers.

While professional discussions and role delineation is important, industrial considerations also need to be explored. It is arguable that these fledgling nurses should be entitled to coverage of relevant industrial instruments applicable to nurses, but those documents no longer include rates of pay for students. If a person is doing meaningful work, it is reasonable for them to expect payment. Should payment be in line with care staff\textsuperscript{104} or should they be given their own category of payment? It is suggested that a specific pay scale should be developed, linked as a percentage of the first year rate of pay for a registered nurse.

However despite this, nursing students may not be a good way to augment the workforce. Although students may be able to perform some basic duties, the capacity of individual trainees to be able to perform safely in the clinical arena will be unknown. At a time of high workloads, the level of supervision required by qualified staff may prove onerous. Finally, students, if they feel unsupported in the clinical workplace may find the experience very stressful.\textsuperscript{105} To ensure student volunteers are protected, there must first be put in place structured and organized support, with

\begin{itemize}
\item \textsuperscript{101} National Health Law 2009, s 65(1)(a).
\item \textsuperscript{102} Mary Ireland et al, 'Integrating disaster preparedness into a community health nursing course: one school's experience' (2006) 4(3) Disaster Management & Response 72, 72–76.
\item \textsuperscript{103} Lynette Cusack, Paul Arbon and Jamie Ranse, 'What is the role of nursing students and schools of nursing during disaster? A discussion paper' (2010) 17(4) Collegian 193.
\item \textsuperscript{104} Some nursing Award/Enterprise Agreements cover care staff employed under a number of titles for example: extended care assistants, personal care assistants, assistants in nursing.
\item \textsuperscript{105} The concept of ‘transition shock’ for new graduates, as they enter the workforce, is well recognised in nursing. This can lead to high attrition rates: Judy E Boychuk Duchsher, 'Transition shock: the initial stage of role adaption for newly graduated Registered Nurses' (2009) 65(5) Journal of Advanced Nursing, 1103.
\end{itemize}
clear guidelines for both students and ward staff. It is suggested that the potential risks could outweigh the possible benefits, particularly since there seems to be sufficient capacity to increase the qualified nursing workforce.

IV CONCLUSION

In 1919, few qualified nursing staff worked in the hospital system, rather nurses trained in order to seek employment as private nurses. At the time of that pandemic, distribution of trained nurses across private homes and small hospitals was not an efficient way to deliver care. In the hospitals, students performed the bulk of nursing duties while the meagre trained nurse workforce was further depleted as nurses left to assist the war effort. In the days of an unregulated workforce, where there was little treatment to be given, the use of volunteers was a viable way to augment the workforce.

Today, Australia has a professional and regulated nursing workforce. With nearly 50 per cent of the workforce engaged part time this presents the first option to increase work hours during an infectious disease outbreak. Across Australia the numbers of registered professionals can be accurately ascertained. Currently there are several thousand nurses—either registered but not working, or with the ability to reactive their registration—who may be prepared to work during a pandemic, provided the process of regaining registration was not onerous. A fast-tracked application process, with a requirement to confirm identity combined with an endorsement from their last place of work, should be sufficient to allow for reactivation of registration (if lapsed) while ensuring the safety of the public. Consideration may need to be given to a reduced, or waived, registration fee. In the alternative, an employer may be prepared to meet that cost.

Recently retired nurses with acute care skills will be of particular value, especially if are able to return to a workplace they already know. However, in order to facilitate a quick return, there may need to be changes made to the hospital recruitment process and a devolution of appointment powers to the nurse unit manager.

The NMBA has a pivotal role to play in facilitating fast track registration options, and whether there could be a waiving (or relaxing) of the registration standards in
some instances. It would also be worth the NMBA considering whether, and if so what, conditions might apply to limited registration in the public interest. The NMBA should prepare a statement of expectations, by reference to the code of ethics and codes of conduct, that nurses will work during an influenza pandemic.

The value of using students of nursing to provide care, in an acute care sector during a pandemic, is less certain; and, given the numbers of nurses on the register and not working combined with high numbers of part-time staff, it does not seem that student input would be required as a first tier response. However, if students are to temporarily join the nursing workforce, whether on the same footing as other fast track registrants or as a discretionary second tier response, then processes should be put in place well before a pandemic, clearly identifying student scope of practice, duties, supervision arrangements as well as industrial entitlements.

The next chapter will consider what protection (if any) nursing staff should expect to be given when working during an influenza pandemic.
Chapter 7
WORK HEALTH AND SAFETY

I INTRODUCTION

Work health and safety (WHS) legislation aims to protect workers from dangers arising within the workplace. Historically, the regulatory focus was occupational, targeting heavy industries and factory work. As factories became larger and more operationally diverse, it became apparent that persons in the workplace, other than direct employees, might be exposed to danger without the protections offered by work health and safety regulation. The legacy of the initial regulatory focus on industrial workplaces continues to resonate today in the practical implementation of work health and safety regulation in the health sector.

It is argued that, although the origins of work health and safety regulation focused on the effects of industrial production on ‘health’, an increasing emphasis on ‘safety’, including prevention of injury, has meant less attention has been paid to ‘non-traditional’ worksites, including the health sector. While, in health, there is a growing awareness of a need for safety particularly as it applies to the patient group, this tends to be imposed by way of a ‘top down’ approach.\(^1\) The culture of safety, which is well developed in many heavy industries, is shown to be less established in the health sector. In the hospital sector formal adoption of work health and safety legislation came comparatively late into a system where infection control had long been an established speciality.

Although work health and safety regulation and infection control clearly overlap in the goal of preventing poor health outcomes, there is often little integration between the disciplines. This point was raised in the Canadian SARS Commission report, which noted that infection control aimed to protect patients, while health and

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\(^1\) Awareness was heightened following the publication of Linda T Kohn, Janet Corrigan and Molla S Donaldson, *To Err is Human* (National Academy Press Washington, DC, 2000). In 2006, the Australian Commission on Safety and Quality in Health Care was established ‘to lead and coordinate national improvements in safety and quality in health care’:
safety regulation protected staff, and the two entities should work together ‘seamlessly.’ Unfortunately parallel systems often fail to perform in this way. It is suggested that means to promote patient safety should be clearly understood as part of the WHS obligation, placing infection control within WHS, rather than a separate discipline. If this conceptual shift could occur, it would have long term implications for the safety of both staff and patients.

Because influenza is so readily transmissible, the ability to protect staff within the health arena is limited. In part, this is because the risk to the workforce comes not only from patients but also from work colleagues and visitors. This chapter will consider what protections are available to healthcare workers and the risks such protection also poses.

There are a wide range of possible health and safety issues that arise in the health industry setting during a pandemic, not least of which relate to the impact of increased workloads, working hours and stressors due to increased patient numbers. However, for the purposes of this discussion, the focus will be on whether or not particular measures can reduce or limit the likelihood of the transmission of influenza between patients and staff during a pandemic. That question forms the focus of this discussion because the likelihood of transmission of influenza from patients to staff is the primary reason why members of the health workforce may be unwilling to attend work during a pandemic. The evidence on the effectiveness of existing measures to reduce rates of transmission of influenza infection suggests that there are limited options for staff protection during a pandemic, and it is queried whether, given the nature of the influenza virus, protective equipment (except in limited circumstances) will be of any real benefit.

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I THE HOSPITAL SECTOR AND WORKPLACE SAFETY

In Australia, early public health laws (initially in Victoria\(^4\)) imposed requirements of appropriate sanitation and cleanliness and aimed to promote healthy workspaces in industrial settings. When specific factory-based protective legislation was introduced,\(^5\) the primary focus remained the ‘effects of the industrial conditions on health’.\(^6\)

As workplace mechanisation increased, physical dangers for the workforce were amplified. Subsequently, requirements for safety precautions were developed.\(^7\) Possibly as a direct consequence of mass production in factories and industrialisation in general, protection from physical danger continues to be a prominent legislative objective. Yet, work may still have a negative impact on health. It has been said that while ‘injuries get you at once … diseases get you eventually’.\(^8\) Today, health\(^9\) and prevention of workplace injury is recognised as a significant aspect of work safety.\(^10\) However, although it is often possible to engineer a solution to a clear physical hazard, less tangible risks, such as exposure to a virus like influenza, can be problematic from a prevention strategy approach.\(^11\)

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4 An Act for promoting the Public Health in populous places in the Colony of Victoria 1854 (Victoria) initially regulated conditions in factories, and imposed general conditions of cleanliness for houses (including those used as factories).

5 The Supervision of Workrooms and Factories Statute 1873 (Victoria) section 4 gave power to the Board of Health to make regulations pertaining to ventilation, warmth, cleanliness and sanitation.

6 Legislation was administered by health departments until 1885 (Victoria), 1916 (Tasmania) and 1924 (WA). Alan George Cumpston, Industrial health and safety: an account of personal experience in industrial health and safety problems and their management (A.C.T. Hale Information Services, 1992), 8.

7 A requirement to guard against dangerous machinery first appeared (Victoria) in the Factories and Shops Act 1885 49 Vict. No. 862.

8 Ward Gardner and Peter Taylor, Health at Work (Associated Business Programmes, 1975) 64.


10 The initial title of the Model Act was the ‘Safe Work Act’ and some unions, including the Australian Nursing Federation (submission 276), objected to removal of the word ‘health’ from the title as ‘the Act is about much more than ‘safe work’ which the current title suggests’. Others supported this approach Professor Richard Johnstone (submission 208) at 4, stressed the need to include the word ‘health’ as well as ‘safety’:


11 In some circumstances a risk may go unrecognised. For example the danger of exposure to radiation in mining, as well as for workers involved in the early use of x-rays, was not initially understood. Today protective equipment is used for those exposed to x-rays and monitors are used to measure exposure: Richard Wakeford, Radiation in the workplace—a review of studies
The historical focus on dangerous industries, rather than adoption of broad protective principles across all workplaces, led to regulatory fragmentation, with multiple laws, regulations, and standards applying piecemeal and failing to provide coherent or comprehensive coverage. Surprisingly, as late as the 1970’s ‘25 per cent of the workforce were not covered by any health and safety regulation’, and hospitals were among those workplaces not covered. There may have been several reasons for this omission, including the fact that hospitals were neither ‘factories’, nor were their workers considered to be part of an ‘industry’. In addition, hospitals were originally charitable organisations, where self sacrifice and an acceptance of exposure to infectious disease (and even death) was expected of workers. In the hospital setting the focus was on workers protecting themselves while seeking to limit transmission of infection to, and between, patients: a specialty known as infection control. As neatly encapsulated by Gamage et al, the difference between approaches to safety in industrial settings and the health sector, particularly as it applies to infective risks, comes down to the focus of regulation:

The practice of infection control differs from the approach of industrial worker protection in that, historically, infection control approached the protection of HCWs primarily by applying barriers to those individuals who might potentially be exposed. This is in contrast to industry, whose occupational health approach is first to apply environmental and engineering controls to control hazardous materials from the source.

In an industrial context, workplace safety focuses on eliminating or engineering out the risk. Such approaches are rarely adopted in the health sector or, if they are, problems can arise from their use. For example, although a no-lifting policy may apply within an institution and lifting devices (to move patients) exist, if lifting devices

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are not readily available (or if training in their use is inadequate) nurses can still experience injuries.\textsuperscript{16}

Because they are dealing with people, rather than machines, healthcare workers will often put the needs and safety of patients before themselves. If a patient is at risk then workers are likely to intervene rather than wait for a lifting device or assistance. As noted by one nurse: ‘[i]n nursing you are not working with solid structures, they’re people. What works for one person doesn’t work for another’.\textsuperscript{17} Given complex and multiple variables, a hospital is not like a factory where work can be standardised and strict protocols on safety uniformly adopted and adhered to. However, despite this the principles of WHS should still clearly underpin procedures and policies, including for infection control. This also means that attempts to eliminate risks should be explored.

By 1986, except in Queensland and Western Australia, the coverage of WHS had spread to Australian hospital environments.\textsuperscript{18} The legislative focus on workplace safety was introduced to an environment where infection control had long been established as an independent specialty.\textsuperscript{19} There was now a dual approach to safety: one focusing on patients, the other on staff. An overlap of responsibilities arose, but also a potential disconnect between workplace safety and the discipline of infection control. The interplay between the two arises almost exclusively in the health sector.\textsuperscript{20}

As the discussion will demonstrate, work health and safety obligations apply to persons in the workplace, not only to workers. Therefore, actions undertaken as part of infection control should be properly regarded as a component of work health and

\textsuperscript{17} Valerie Jean O’Keeffe et al, ‘Putting Safety in the Frame: Nurses’ Sensemaking at Work’ (2015) 2 Global Qualitative Nursing Research 1, 6.
\textsuperscript{20} Worksites where employees have contact with animals (for example abattoirs, veterinarian practices) no doubt have policies to protect persons in the workplace from animal contamination, but the issue of cross infection is less likely.
safety obligations. Despite this, the national guidelines for infection control only make brief references to health and safety.\textsuperscript{21} It is not until late in that document where it is said that in order ‘[t]o ensure the safety of everyone in the facility, both employers and employees have a responsibility in relation to infection prevention and control and occupational health and safety’.\textsuperscript{22} However, infection control and workplace health and safety should not be regarded as two separate entities, where work health and safety obligations are ‘footnoted’ or considered secondary to infection control. Such division results in silos of expertise which, in the hospital sector, give rise to different approaches to safety including over infection control, patient safety\textsuperscript{23}/risk management and staff safety.\textsuperscript{24}

I Hierarchy of control and influenza

As will be discussed, the hierarchy of control under work health and safety regulation puts elimination of risk as the ultimate objective. Influenza presents a particular difficulty, as people may appear well but could be infective. This means that during an influenza pandemic it will be impossible to eliminate all risk. As mentioned in chapter 3, once an influenza pandemic is underway, contact tracing will be time consuming and ultimately futile.\textsuperscript{25} Despite many years of research there is still uncertainty as to the relative importance of various routes of influenza transmission.\textsuperscript{26} Social distancing\textsuperscript{27} is believed to help reduce the spread of disease, but surface

\footnotesize
\begin{enumerate}
\item\label{footnote1} National Health and Medical Research Council, ‘Australian Guidelines For The Prevention and Control of Infection in Healthcare’ (2010) 1, 8.
\item\label{footnote2} Ibid 203.
\item\label{footnote3} Kohn, Corrigan and Donaldson, above n 1.
\item\label{footnote4} Tooma argues that several groups of laws should be merged: Michael Tooma, Safety, Security Health and Environment Law, (Federation Press, 2011, 2nd edition). The argument put here is that Infection Control should be seen as a clear subset of WHS and not as a parallel obligation.
\item\label{footnote6} Ben Killingley and Jonathan Nguyen-Van-Tam, ‘Routes of influenza transmission’ (2013) 7(s2) Influenza and Other Respiratory Viruses 42.
\item\label{footnote7} It may be necessary to be 3 meters away from an infective person: Jan Gralton and Mary-Louise McLaws, ‘Protecting healthcare workers from pandemic influenza: N95 or surgical masks?’ (2010) 38(2) Critical Care Medicine 657, 664.
\end{enumerate}
contamination might still result in viral transfer. Maintaining a safe distance can be virtually impossible when providing care for a patient.

It may be technically possible, but possibly prohibitively expensive, to engineer out the risk of respiratory based infection. While strict isolation of infected patients might reduce the risk to staff, the reality is that public hospitals do not have sufficient single rooms to accommodate large numbers of influenza victims. In intensive care units, where the very sickest patients will be, small micron filters on expiratory ventilator ports, as well as closed suctioning systems (limiting aerosol spray of respiratory secretions) may reduce staff exposure to the virus from patients (although not from colleagues and visitors). Likewise, when a patient is receiving oxygen via a face mask (as droplets may be at least partially contained) the level of exposure to others may be reduced. However any containment depends upon the mask being used effectively by the patient.

If potential exposure through patient contact or general nursing duties cannot be engineered away, what about the utility of personal protective equipment (PPE) for nurses working during a pandemic?

Despite being under much greater control of an individual health worker, PPE has limited utility as a protective measure. Work Cover (NSW) notes that ‘PPE is one of the least effective ways of controlling risks to health and safety’, suggesting that it should be used as an ‘interim measure’ and only in the absence of other control measures.

Pictures of health workers during both the SARS, as well as the more recent (non-respiratory transmissible) Ebola, outbreaks show people wearing full

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29 Although the patient can be encouraged to turn their head away from the health provider when they are in close proximity: ie less than 3 feet apart.

30 Major hospitals sometimes have ‘negative pressure’ isolation rooms. With the door closed there is an ongoing exchange of air from the room and replacement with ‘clean’ air. However these rooms are expensive and limited in number. It has been suggested that humidity might impact upon the ability of the virus to replicate. This might provide a mechanism for workplace control: James McDevitt et al, ‘Role of Absolute Humidity in the Inactivation of Influenza Viruses on Stainless Steel Surfaces at Elevated Temperatures’ (2010) 76(12) Applied Environmental Microbiology 3943.


32 Showing little understanding about the use of PPE a photo of a man without PPE (having no contact with infectious fluids he did not need a suit) made international news: Marszal, Andrew, Telegraph (online) 16 October 2014 ‘Who is clipboard man: man without Hazmat suit helps Ebola
body suits, with complete face protection. This level of equipment was necessary for protection of staff in these highly infectious outbreaks. The nature of both of those diseases presented a very high risk in the workplace and high level, although not completely reliable, protection was essential.

However given the widespread nature of influenza and the high numbers of infected persons, it would not be reasonable, or practical, for staff to expect this level of protection. If extensive PPE was used during an influenza pandemic, this would create additional hazards because of the subsequent accumulation of large volumes of waste materials.\(^3\) PPE also makes working more difficult, with self-contamination a real risk upon removal of the equipment.\(^4\) Given that influenza is a disease that is widespread and (relatively) unlikely to cause death, this risk of self-contamination should be avoided.

What then of the national WHS Model and what it tells us about how such risks should be managed? The next section will establish which workplaces are covered by the Model Act and to whom the duties are owed. The potential of the Model Act to address these concerns, as compared to older legislative regimes still found in Victoria and Western Australia, will be considered. As will be demonstrated, the coverage of the model legislation is important because of its focus on a range of actors who, in the hospital sector, may not be traditionally considered as part of WHS obligations.

## II MODEL WORK HEALTH AND SAFETY ACT

In 2012 Australia made significant progress toward uniform workplace health and safety regulation, with all jurisdictions except Victoria and Western Australia

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implementing laws based on the Work Health and Safety Act 2011 (Cth) (the ‘Model Act’).\textsuperscript{35}  

Under s 17 of the Model Act a duty imposed on a person to protect health and safety is limited by the taking of ‘reasonably practicable’ steps. A main objective of the legislation is ‘the elimination or minimization of risks arising from work’.\textsuperscript{36} A workplace includes anywhere that ‘work’ takes place.\textsuperscript{37} A ‘person conducting a business or undertaking’\textsuperscript{38} (whether or not for profit\textsuperscript{39}) has ‘primary’\textsuperscript{40} responsibility for taking steps to protect persons within the workplace. This includes protection of workers\textsuperscript{41} as well as ensuring ‘other persons [are] not put at risk from work carried out’.\textsuperscript{42} Employees, as well as others in the workplace, need to ensure that they do not endanger themselves or others.\textsuperscript{43}

\section*{I \hspace{1cm} Who is protected by the Model Act?}

A primary objective of the Model Act is protection of ‘workers and other persons against harm to their health, safety and welfare through the elimination or minimization of risks arising from work’.\textsuperscript{44} ‘Other persons’ are not to be placed ‘at risk from work carried out’.\textsuperscript{45} In hospital settings it is clear that people (staff, patients and

\begin{itemize}
\item[\textsuperscript{36}] Model Act (Cth) ss 3(1)(a), 17.
\item[\textsuperscript{37}] Model Act (Cth) Workplace is broadly defined to include (s8)(2)(a) a vehicle, vessel, aircraft of other mobile structure; and (b) any waters and any installation on land, on the bed of any waters or floating on any waters). Work is not defined.
\item[\textsuperscript{38}] The duty of care lies with a responsible person who may not be an employer: Model Act (Cth) s 5.
\item[\textsuperscript{39}] Model Act (Cth), s 5(1)(b).
\item[\textsuperscript{40}] Model Act (Cth), s 19.
\item[\textsuperscript{41}] Model Act (Cth), s 19(1). A person conducting a business or undertaking must ensure, so far as is reasonably practicable, the health and safety of: a) workers engaged, or caused to be engaged by the person; and 19(b) workers whose activities in carrying out work are influenced or directed by the person; while the workers are at work in the business or undertaking.
\item[\textsuperscript{42}] Work Health and Safety Act 2004 (Vic), s 19(2).
\item[\textsuperscript{43}] Work Health and Safety Act 2004 (Vic), ss 28, 29.
\item[\textsuperscript{44}] Work Health and Safety Act 2004 (Vic), s 3(1)(a).
\item[\textsuperscript{45}] Work Health and Safety Act 2004 (Vic), s 19(2).
\end{itemize}
visitors) can be placed at risk from the work carried out. Systems of work can lead to problems ‘arising from work’.

As an obvious example, there is considerable evidence that the failure of workers to wash hands between episodes of patient care may result in a patient acquiring a hospital transmitted (nosocomial) infection. Promoting the importance of health and safety legislation and the fact that patients and visitors are encompassed by WHS obligations could improve the safety of all people within the hospital setting. This has implications for, and beyond, an influenza pandemic, a matter briefly revisited toward the end of this chapter. The situation may be different in Victoria and Western Australia so the coverage of WHS in those settings will be first considered separately.

Victoria and Western Australia

In Victoria, the Occupational Health and Safety Act 2004 aims to ‘secure the health, safety and welfare of employees and other persons at work’ and to ensure ‘members of the public [are] not placed at risk by the conduct of the undertaking’. ‘Employees or self employed persons’ work in a ‘workplace’. The obligation is to ‘eliminate’ or ‘reduce’ the risks so far as it is ‘reasonably practicable’ to do so. The legislation refers to risks to persons ‘at work’ rather than (as under the Model Act) to risks ‘arising from work’, yet it appears that persons (other than employees) are entitled to protection, and members of the public are not to be put at risk. This approach produces a similar outcome in terms of coverage of WHS obligations as under the Model Act.

In Western Australia the Occupational Safety and Health Act 1984 lists several objectives including:

(a) to promote and secure the safety and health of persons at work;
(b) to protect persons at work against hazards;
(c) to assist in securing safe and hygienic work environments;

47 Occupational Health and Safety Act 2004 (Victoria), s 2(1)(a).
48 Occupational Health and Safety Act 2004 (Vic), s 2(1)(c).
49 Occupational Health and Safety Act 2004 (Vic), s 5(1).
50 Occupational Health and Safety Act 2004 (Vic), s 20(1).
to reduce, eliminate and control the hazards to which persons are exposed at work;\(^{51}\)
The duty of the employer is limited by the concept of ‘reasonably practicable’. Employers are required to seek to ensure employees are not exposed to ‘hazards’ (including ‘harm to the health of a person’\(^{52}\)) at work. The Act outlines the obligations of employers, employees and self-employed persons.\(^{53}\)

Unlike in Victoria and under the Model Act, in Western Australia the employer does not appear to have obligations to other persons in the workplace, although an employee is obliged to ensure that they ‘avoid adversely affecting the safety or health of any other person through any act or omission at work’.\(^{54}\) Under s 22 of the Act a person in control of a workplace is merely obliged to ensure that people are ‘not exposed to hazards’ when performing work, even if ‘not employees’ if they are there ‘in the course of their work’. In Western Australia, the person in control has a duty limited to workers (employees or otherwise) performing work, a duty which does not seem to apply to other persons in the workplace except, perhaps, as they enter or leave the workplace.\(^{55}\) This suggests that WHS obligations are not owed to visitors or patients by employers or employees in Western Australian hospitals.

II ‘Reasonably practicable’ and the Model Act

The requirement to provide a safe workplace under the Model Act is not unlimited. There are various factors to be taken into account in order to assess what ‘reasonably practicable’ would be in the circumstances of the particular risk. These are outlined in section 18:

In this Act, **reasonably practicable**,... means that which is, or was at a particular time, reasonably able to be done in relation to ensuring health and safety, taking into account and weighing up all relevant matters including:

\(^{51}\) *Occupational Safety and Health Act 1984 (WA)*, s 5.
\(^{52}\) *Occupational Safety and Health Act 1984 (WA)*, s 3.
\(^{53}\) *Occupational Safety and Health Act 1984 (WA)*, s 21 the self-employed person has a responsibility to ensure their own protection (s 21(1)) as well as the wellbeing of others (s 21(2)) from risk of work undertaken (s21(2)(a)) or increase in a hazard (s 21(2)(b)).
\(^{54}\) *Occupational Safety and Health Act 1984 (WA)*, s 20(1)(b).
\(^{55}\) Section 22(3) of the *Occupational Safety and Health Act* (WA) apparently limits the obligation only to a person who is undertaking work. Curiously, s 22(3) states: ‘A reference in this section to a person having control of any workplace or means of access to or egress from a workplace is a reference to a person having control of that workplace or that means of access or egress in connection with the carrying on by that person of a trade, business or undertaking (whether for profit or not)’.
(a) the likelihood of the hazard or the risk concerned occurring; and
(b) the degree of harm that might result from the hazard or the risk; and
(c) what the person concerned knows, or ought reasonably to know, about:
   (i) the hazard or the risk; and
   (ii) ways of eliminating or minimising the risk; and
(d) the availability and suitability of ways to eliminate or minimise the risk; and
(e) after assessing the extent of the risk and the available ways of eliminating or
   minimising the risk, the cost associated with available ways of eliminating or
   minimising the risk, including whether the cost is grossly disproportionate to the
   risk.

As noted above, a hierarchy of control has been developed to address workplace risks. Generally this means attempts should be made to eliminate the risk, but in the alternative, to reduce risks by modification (by way of substitution, isolation or engineering controls), utilisation of administrative controls (including training), and finally though use of personal protective equipment.\(^{56}\) Unfortunately, despite the passage of time since 1919, there is little clear evidence as to the best way in which an infective risk from influenza may be minimised.\(^{57}\) Before exploring the requirements of section 18 it is necessary to first determine the reach of the Model Act which applies to a ‘business or undertaking’.\(^{58}\)

III Is a hospital a business or undertaking?

According to an interpretive guideline issued by Safe Work Australia, a business is ‘usually conducted with a view to making a profit ... [with] a degree of organisation, system and continuity’, while an undertaking ‘may have elements of organisation, systems, and possibly continuity, but are not usually profit-making or commercial in nature’.\(^{59}\)

All hospitals have a degree of organisation, system and continuity. In NSW, for example, local area networks (which includes hospitals, community health and

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\(^{57}\) Killingley and Nguyen-Van-Tam, above n 26.

\(^{58}\) Model Act s 5.

ambulance services) are governed by boards which have ‘overall responsibility for the strategic direction and operational efficiency’ of their area. Although public hospitals may not be ‘commercial in nature’, it is expected they will continue to provide ongoing services to public patients. Private hospitals are in the business of providing health services while making a profit for their shareholders. It is clear that both public and private hospitals are covered by the terms ‘business or undertaking’.

Nurses, doctors, allied health professionals and others working in a hospital are generally employees with specified roles. However, the Model Act is not limited to coverage of traditional employees but provides a broad definition of ‘worker’. Under the definition in s 7 a worker includes employees, contractors, outworkers, students on work experience as well as volunteers. Workers undertake their duties (i.e. work) in a hospital providing care to patients. A hospital is a place where people receive medical and surgical treatment. A hospital then is a ‘business or undertaking’, with the work being the delivery of health care services. While perhaps not traditionally thought of in this way, it is apparent that the hospitalised patient is located in a workplace. Likewise a person entering a ward area as a visitor is also in a workplace.

63 Model Act (Cth), s 7.
64 Model Act (Cth), s 7(1)(a).
65 Model Act (Cth), s 7(1)(b) including, under s 7(1)(c) contractors and subcontractors as well as employees of labour hire companies (s 7(1)(d)). Nurses are sometimes employed through an agency so could fall under these definitions.
66 Model Act (Cth), s 7(1)(2).
67 Model Act (Cth), s 7(1)(g) and trainees or apprentices (s 7(1)(f)).
68 Model Act (Cth), s 7(1)(h).
A What would be ‘reasonably practicable’ in an influenza pandemic?

The Model Act does not require that ‘everything’ necessary for protection be done. Rather s 18 requires that health and safety of persons in the workplace should be protected by measures which are ‘reasonably able to be done’. Section 18 includes several factors that should be considered when determining what, in the circumstances, would be ‘reasonably practicable’. Those requirements provide a useful framework through which to consider what measures would be ‘reasonably practicable’ for hospitals and their employees to take in the context of patients presenting to hospital during an influenza pandemic.

(a) the likelihood of the hazard or the risk concerned occurring;

As discussed in chapter 3, a novel outbreak of influenza giving rise to a pandemic will involve a highly infective disease that can be readily transmitted between people. It is also believed that asymptomatic individuals can transmit disease. During the 1918 pandemic, many nurses became infected. These nurses, who were employed to work in the hospital, often had little contact with the outside world and work exposure was high as nurses cared for many patients while working 12 hours a day, sometimes without any days off. Consequently the vast majority of this group of nurses infected must have been infected at work. So the risk of work exposure exists.

Today, while infected patients may present the most obvious risk, colleagues (particularly those with children) may also transmit infection to workers. The risk of exposure at home may be equal to that at work. Hospital workers, both clinical and

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69 Model Act (Cth), s 18(1).
71 Chris Williams et al, 'Seasonal influenza risk in hospital healthcare workers is more strongly associated with household than occupational exposures: results from a prospective cohort study in Berlin, Germany, 2006/07' (2010) 10(1) BMC Infectious Diseases 8. Early evidence in 2009 of 70 infected HCW’s suggested that 50 per cent had been exposed at work, while the remainder were exposed in the community or via an unknown source: Matthew E Wise et al, 'Transmission of
non-clinical, had similar rates of infection during the 2009 pandemic. In a small study from Toronto, Canada, 2.2 per cent of clinical workers tested positive for influenza compared to 4.1 per cent of non-clinical workers, and it was considered that exposure to children with respiratory illnesses, rather than workplace contact, might present the highest risk. The question is whether there is really anything that the employer can provide, or the employee may use, to mitigate workplace risk. This question will be explored below.

(b) the degree of harm that might result from the hazard or the risk;

The majority of people infected with influenza will experience a self limiting disease and, for most people, the risk of serious illness or death is quite low. When a pandemic occurs there may initially be uncertainty as to the disease severity. Today, global laboratory co-operation allows for an early determination of the likely severity of any new outbreak. By the time the 2009 pandemic was announced, the WHO was already able to say it was expected to be ‘mild’. Yet, as noted, in the absence of any effective medical care the ‘worst’ known pandemic had a mortality rate of around 2 per cent. Most, known, influenza pandemics have not had a mortality rate anywhere near as high.

There are some groups who may face a higher risk if they become infected, including pregnant women and persons with underlying serious respiratory disease. In light of this it might be prudent to offer workers in these categories alternative duties or other options such as unpaid or paid leave during an influenza pandemic.

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Pandemic (H1N1) 2009 Influenza to Healthcare Personnel in the United States’ (2011) 52(Supplement 1) Clinical Infectious Diseases S198.


75 The mortality rate of the 1918 pandemic was 2.5% compared with 0.1% of other pandemics: Jeffrey K Taubenberger and David M Morens, ‘1918 Influenza: the mother of all pandemics’ (2006) 17 Revista Biomédica (First published in Emerging Infectious Diseases 2006, 12: 15-22) Authorized reproduction, 69, 70. See footnote (chapter 1), n 26.

76 A list can be found at: http://www.cdc.gov/flu/about/disease/high_risk.htm last accessed 2 March 2016.
They could also be offered early access to anti-viral medications if they became unwell, although these drugs have not proven to be as effective as first anticipated. 77 However, especially for those with children, removal of higher risk workers from the clinical setting will not ensure their safety and their risk, while higher, is still not extraordinary. 78

(c) what the person concerned knows, or ought reasonably to know, about:

(i) the hazard or the risk;

Uncertainty remains about the relative importance of various modes of influenza viral transmission. 79 If the way in which a disease can be transmitted is uncertain, it is difficult to determine what protection is needed. A survey of critical care clinicians found that only 63 per cent of workers could identify the recommended personal protective equipment (PPE) to be used during an influenza outbreak, and 35 per cent were unable to identify the precautions HCWs could take to protect patients. 80 Given the level of uncertainty as to the various mechanisms of viral transfer, confusion among clinicians is understandable.

(ii) ways of eliminating or minimising the risk;

As will be demonstrated under the next heading, the jury is still out with respect to the efficacy of various ways of eliminating or minimising the risk of contracting influenza in a health care setting, including for example the use or misuse of PPE. As such, it is likely that the levels of knowledge of HCW’s in this respect will be varied and patchy. When the official view is contested, it is difficult to expect practitioners to have a highly sophisticated understanding of the issues.


78 Pooled data considered by the WHO found that women in their third trimester of pregnancy, and those who were morbidly obese, to be most at risk: Maria D Van Kekhove et al, ‘Risk factors for severe outcomes following 2009 influenza A (H1N1) infection: a global pooled analysis’ (2011) 8(7) PLoS Med e1001053.1.

79 Killingley and Nguyen-Van-Tam, above n 26.

While the widespread nature of influenza should not stop precautions being taken in the health setting it is questioned whether, when a disease is widely disseminated, much benefit will be obtained with Personal Protective Equipment (PPE). It is clear that there remains little consensus about what PPE, is most effective. Some of that evidence will be explored below. The precautions recommended in an attempt to minimise the risk include wearing a mask (if within 3 feet of the patient) as well as gown and gloves if in contact with respiratory secretions. Yet one clear danger of PPE is the risk of self-contamination upon its removal. It may be that the major form of protection is obtained through good cough hygiene and regular hand washing (both inside and outside the workplace). Given the potential for visitors (particularly children) to be asymptomatic yet infective, limiting visitor numbers may help protect staff and patients. It is not possible to eliminate the risk.

The use of face masks may provide some protection for staff during an influenza pandemic. However there is little clear evidence that masks will be of much value, and debate exists as to which type of mask will provide the optimal level of protection. The acceptance and use of masks varies between countries. Despite a concern that the virus might be transmissible if droplets enter the eye, eye protection is not commonly utilised in Australian hospitals, although masks with face shields do exist.

There are at least three varieties of mask: reusable cloth masks (which are rarely used in developed countries such as Australia); disposable surgical masks (pre-packaged and for single use) traditionally used as an attempt to reduce infection in a
surgical wound rather than as worker protection; and the N95 ‘respirator’ style mask (again single use) which, if used correctly, should provide a high level of protection.\footnote{Gralton and McLaws, above n 26, 657.}

Washable and re-wearable cloth masks, as used in 1918, have been shown to be ineffective and of little value.\footnote{Medical devices: Masks and N95 Respirators http://www.fda.gov/MedicalDevices/ProductsandMedicalProcedures/GeneralHospitalDevicesandSupplies/PersonalProtectiveEquipment/ucm055977.htm#s2 last accessed 12 June 2016.} Cloth masks are actually likely to increase the risk of infection for the wearer.\footnote{Wilfred H Kellogg and Grace MacMillan, ‘An experimental study of the efficacy of gauze face masks’ (1920) 10(1) American Journal of Public Health 34; Anna Davies et al, ‘Testing the efficacy of homemade masks: would they protect in an influenza pandemic?’ (2013) 7(04) Disaster Medicine and Public Health Preparedness 413.} A surgical or disposable mask is not really designed for protection of the wearer (it might have limited value) but may provide some protection if worn by an infected patient.\footnote{C Raina MacIntyre et al, ‘A cluster randomised trial of cloth masks compared with medical masks in healthcare workers’ (2015) 5(4) British Medical Journal Open e006577. doi:10.1136/bmjopen-2014-006577.}

During the SARS epidemic there was debate as to whether workers should use a ‘respirator’ or N95 mask rather than a disposable mask. A N95 mask needs to be individually ‘fit tested’ and such fit testing (at least in Canada) was not routinely undertaken in the hospital setting.\footnote{See also: http://www.cdc.gov/flu/professionals/infectioncontrol/maskguidance.htm.} Some studies suggest the N95 mask may provide better protection,\footnote{Kenneth I Shine, Bonnie Rogers and Lewis R Goldfrank, ‘Novel H1N1 Influenza and Respiratory Protection for Health Care Workers’ (2009) 361(19) New England Journal of Medicine 1823, 1824; SARS Commission, Executive Summary, above n 2, 10.} but for optimal protection the mask needs to be used continuously.\footnote{Chandini Raina MacIntyre et al, ‘A cluster randomized clinical trial comparing fit-tested and non-fit-tested N95 respirators to medical masks to prevent respiratory virus infection in health care workers’ (2011) 5(3) Influenza and Other Respiratory Viruses 170.} A UK review of various studies exploring the available evidence for mask use determined that many studies were suboptimal and, while the N95 mask might provide better protection during SARS that did not mean their use would be of significant benefit during pandemic influenza.\footnote{C. Raina MacIntyre et al, ‘A Randomized Clinical Trial of Three Options for N95 Respirators and Medical Masks in Health Workers’ (2013) 187(9) American Journal of Respiratory and Critical Care Medicine 960.} A study by Loeb et al divided nurses
into two groups: 222 were given surgical masks; 221 given N95 respirators. Influenza was detected in 23.6 per cent of the surgical mask group compared to 22.9 per cent of the N95 respirator, which suggests that the masks offer similar, but inadequate, protection.\(^95\)

Consequently, there appears little concrete evidence that a N95 mask should be used during an influenza pandemic,\(^96\) although workers may believe such a mask is necessary.\(^97\) The use of a N95 mask needs to be accompanied by training as well as individual fit testing.\(^98\)

The value of any mask will be reduced if not used correctly and compliance is often poor.\(^99\) There are practical reasons for poor compliance. Masks are uncomfortable and hot to wear for any length of time. They can impact negatively on communication between workers, between workers and patients and relatives.\(^100\)

Incorrect disposal of a mask (which is damp from expired air) can cause contamination of the hands of the healthcare worker. It has been suggested that a primary benefit of masks arises because they stop people touching their mouth and nose.\(^101\) However masks can be irritating and when taking off a mask, a health worker may subconsciously touch or scratch their face. In the absence of mask wearing it has been estimated that people touch their face around 3.6 times an hour, a habit which may promote viral ‘self-inoculation’.\(^102\) The use of any equipment should be accompanied by good hand hygiene and, while it is a question for others to explore, it

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96 However, in America, use of the N95 respirator was recommended by the CDC during the 2009 H1N1 pandemic: [http://www.cdc.gov/h1n1flu/guidelines_infection_control.htm](http://www.cdc.gov/h1n1flu/guidelines_infection_control.htm), last accessed 1 February 2015.


100 Seale et al, above n 98.

101 Peter Collignon, 'Swine flu: lessons we need to learn from our global experience' (2011) 4 *Emerging Health Threats Journal*, 7169 - DOI: 10.3402/ehtj.v4i0.7169

102 Wladimir J Alonso et al, 'Facing ubiquitous viruses: when hand washing is not enough' (2013) 56(4) *Clinical Infectious Diseases* 617.
is questioned whether face washing after mask removal would be of benefit in reducing the potential viral load close to the eyes, mouth and nose of the health worker.

Face masks (either surgical or N95) appear to reduce the risk to workers if used appropriately, provided that careful attention is also paid to hand hygiene. This benefit may be lost if mask removal results in the contamination of the face or hands of the worker. While it may be deemed unethical to design a study that looks at mask versus no mask use during an influenza outbreak, that may be the only way to definitively determine (or exclude) their interventional value.

(e) after assessing the extent of the risk and the available ways of eliminating or minimising the risk, the cost associated with available ways of eliminating or minimising the risk, including whether the cost is grossly disproportionate to the risk.

During the SARS outbreak staff wore full body suits, face protection and gloves. Wearing such cumbersome PPE makes the working day difficult and it became apparent that staff contamination was caused by the removal and inappropriate use of PPE, while others became infected as a result of unknown contact/breaches of procedure.103 Extensive PPE is expensive as well as potentially posing a risk to the user.104 In Singapore, the cost of PPE alone for the first 6 weeks of the SARS outbreak was $US700,000.105 A mathematical model looking at imposing different levels of precautions106 during respiratory based outbreaks demonstrated that costs could escalate quickly, especially when faced with a rapidly transmissible infection such as influenza.107 Another factor, often not considered, is the question of waste disposal.

103 Gamage et al, above n 15.
104 Tomas et al, above n 34.
106 Which were: 1) no additional measures; 2) Green Alert response, mandated personal protective equipment (PPE) for HCWs in direct contact with patients suspected of having avian influenza or other emerging infectious diseases; 3) Yellow Alert response, which mandated enhanced PPE at all high-risk areas; and 4) Orange Alert response, which mandated N95 masks for all patient contact as well as imposing other restrictions: Yock Y Dan et al, ‘Cost-effectiveness analysis of hospital infection control response to an epidemic respiratory virus threat’ (2009) 15(12) Emerging Infectious Diseases 1909.
107 Ibid.
The disposal of huge volumes of discarded PPE can create its own problems, dangers and substantial cost.\textsuperscript{108}

Influenza is, for the most part, a self-limiting disease. It presents a risk, but for most people the risk of serious illness or death is likely to be low. The use of extensive PPE would be prohibitively expensive and unreasonable for staff to expect. Good hand hygiene is not expensive (essentially only the cost of materials and the time taken from other productive activities) and alcohol-based hand cleaners can also be used. The use of surgical face masks, whether of true benefit or not, would not be prohibitively expensive given that a surgical face mask costs a few cents, but staff need to be reminded of how to use, and dispose of, their mask safely. However, if a mask is to be of value it may be appropriate to insist upon its use at all times when in the workplace, as a worker could be exposed to the risk when talking with an asymptomatic visitor or colleague. Yet, long term use can be hot and uncomfortable.

**B In Summary**

In summary, what then would ‘reasonably practicable’ look like in the hospital setting during an influenza pandemic? With influenza, the risk of infection is high but the consequence of contracting the disease is (for the most part, unlike SARS) comparatively low. There may be circumstances where PPE should be used, but it is appears that, with the exception of simple face masks, the risk of PPE disposal may well ultimately increase the risk of self-contamination for staff. In the end simple precautions such as effective hand hygiene and encouraging good cough etiquette\textsuperscript{109} from patients, visitors and colleagues may be the best option available to staff. Hand hygiene could perhaps be augmented by the use of alcohol wipes to reduce viral load on surfaces and equipment (particularly on items that are regularly touched such as phones and pens), but again this is an issue for further research.

\textsuperscript{108} Phin et al, above n 33.

\textsuperscript{109} http://www.cdc.gov/flu/professionals/infectioncontrol/resphygiene.htm last accessed 4 March 2016.
III WHS – GENERATING A CULTURE OF SAFETY

There are indications that an embedded safety culture within an organisation may increase staff compliance with safety measures. Heavy industry, while not perfect, often has a better understanding of workplace safety than does health.\textsuperscript{110} It might be that this is a consequence of the long-term history of legislation in this area (as well as the fact that breaches can have serious financial consequences\textsuperscript{111}) but could also be because the complexity of the health system presents a different set of problems.\textsuperscript{112} When dealing with ‘invisible’ dangers, it can be harder to implement precautions. Because of multiple variables in a patient care context, attempts to regulate procedures may, paradoxically, result in a higher risk.\textsuperscript{113}

Gershon and colleagues suggest there are 6 components which may impact positively upon the ability/willingness of healthcare workers to adhere to precautions. These are: (1) senior management support for safety programs, (2) absence of workplace barriers to safe work practices,\textsuperscript{114} (3) cleanliness and orderliness of the worksite, (4) minimal conflict and good communications among staff, (5) frequent safety-related feedback and training by supervisors, and (6) availability of PPE and engineering controls.\textsuperscript{115} A high level of knowledge alone does not necessarily increase compliance.\textsuperscript{116}

I Potential benefits of promoting WHS for staff, patients and visitors

Better awareness in the hospital sector of a legislative requirement to protect non-workers within the health system from the risk of infection, as part of a general work

\begin{thebibliography}{99}
\bibitem{110} Epsen Olsen and Katrina Aase, 'A comparative study of safety climate differences in healthcare and the petroleum industry' (2010) 19(Suppl 3) \textit{Quality and Safety in Health Care} i75.
\bibitem{114} This may include lack of staff or other resources.
\bibitem{115} Robyn RM Gershon et al, 'Hospital safety climate and its relationship with safe work practices and workplace exposure incidents' (2000) 28(3) \textit{American Journal of Infection Control} 211.
\bibitem{116} Robyn RM Gershon et al, 'Compliance with universal precautions among health care workers at three regional hospitals' (1995) 23(4) \textit{American Journal of Infection Control} 225, 231.
\end{thebibliography}
health and safety approach, could integrate the disciplines of infection control and work health and safety. Rather than being conceptualised (as they clearly are in the national guidelines) as two separate entities, it is argued here that infection control should be recognised as being subservient to the overriding legislative obligation to promote a safe work environment. Despite the stated hope of the Canadian SARS Commission, parallel obligations are unlikely to ever work together ‘seamlessly’. To function effectively one must be granted primacy. It is known that (like other large organisations) hospitals often retain a ‘silo’ mentality meaning that ideas (including for service and safety improvement) are not necessarily shared across facilities.\textsuperscript{117} If WHS legislation was placed first and foremost, it is argued that this could ultimately improve hospital safety culture.

As noted above, compliance by senior staff can help to promote behaviours in more junior staff. If everyone was aware of their WHS obligations, staff might feel more comfortable in challenging other staff for observed breaches in behaviours which have the potential to result in a higher risk of infection for either the staff member or patient group. The challenge would no longer be made on clinical grounds (which is the likely basis under infection control) but on the basis of WHS duties. Additionally an emphasis on the safety obligations of employees toward patients, as well as their colleagues, might reduce the incidence of workers attending to their duties while unwell.\textsuperscript{118} Finally, work health and safety legislation could be used to justify restrictions on visitor numbers, particularly child visitors, during an influenza pandemic.

Perhaps more importantly, emphasis on the risk in the workplace (including from infectious risk) to all persons may regenerate interest in developing engineering or other controls\textsuperscript{119} to reduce, if not eliminate, the risk of the transmission of infection rather than asking staff to rely solely upon inadequate (and potentially dangerous)


\textsuperscript{118} One primary reason people in the health arena may be reluctant to take sick leave is because they are leaving their colleagues short of staff – which in itself may present a safety issue.

personal protective equipment. Among other suggestions the American Society of Heating Refrigeration and Air-Condition Engineers propose that:

Multidisciplinary teams of engineers, building operators, scientists, infection prevention specialists, and epidemiologists should collaborate to identify and implement interventions aimed at mitigation of risk from airborne infectious disease.¹²⁰

IV CONCLUSION

Because difficulties can arise with two parallel obligations (infection control and work health and safety), it has been argued that it is imperative to recognise that persons entering a hospital are in a workplace and as such are subject to WHS obligations. This would provide primacy to work health and safety legislation, with infection control clearly part of that obligation. This could change the focus of infection control from one of clinical decision making to one of legislative obligations and, in so doing, could encourage staff to challenge unsafe practices of senior staff. This would ultimately improve cultural attitudes to workplace safety. This conceptual shift could also help regenerate interest in searching for solutions that could eliminate or seriously reduce workplace exposure to dangers, including during an influenza outbreak.

Influenza is a rapidly transmissible disease which results in symptomatic as well as asymptomatic infections. Although there is still some doubt about the importance of various means of viral transmission it is clear that, once a pandemic is recognised, the virus will already be widespread. However, unlike nurses during the 1918 influenza pandemic, nurses today are no longer exposed to the disease only in the workplace. Those who have children are highly likely to be exposed to the virus in their household; indeed all workers are likely to be exposed in the community. While at work, workers face exposure though contact with symptomatic patients, as well as from asymptomatic colleagues and visitors. A worker can also be a source of infection for colleagues.

At this time there is no ability to engineer a solution to fully (or even largely) protect staff during an influenza pandemic. Compared with their 1918 counterparts

¹²⁰ Ibid, 15.
who wore inefficient and potentially dangerous cloth masks, disposable masks may provide nurses some very limited protection. Ultimately therefore, good cough hygiene (of all persons in the hospital workplace) and scrupulous attention to hand washing, appears to present the best protection for staff, and is thus a critical part of the obligations owed to nurses and their patients/visitors. This program of WHS training needs to be provided to nurses well before any pandemic so that they do not have unrealistic expectations of a need for extensive PPE or N95 respirators. Such a program could counter expectations that the workplace will provide a high level of protection which, in the time of an influenza pandemic, will neither be required nor possible.

The next chapter explores the role of vaccines during an influenza pandemic. It is noted that many vaccines are very effective but it would appear that evidence for the value of influenza vaccination is less clear.
Chapter 8
VACCINATION

I  INTRODUCTION

Vaccination has been proposed as a means of protecting the health workforce during an influenza pandemic, with the World Health Organization saying: ‘[a]ll countries should immunize their health-care workers as a first priority to protect the essential health infrastructure’. However, given the delay between identification of a novel virus and production of a vaccine, such a goal may not be achievable. Once a vaccine is produced, preferential use for healthcare workers could be an inappropriate use of a scarce resource.

This chapter will explore the purpose of vaccination; explaining what a vaccine is, how vaccines work and the controversies that sometimes surround their use. Clearly vaccination has reduced the burden of much infectious disease but, in order to provide a high level of protection it is necessary for a large percentage of the population to be vaccinated and falling vaccination rates can result in a resurgence of disease. Despite the value of vaccination, the chapter will briefly explore evidence that public concern about (and individual resistance to) compulsory vaccination may occur if personal choice is effectively removed.

The question of vaccination against seasonal influenza and, more specifically during an outbreak of pandemic influenza, is considered. Although many vaccines are very effective, the evidence appears less certain in relation to influenza vaccines. Notwithstanding the lack of clarity on the issue, healthcare workers are increasingly being asked (particularly in the USA) to ‘accept’ vaccination as a condition of employment. As will be shown, New York workers opposed imposition of a compulsory vaccination against pandemic influenza in 2009 and it is suggested that a public refusal by health workers to ‘accept’ vaccination could

1 World Health Organization, 'Evolution of a Pandemic A(H1N1) 2009' (2010) July (month in place of page numbers). A small quantity of an H5N1 vaccine had been prepared.
impact upon vaccine uptake by the wider population and potentially be counter-productive.

II TERMINOLOGY

While there had been limited knowledge about the causes of infectious disease, vaccination or inoculation had been practiced for many years by 1918. Inoculation and vaccination both refer to the administration of a foreign substance with an intention to provide protection (immunity) from disease. While often used interchangeably, the words refer to slightly different processes. The first known target of inoculation was smallpox.

Inoculation involved the extraction of biological material from the exudate\(^2\) or crust of a smallpox pustule of a person thought infected with variola minor\(^3\) a process which, as it involved a live virus, was clearly dangerous. The material was scratched onto the skin of the recipient. The procedure became safer after Edward Jenner discovered that inoculation using the cowpox virus could protect against smallpox.\(^4\) By 1801 Jenner predicted that ‘annihilation of the Small Pox, the most dreadful scourge of the human species’, was possible.\(^5\) It would be nearly 200

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2 ‘Exudate is fluid that leaks out of blood vessels into nearby tissues. The fluid is made of cells, proteins, and solid materials. ... It is also called pus.’ [https://www.nlm.nih.gov/medlineplus/ency/article/002357.htm](https://www.nlm.nih.gov/medlineplus/ency/article/002357.htm) last accessed 7 April 2016.

3 Smallpox is an airborne disease, caused by two viruses, variola minor or variola major. The second had a mortality rate of around 30%: CDC, Smallpox Fact Sheet Smallpox Disease Overview [http://emergency.cdc.gov/agent/smallpox/overview/disease-facts.asp](http://emergency.cdc.gov/agent/smallpox/overview/disease-facts.asp) accessed 21 April 2016.

4 Edward Jenner, a general practitioner in rural England, observed that people infected with cowpox rarely experienced smallpox and, if they did, their infection was mild. He conducted a series of experiments (which would not receive approval from any ethics committee today!) to prove his theory. See Edward Jenner, *An inquiry into the causes and effects of the variolae vaccinae* (Classics of Medicine Library, 1978) first published 1798; Edward Jenner, *Further observations on the variolae vaccinae or cow pox* (Sampson Low, 1799); Edward Jenner, *An inquiry into the causes and effects of the variolae vaccinae, a disease discovered in some of the western counties of England, particularly Gloucestershire, and known by the name of the cow pox* (DN Shury, 1801); Edward Jenner, *On the Origin of the Vaccine Inoculation* (D.N. Shury, 1801).

5 Jenner, above n 4 (1801). Cowpox inoculation was first undertaken in Australia in 1803: ‘AXIOMS, Notified by Dr. Lettsom M & LLD respecting the COW-POCK’, *The Sydney Gazette* 1803, 4.
years before this prophecy was fulfilled.\textsuperscript{6} Writing about ‘inoculation for the cow-pox’, Jenner coined a new term ‘vaccinae’ (meaning ‘of the cow’ from Latin vacca, a cow).\textsuperscript{7}

In 1881 Louis Pasteur proposed use of the terms ‘vaccine’ and ‘vaccination’ for any process which created an artificial immunity from disease.\textsuperscript{8} He did so by way of ‘homage’, he said, to Jenner.\textsuperscript{9} Pasteur proved that many other diseases could be avoided, or limited in severity, by way of vaccination.\textsuperscript{10} Therefore, although the words ‘inoculation’ and ‘vaccination’ can be used interchangeably, and often were during the early part of the 20\textsuperscript{th} century, reference today is usually made to vaccination.

Likewise the two terms ‘vaccination’ and ‘immunisation’ are often used interchangeably. Again, while similar in meaning, they refer to slightly different concepts. Vaccination refers to the actual act of receiving the vaccine, while immunisation is the process of gaining immunity from that vaccine.

Finally, ‘herd immunity’ refers to the fact that, in order to provide the best protection possible, a critical mass of people must be vaccinated.\textsuperscript{11} If many people are vaccinated the ability of an infective organism to spread to a susceptible person is reduced. Population numbers needed to create ‘herd immunity’ depend upon variables such as the level of disease infectiousness. Stated simply, the chain of infection from person A to person C is interrupted if B has been vaccinated. If only a few people are unvaccinated they too may be protected, but only because of the vaccination state of others.

\begin{itemize}
\item \textsuperscript{7} Encyclopaedia Britannica (1959), Vol 22, 922.
\item \textsuperscript{8} Announced at the International Medical Conference (1881) held in London, UK.
\item \textsuperscript{9} Louis Pasteur, ‘An address on vaccination in relation to chicken cholera and splenic fever’ (1881) 2(1076) The British Medical Journal 283, 284.
\item \textsuperscript{10} For example see M Lombard, PP Pastoret and AM Moulin, ‘A brief history of vaccines and vaccination’ (2007) 26(1) Revue Scientifique et Technique-Office International des Epizooties 29, especially 34-36.
\item \textsuperscript{11} Herd immunity only applies to infectious diseases transmitted between people. For example, tetanus is a vaccine preventable serious infection. However tetanus is not transmissible so herd immunity does not apply.
\end{itemize}
A Achieving immunity

A bacterium or virus is an ‘antigen’ and exposure to an ‘antigen’ stimulates the immune system to produce antibodies.\(^\text{12}\) A person can become immune because they have been infected, but natural infection increases the risk of complications: including death. In the alternative, immunity can be triggered artificially through vaccination which mimics ‘the host’s response to natural infection without the harmful consequences of the infection itself’.\(^\text{13}\) Antibodies, whether acquired naturally or by vaccination, work to protect the individual by ‘fighting off’ foreign substances. A specific antibody is required to counter a particular antigen. If the previously exposed (or vaccinated) person encounters the antigen, their body will recognise the ‘invader’ and quickly produce antibodies. This preconditioned response will either prevent the person becoming unwell or reduce the severity of their disease.

III VACCINATION

Vaccines are produced under sterile conditions in laboratories. A vaccine can be made from an organism which is live, attenuated (weakened but still live) or dead.\(^\text{14}\) Vaccines are targeted towards a specific infective agent and, as a result, can be highly effective. A vaccine may be administered orally, inhaled or injected. Most vaccines require a single dose, while others are given as multiple doses.\(^\text{15}\) In


\[^{14}\text{Ibid.}\]

\[^{15}\text{For example vaccination against hepatitis B.}\]
some cases immunity is comparatively short-lived, meaning a limited number of vaccines need to be re-given every few years.\textsuperscript{16}

Provided the underlying virus (or bacteria) remains stable, a vaccine will be consistently effective.\textsuperscript{17} Ultimately vaccines may prove a more important public health tool than first envisaged, with medical developments increasingly extending their role. Today vaccines are used to reduce the incidence of cervical cancers\textsuperscript{18} and the creation of personalized vaccination against other cancers is under investigation.\textsuperscript{19}

Lombard et al note that historically vaccination has predominantly been ‘a public health tool, aimed at populations rather than individuals’.\textsuperscript{20} This population focus was seen with early attempts to control smallpox. The emphasis on population was also demonstrated by the community drive in the 1930’s to fund polio research,\textsuperscript{21} an effort which led to the largest experiment ever undertaken to determine the value of a vaccine. In 1954 1.8 million children across the USA were enrolled in a trial to receive either the new vaccine or a placebo.\textsuperscript{22} Once the polio vaccine had been proven safe, widespread vaccination of young children commenced.

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\textsuperscript{16} Tetanus provides a good example where regular boosters are required in order to ensure protection, \url{http://www.cdc.gov/vaccines/vpd-vac/tetanus/in-short-both.htm\#who}.

\textsuperscript{17} It has been suggested that the whooping cough vaccine is slightly less effective, perhaps in part, because the bacteria has altered slightly: Jacob Kurniawan et al, ‘Bordetella pertussis Clones Identified by Multilocus Variable-Number Tandem-Repeat Analysis’ (2010) 16(2) \textit{Emerging Infectious Diseases} 297.

\textsuperscript{18} As to controversy over the evidence for, and value of, the human papillomavirus vaccine see Michelle M Mello, Sara Abiola and James Colgrove, ‘Pharmaceutical companies’ role in state vaccination policymaking: the case of human papillomavirus vaccination’ (2012) 102(5) \textit{American Journal of Public Health} 893; Lucija Tomljenovic and Christopher A Shaw, ‘Who profits from uncritical acceptance of biased estimates of vaccine efficacy and safety?’ (2012) 102(9) \textit{American Journal of Public Health} e13.


\textsuperscript{20} Lombard, Pastoret and Moulin, above n 10, 29.

\textsuperscript{21} In 1938 the USA ‘March for Dimes’ campaign introduced by Franklin D. Roosevelt, was an early example of crowdsourcing where people were encouraged to give as much, or as little, as they could to support research into the prevention of infantile paralysis: \url{http://www.marchofdimes.org/mission/eddie-cantor-and-the-origin-of-the-march-of-dimes.aspx} last accessed 26 June 2015.

Although a vaccine is usually administered for the primary protection of the recipient, it may be administered to protect others for whom vaccination is either not feasible or where, in a particular group, vaccination is proven less effective. It has been conclusively proven that the spread of many respiratory-borne viral diseases, for example, measles, mumps and rubella, as well as airborne bacterial disease (eg whooping cough) can be interrupted if sufficient numbers of individuals are vaccinated. The fact that these vaccines are consistently effective has meant that for the protection of staff and patients, some employers may require healthcare workers to accept vaccination prior to commencing employment.

Immunisation has been ranked in the top 10 important advances made in health care over 100 years. It has been said that the ‘debate should be over … [v]accinations are one of the greatest public health initiatives’. One argument raised against vaccination is that improved living standards had contributed to the decline of infectious disease even before vaccines were introduced, therefore vaccines are unnecessary. However, as can be seen with newer vaccines, even in an era of good sanitation and nutrition, vaccines have proved their worth:

Following the introduction of the national meningococcal C immunisation program in January 2003, the number of cases decreased by 39% while numbers of people admitted to hospital with the disease was down by 47%. When the Haemophilus influenzae type B (Hib) vaccination was introduced into Australia in 1992 there was a 94% reduction in cases in children under the age of five (the most frequent illnesses caused by Hib are meningitis, septicaemia and

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24 As will be discussed, health care workers are urged to accept vaccination against seasonal influenza for the protection of the patient group (particularly elderly patients).


26 Centers for Disease Control and Prevention, 'Ten great public health achievements – worldwide, 2001-2010' (2011) 60(24) *Morbidity and Mortality Weekly Report* 814 (The achievement was also recognised in the previous list).

pneumonia). Yet living conditions in Australia have changed only marginally since 1992 or 2003.\footnote{Ibid.}

Despite the earlier community focus, people today are more likely to take ‘individual vaccination “a la carte”’,\footnote{Lombard, Pastoret and Moulin, above n 10, 29.} in other words to pick and choose the vaccines they will accept, a situation which has implications for the maintenance of effective herd immunity within the community.

Although vaccination has been proven a safe and effective way to protect individuals, unfounded scientific\footnote{Such as the linking of autism with the MMR vaccine in a small study that was later retracted Andrew J Wakefield, ‘MMR vaccination and autism’ (1999) 354(9182) The Lancet 949. Despite the retraction considerable damage was done: Dennis K Flaherty, ‘The vaccine-autism connection: a public health crisis caused by unethical medical practices and fraudulent science’ (2011) 45(10) Annals of Pharmacotherapy 1302.} and other claims\footnote{Including claims that vaccines ‘do not work’, ‘cause disease’, are ‘poison’, ‘weakens immune system’, medical profession not ‘impartial because of financial interests’ and government conspiracies: Rebekah McWhirter, Lymph or Liberty? Response to vaccination in the Eastern Australian Colonies (PhD Thesis, University of Tasmania, 2008) 260-266.} combined with the loud voice of some anti-vaccine groups,\footnote{Although purporting to promote choice, a website may really be ‘anti’ for example the Australian Vaccination Network (now the Australian Vaccination-Skeptic Network) www.avn.org.au. The network was required to change its name by the NSW Director General, Department of Finance and Services. The direction to adopt a new name was affirmed on appeal: Australian Vaccination Network Inc v Department of Finance & Services [2013] NSWADT 266.} has seen the incidence of childhood vaccination decline.\footnote{In response to the activities of the AVN (and following the death of Dana McCafferty (4 weeks of age) from Pertussis http://danamccaffery.com/openletter.html last accessed 1 June 2016) the Stop the AVN group was established: http://stopavn.com/ last accessed 1 June 2016.} The non-compulsory, ‘a la carte’ acceptance of vaccination means that people are choosing whether to submit their children or themselves for vaccination and, if so, what vaccine(s) they will accept. Unfortunately the reluctance of some to vaccinate their children has resulted in a resurgence of infectious diseases.\footnote{For example, in late 2014 an outbreak of measles was traced to a infected person attending Disney theme parks in California – a state which has a comparatively high incidence of non-vaccination. By February 2015 125 people, across 7 states, were infected. 100 were Californian residents and around half were not vaccinated: CDC, ‘Measles Outbreak — California, December 2014–February 2015’ Morbidity and Mortality Weekly Report 64(06); 153-4.}
I A risk-benefit assessment

Vaccines are generally considered safe, much safer than the disease they protect against. Paradoxically, the wide success of vaccination has resulted in some people believing these diseases no longer present a problem. Therefore individuals may feel the very small risk of vaccination to be unacceptable compared with what they see to be a hypothetical risk. However, childhood diseases can be deadly, as shown by the death of Riley Hughes from whooping cough in 2015. Riley was too young to be vaccinated and thus dependent upon ‘herd protection’. One online study found that showing people the effect of diseases such as measles or mumps increased parental acceptance of vaccination. An outbreak of vaccine preventable disease may also see parents reconsider their decision to not vaccinate children.

As with any drug, there is always a small risk that a side effect may occur following administration of a vaccine. Unfortunately there is no way to predict whether a person may react adversely. Side effects are generally minor, for example irritation at the injection site. Even though people may be convinced a vaccine caused a serious reaction (or death), it may be difficult to establish a causal link. Serious reactions occur very rarely. The Institute of Medicine (US) were

35 Oliver Ellis, ‘Swine flu vaccine is a "thousandfold" safer than the infection, say experts’ (2009) 339 British Medical Journal 2009;339.
36 Peter Law and Kaitlyn Offer, Baby dies from whooping cough in Perth’s Princess Margaret Hospital Perth Now Sunday Times (online), 18 March, 2015.
37 In the Californian measles outbreak 12 of the persons infected were too young to be vaccinated. CDC, above n 34.
40 Although contraindications to some vaccines exist. For example, it is recommended that people allergic to eggs should not receive some forms of influenza vaccination.
42 In Australia people who believe they, or their child, has experienced an adverse reaction to a vaccine can contact, the Adverse Medicines Events (AME) Line. Reported side effects are also passed on to the Therapeutic Goods Administration (TGA). See http://www.nps.org.au/medicines/immune-system/vaccines-and-immunisation/for-
asked to review adverse events associated with vaccines. Their extensive study, where 18 experts assessed 12,000 peer reviewed articles, concluded that ‘the evidence is inadequate to accept or reject a causal relationship’ that vaccines caused serious adverse events.\(^{44}\)

A significant complicating effect with vaccines is that, unlike drugs administered to treat an illness, vaccines are given to healthy people for the purpose of protecting against a potential risk. Consequently, if one person suffers an unexpected and serious event after receiving a vaccine, the story is likely to make news.\(^{45}\) Unfortunately the ‘quick bite’ (and often sensationalist) media cycle often does not allow for an equal exploration of risks versus benefits.\(^{46}\) While currently not part of the Australian legal landscape, in some countries a ‘no-fault’ liability scheme provides compensation for those who appear to have experienced a serious adverse reaction to a vaccine.\(^{47}\) Such a scheme may be particularly important where people are being asked to accept vaccination for the good of the wider community.\(^{48}\)

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43 Occasionally a problem may occur with the production of a vaccine see, for example Peter Hobbins, 'Immunisation is as Popular as a Death Adder': The Bundaberg Tragedy and the Politics of Medical Science in Interwar Australia' (2010) DOI 10.1093/shm/hkq047, Social History of Medicine I where, in 1928, 12 children died after receiving a contaminated vaccine.


45 For example, Ben Hammond temporarily became a quadriplegic after receiving a whooping cough vaccination. He slowly recovered movement but suffered other side effects. Despite this experience, he remained supportive of vaccination. Dr Richard Choong (Australian Medical Association) said that, given the rarity of the illness (Acute Disseminated Encephalomyelitis), it was impossible to say whether (or not) it was caused by the vaccine. First reported on Channel 9, 2 June 2014, available at https://www.youtube.com/watch?v=xvcMo--RM78 last accessed 7 April 2015.

46 Open letter from the Northern Rivers Vaccination Supporters group to Channel 9 responding to what they felt to be one sided reporting of the story of Ben Hammond available at http://justthevax.blogspot.com.au/2014/06/routine-vaccination-leaves-man.html last accessed 7 April 2015.


IV PERSONAL CHOICE?

Autonomy, the right to decide whether to accept (or reject) an intervention remains a fundamental ethical cornerstone of health care in Australia. Despite evidence showing the considerable benefit and safety of vaccination, some healthcare workers, like members of the general community, may be unprepared to choose vaccination.49 Yet, despite exercising a personal choice, healthcare professionals may be considered (and perhaps even exploited) as ‘experts’ by the wider community. If there was a public and mass refusal to accept vaccination by this group,50 their refusal could discourage compliance in others.

Advocates for vaccination generally promote encouragement rather than coercion.51 As will be seen, where attempts have been made to make vaccination ‘compulsory’, resistance is likely to occur. Active opposition to anti-vaccination groups may be counterproductive. Time may be better spent on changing the opinions of those who are ‘hesitant’, rather than targeting a comparatively small group holding an entrenched position.52

V COMPULSORY VACCINATION?

State intervention which attempts to improve the health of the public, including decisions that impose restrictions on individuals are ‘naturally and necessarily a political field’.53 This interplay between public health and politics is evident in the contemporary debates on the withdrawal of public funds from parents who fail to vaccinate their children: a policy which may promote compliance.

49 For example a pharmacist has published his reasons for not vaccinating his children http://thepeopleschemist.com/reasons-dont-vaccinate-children-vaccine-supporters-shouldnt-give/ last accessed 9 April 2015.
50 As happened in New York in 2009 and discussed below.
The federal no-jab no-pay legislation which came into force from January 2016 does not make vaccination compulsory, however it financially penalises those who fail to conform. Some states (NSW, Victoria and Queensland) have amended public health legislation to require proof of immunisation prior to admitting a child to care. The Australian Vaccination Sceptics Network is currently seeking a ‘financial pledge’ from supporters in order to explore legal means to challenge the ‘no jab no pay’ law.

Organised opposition to measures to compel vaccination is not new. In the UK, failure of the initially voluntary approach to improve vaccination rates against smallpox resulted in the Vaccination Act of 1853. While it has been said that ‘Australia has never legislated requirements for smallpox vaccination’, early vaccination Acts were introduced in the colonies of South Australia, Victoria and Tasmania. Although not always enforced, these Acts sought to compel parents to vaccinate their children against smallpox on threat of financial penalty or imprisonment. McWhirter found that in Tasmania, 362 of 792 individuals

54 The so-called ‘no jab no pay’ approach to childhood vaccination received bipartisan support. The Social Services Legislation Amendment (No Jab, No Pay) Act 2015 (Cth) came into force on 1 January 2016. The legislation limits exemptions to those certified by a medical practitioner on medical grounds (removing conscientious objections) or undertaking an approved ‘catch up’ program. Children need to be vaccinated in order for parents to receive Commonwealth child care benefits and rebates. This supplements legislation where, in order to be eligible for Family Tax Benefits Part A payments, a child needs to be immunized (A New Tax System (Family Assistance) Act 1999 (Cth), s 61B). See summary of the combined approaches used to increase vaccination in Daniel A Salmon et al, ‘Compulsory vaccination and conscientious or philosophical exemptions: past, present, and future’ (2006) 367(9508) The Lancet 436, 438.


56 The Vaccination Act 1853 (17 Vict. No. 20).
called to account under the Vaccination Act, were ‘summarily convicted or held to bail’.  

Yet, despite a clear danger from smallpox, compulsory vaccination was not universally popular. The anti-vaccination voice gathered force until, in response to the growing opposition, conscientious objection clauses undermined compulsory vaccination. Then, as now, ‘the vaccination debate encapsulated contemporary tensions between community welfare and individual liberty’. 

Instigating legislation to compel vaccination may be a politically popular, yet simplistic, response to a complicated issue. While, in theory the ‘no jab, no pay’ legislation does not compel vaccination, for economic reasons people could feel ‘bullied’ into ‘accepting’ vaccination for their children. The Anti-Vaccination Sceptics Network is asking people to explain how the changes will cause them serious financial stress, effectively suggesting these parents are martyrs for the cause. Unfortunately an approach which is seen to ‘push’ people into vaccinating has the potential to give additional ammunition to those who are true believers and supporters of anti-vaccination: a group that is generally small in number.

VI ARE ALL VACCINES CREATED EQUAL?

There is no doubt that vaccines have proven valuable and it is tempting to assume (without exploring further) that all vaccines are worthwhile. It has been said that ‘[w]hen an object becomes naturalized in more than one community of practice,
its naturalization gains enormous power to the extent that a basis is formed for dissent to be viewed as madness or heresy'.

Professor Peter Collignon became aware of this perception when he raised concerns about the 2009 influenza vaccination of healthy children. He estimated that 600,000 people would need to be vaccinated to prevent:

\[ \text{two or three children going into intensive care} \] and, on that basis, ‘we need to be very careful before we recommend universal vaccination ... before we have better data. Otherwise we’re talking about faith-based ... instead of evidenced-based medicine.'

Criticised for publically airing his concerns, he said that ‘[l]ike a lot of medical people, I believe vaccines are terrific — but it has come to the situation where it’s almost like motherhood, that you cannot question it, especially in the public arena, for fear you’ll undermine the vaccination program.’

The assumption that influenza vaccines are valuable because vaccines generally are valuable, should be closely investigated. This is the primary focus of the remainder of the chapter. If compulsory vaccination of healthcare workers is proposed as a means of ensuring the continuation of the health care workforce during an influenza pandemic, and to protect against staff to patient transmission, the efficacy of the vaccination should be beyond question.

### VII INFLUENZA VACCINES

The first influenza vaccine was developed in 1944, with widespread use commencing in 1957. However, by as early as 1964, a group of researchers were

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71 Professor of Microbiology at the Australian National University and Director of Infectious Diseases at Canberra Hospital.
73 Ibid. Professor Collington does support vaccination against influenza for at risk children.
75 Ibid.
raising concerns that there appeared to be little scientific evidence to show that influenza vaccination reduced the effects of respiratory illness.\(^\text{76}\)

Initially, immunisation programs in the USA focussed on the chronically ill and those aged over 65, but were extended to persons aged 45 and over in 1962.\(^\text{77}\) Over a period of six months from July 1962, ‘3 million doses of polyvalent influenza vaccine [were] distributed within the United States’.\(^\text{78}\) Despite the vaccine having an ‘efficacy of 70 per cent or greater’, there was no demonstrated reduction of clinical illness or mortality.\(^\text{79}\) It was suggested that perhaps this was because the vaccine did not reach the targeted group.\(^\text{80}\) Given that the population of the United States was nearly 186.5 million in 1962,\(^\text{81}\) the number of doses, although high, would have covered only a very small group (around 0.016% of the population). While noting that the evidence was not clear, one researcher concluded that the ‘[i]nfluenza vaccine has not so much been tried and failed but has never really been tried at all’.\(^\text{82}\)

Since then, use of influenza vaccines has increased, yet clear evidence of a benefit remains elusive.\(^\text{83}\) In the United States, the number of vaccines issued in 1990 was around 32 million doses/courses, compared with 135 million in 2013.\(^\text{84}\) Doshi shows how the reach of recommended vaccination has grown considerably

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77 Ibid, 564.
78 Ibid, 565.
79 Ibid, 566.
80 Ibid.
83 For example, examining a Universal Vaccination program (Canada) – Jeffrey C Kwong et al, 'The Effect of Universal Influenza Immunization on Mortality and Health Care Use' (2008) 5(10) PLoS Medicine 1440 found (1447) that although incidence of (non-laboratory confirmed) influenza had decreased this was due to a less severe influenza season. Likewise in Dianne L Groll and David J Thomson, 'Incidence of influenza in Ontario following the Universal Influenza Immunization Campaign' (2006) 24(24) Vaccine 5245, the researchers found (5249) no 'reduction in the rate of influenza ... following the introduction of the Universal Influenza Immunization Campaign.'
since 1960.\textsuperscript{85} Recently, the US Advisory Committee on Immunization Practices (CDC) recommended annual influenza vaccination for ‘all people aged 6 months and older’.\textsuperscript{86} Richards and colleagues argue that this approach is ‘illogical’ because herd immunity is difficult to achieve in influenza (as will be seen below, effectiveness of the vaccine is not consistent) and perhaps more importantly, the emphasis on vaccination diverts attention away from other effective (ie cheaper) non pharmacological interventions as a means of interrupting disease transmission.\textsuperscript{87}

\section*{A Difficulties in influenza vaccine composition}

Despite the push to increase vaccination rates, there are some fundamental problems with the vaccine. The constantly mutating and evolving influenza virus presents particular difficulties for vaccine production. Annually the World Health Organization recommends the composition of the upcoming seasonal vaccine.\textsuperscript{88} The vaccine may include protection against several influenza viruses,\textsuperscript{89} but the important one is that considered most likely to be the dominant strain.\textsuperscript{90} It takes approximately 5 months to produce a useable vaccine.\textsuperscript{91} Consequently, a late shift in the dominant virus may render a vaccine virtually ineffective.

\begin{footnotesize}
\begin{itemize}
  \item \textsuperscript{85} Ibid, Table I demonstrates that growth in ‘recommended’ categories has increased from 1984 onwards until the ‘recommendation’ applies to everyone.
  \item \textsuperscript{86} http://www.cdc.gov/flu/protect/whoshouldvax.htm#annual-vaccination last accessed 22 March 2016.
  \item \textsuperscript{87} Carly Noel Richards, Christine Tran and Adriane Fugh-Berman, ‘Promoting to Everyone, Focusing on No One: The Illogical Promotion of the Influenza Vaccine’ (2014) 6(1) World Medical & Health Policy 63.
  \item \textsuperscript{88} The Global Influenza Surveillance Network (GISN) holds two annual meetings – northern and southern hemispheres – to identify circulating influenza strains. This discussion gives rise to a influenza vaccine recommendation which is reported to the WHO.
  \item \textsuperscript{89} In Australia the influenza vaccine is usually Trivalent (protection against three strains) although a quadrivalent (against four strains) exists: Information on the 2015 seasonal influenza vaccine http://www.immunise.health.gov.au/internet/immunise/publishing.nsf/Content/news-20151604 last accessed 2 February 2016.
  \item \textsuperscript{90} Countries may decide to follow the recommendations of the WHO or not: Tom Jefferson et al, ‘Vaccines for preventing influenza in healthy adults’ (2010) (7) Cochrane Library 2010 3.
\end{itemize}
\end{footnotesize}
This was demonstrated in the 2014-15 influenza season, when the virus mutated after the vaccine was prepared. Although the vaccine provided some protection, it was judged to be between 18 per cent and 23 per cent effective. Reconstituted prior to its release on the Australian market, it was ‘hoped’ that the vaccine would be more effective.

The constantly changing influenza virus also means annual vaccination is recommended. The requirement for annual vaccination is a significant disadvantage with the vaccine and calls have been made for improvements in ‘vaccine qualities and production’. In light of these difficulties, attempts are being made to produce a universal influenza vaccine that would provide broader protection, perhaps even against pandemic influenza.

Even prior to the dismal response of the vaccine in 2014-15, Doshi had argued that, in light of the ‘current poor vaccine performance, influenza does not deserve to be called a “vaccine preventable disease”’. Of possibly greater concern, it has been suggested that mutation of the influenza virus could be affected and altered by vaccination.

I An amplified valuation?

Despite these concerns, influenza vaccination is often cited as providing an exceptional benefit. However, Simoneson et al point out that the apparent mortality reduction benefit is often overstated, noting that while studies ‘attribute about 5% of all winter deaths to influenza, many cohort studies report a 50%
reduction in the total risk of death in winter — a benefit ten times greater than the estimated influenza mortality burden’. Likewise Doshi, quoting studies used by the CDC, points out that a claimed reduction in total deaths of between 27–48 per cent would mean that an influenza vaccine could ‘save more lives than any other single licensed medicine on the planet’.

II    Risk

The potential risk from a vaccine needs to be considered against the risk that might arise if an individual contracted the disease. Effectiveness of the vaccine must also be a consideration. Although the influenza vaccine rarely causes more than a sore arm, the reality is that most instances of influenza are self-limiting, even though symptoms can be unpleasant. This is to be compared with the fact that influenza vaccinations are not always effective. As the comparative risk of serious illness is low, if influenza vaccinations are to be made ‘compulsory’ it is arguable that the vaccine should first be consistently effective.

III    Is annual vaccination against influenza worthwhile?

One problem when seeking to ascertain the value of an influenza vaccine is the compounding problem that influenza is one of an estimated 200 or so viruses that can cause a respiratory infection. Doshi reveals that, with ‘hundreds and thousands’ of tests undertaken in the USA, on average only around 16 per cent test positive for influenza. Differentiation between true influenza and an ‘influenza-like-illness’ on the basis of clinical signs and symptoms is impossible and only virological testing can determine whether the person is infected with influenza. Following a review of many studies, it has been argued that true influenza may account for as little as 1 to 7 per cent of all respiratory disease, although the

99 Doshi, above n 84.
101 Doshi, above n 84, 6.
102 Jefferson, above n 90.
World Health Organization suggests that, annually, 15 per cent of the population will be infected with influenza.\textsuperscript{103}

As recognised by Professor Collington, in order to prevent a single case of influenza, a disproportionately large number of people need to be vaccinated. Having reviewed a number of trials it was determined that:

under ideal conditions (vaccine completely matching circulating viral configuration) 33 healthy adults need to be vaccinated to avoid one set of influenza symptoms. In average conditions (partially matching vaccine) 100 people need to be vaccinated to avoid one set of influenza symptoms.\textsuperscript{104}

With a good vaccine match, 4 per cent of unvaccinated and 1 per cent of vaccinated subjects showed signs of influenza.\textsuperscript{105} In light of these figures, at least one group has argued that ‘vaccines may not be an appropriate preventative intervention[s] for either influenza or ILI [influenza like illness]’.\textsuperscript{106} Doshi notes that as much so called ‘flu’ is not caused by influenza, a vaccine will not prevent illness.\textsuperscript{107}

However, even if there is a ‘good match’, the vaccine is generally considered only around 60 per cent effective. This is compared to other vaccines that with a single dose create immunity for ‘[m]ore than 95\%’ of recipients.\textsuperscript{108} A Cochrane\textsuperscript{109} review of reported vaccine trials concluded that (when administered to the healthy adult), there was ‘no evidence that vaccines prevent viral transmission or complications’.\textsuperscript{110} Bridges et al found that while vaccination (with a good viral match) may reduce the incidence of illnesses, sick leave and medical visits in healthy adults, it may not provide much economic benefit.\textsuperscript{111}

\begin{thebibliography}{99}
\bibitem{103} WHO influenza fact sheet.
\bibitem{104} Jefferson et al, above n 90, 2.
\bibitem{105} Ibid 1.
\bibitem{106} Ibid 3.
\bibitem{107} Doshi, above n 84, 3.
\bibitem{109} According to the website ‘The Cochrane library brings together research which looks at the effectiveness of different health care treatments and interventions. It is recognised as the best single source of information on the effects of health care’. \texttt{http://www.cochrane.org.au/libraryguide/index.php} accessed 20 May 2012.
\bibitem{110} Jefferson et al, above n 90, 11.
\end{thebibliography}
An increasing number of researchers argue that the apparent success of influenza vaccination has been subject to multiple ‘confounding bias[es]’ which have overstated the value of the interventions, particularly in the elderly. One group asserts that, in ignoring their concerns about the lack of evidence for influenza vaccine effectiveness, ‘[t]he CDC … clearly do not weigh interpretation by quality of the evidence, but quote anything that supports their theory’. In light of the questionable evidence as to the benefits of influenza vaccination, a call has been made for more rigorous studies into influenza vaccination, although it is recognised that given the ‘global recommendations on influenza vaccination, placebo-controlled trials, … are no longer considered possible on ethical grounds’, at least not in the elderly. Yet Doshi points out that it is only the earlier, non-evidenced based, recommendation of the CDC that the elderly population should be vaccinated which has led to the situation where it is deemed inappropriate to withhold the vaccine in order to assess its value.

Clearly there is a growing body of argument that challenges the assumption that vaccination against influenza is worthwhile. Given the difficulties, some practitioners are admitting there are shortfalls with the vaccine and that they should be more honest with the public:

It’s a mediocre vaccine, it’s 65% efficacious in an average year, and it doesn’t work as well in children under age 2 years or in the elderly as it does in healthier patients. So although it is cheap and it is virtually free of side effects, it is not a great vaccine, and we have not always said that up front, … [t]he message should

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113 Jefferson et al, above n 112, 12.


115 Jefferson et al, above n 112.

116 Doshi, above n 96.

117 Doshi, above n 96; Jefferson, above n 100; Jefferson et al, above n 112; Peter Doshi, ‘The importance of influenza vaccination—reply’ (2014) 174(4) Journal of the American Medical Association Internal Medicine 645; Richards, Tran and Fugh-Berman, above n 87.
have been: it’s partial protection, but it’s cost-effective, it’s easy, and at most it causes a sore arm for 24 hours, so why wouldn’t we use it?\textsuperscript{118}

The vaccine may provide ‘partial protection’, yet many people need to be vaccinated to prevent one case of influenza. In the light of conflicting evidence, some researchers say that the question of the value of annual vaccination remains ‘open’.\textsuperscript{119}

B Compulsory vaccination of HCW’s against seasonal influenza?

Notwithstanding the conflicting and limited evidence of the value of the influenza vaccine, the Advisory Committee on Immunization Practices (USA) has suggested that health professionals should be vaccinated: primarily for the protection of high risk patients.\textsuperscript{120} By 1982 the CDC noted that some workers who faced ‘an increased risk of exposure’ were being vaccinated, but advised that ‘[u]niform recommendations cannot be made in this regard’.\textsuperscript{121} Their recommendation changed in 1984.\textsuperscript{122} Since then an increasing number of hospitals in the United States have mandated that workers must ‘accept’ the influenza vaccine or face a

\textsuperscript{118} Andrew T. Pavia, MD, is the George and Esther Gross Presidential Professor and chief of the Division of Paediatric Infectious Diseases at the University of Utah School of Medicine in Salt Lake City, Utah, in Linda Brookes, Andrew T. Pavia and Gregory A. Poland, \textit{Why Is Influenza So Difficult to Prevent and Treat?} (23 January 2015) http://www.medscape.com/viewarticle/838459Medscape Interview.

\textsuperscript{119} Cécile Viboud and Lone Simonsen, ‘Does seasonal influenza vaccination increase the risk of illness with the 2009 A/H1N1 pandemic virus?’ (2010) 7(4) PLoS Medicine e1000259.


\textsuperscript{122} Doshi above n, 84.
penalty (including termination of employment,\textsuperscript{123} while others require non-vaccinated workers to wear masks during the influenza season.\textsuperscript{124}

In the United States as well as Canada, the trend is toward requiring vaccination for healthcare workers with direct patient care responsibilities.\textsuperscript{125} At Virginia Mason Hospital,\textsuperscript{126} a mandatory vaccination programme achieved a very high compliance rate among staff.\textsuperscript{127} Yet, after five years there was no evidence to show that the programme had reduced the influenza burden among patients, nor had the programme significantly reduced staff sick leave.\textsuperscript{128} This is despite the fact that the hospital promotes the programme as being an ‘important patient safety effort to save lives’.\textsuperscript{129}

Despite the lack of an ‘evidence-based’ foundation, the Immunisation Action Coalition makes publically available an on-line ‘honor roll’\textsuperscript{130} of organisations which require influenza vaccination of staff. This roll include statements such as this:

\begin{quote}
[t]he best way to prevent transmission of influenza to our patients is to mandate vaccination of healthcare personnel. The Influenza Vaccination Honor Roll
\end{quote}

\textsuperscript{123} The first of which was Virginia Mason Hospital, Seattle, Washington: Thomas R Talbot and William Schaffner, ‘On Being the First Virginia Mason Medical Center and Mandatory Influenza Vaccination of Healthcare Workers’ (2010) 31(9) Infection Control 889.


\textsuperscript{126} Located in Seattle, Washington, US.

\textsuperscript{127} Failure to accept vaccination as a condition of employment could result in termination of employment. Talbot and Schaffner, above n 123.

\textsuperscript{128} Robert M Rakita et al, ‘Mandatory Influenza Vaccination of Healthcare Workers: A 5 Year Study ’ (2010) 31(9) Infection Control and Hospital Epidemiology 881. The authors acknowledge (886) they did not ‘systematically look for influenza in HCW’s or hospitalized patients’. There has been no further follow up on the success (or otherwise) of the program.

\textsuperscript{129} \url{https://www.virginiamason.org/MedicalFirsts} last accessed 16 August 2015.

\textsuperscript{130} \url{http://www.immunize.org/honor-roll/influenza-mandates/honorees.asp} last accessed 28 May 2016.
represents the champions who have taken the lead in mandating influenza vaccination within their organization or institution.\(^{131}\)

Such statements, suggest that agencies not doing the ‘right thing’\(^{132}\) are exposing patients to risk. This approach has the potential to see peer pressure, rather than scientific evidence, prompting other organisations to enforce a mandate and the ‘naturalization’ process will be complete.

Calls made for the mandatory influenza vaccination of all healthcare workers\(^{133}\) are often countered by equally passionate arguments against the requirement.\(^{134}\) However, even if it is (perhaps) good practice for all staff and residents of long term care facilities (or residential homes) to be vaccinated, should all healthcare workers be mandatorily vaccinated against influenza?

Moreover, while a compulsory vaccination scheme may capture most staff, the scheme fails to acknowledge that many people enter hospitals — as visitors (adults and children) of patients as well as delivery staff and other contractors — who would not be subjected to vaccination. These visitors (particularly children\(^{135}\)) can transmit influenza to the patient group. Finally, if a vaccine is estimated to be merely 18-23 per cent effective in a given year, should the employer have the right on occupational health and safety or other bases to over-ride the autonomous right of employees to make decisions about their own health care?\(^{136}\) While the vaccination health risk to employees may be small, a clear and sufficient benefit to either the patient or the employee groups cannot readily be demonstrated. In some years it is quite obvious that, because of a poor match, the vaccine itself will

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\(^{132}\) Adding to the point made by Doshi that the public health message from the CDC is ‘who-in-their-right-mind-could-possibly-disagree’, above n 84, 1.


\(^{134}\) For example: David Isaacs and Julie Leask, 'Should influenza immunisation be mandatory for healthcare workers? No' (2008) 337 British Medical Journal a2140; Mark Finch, 'Point: Mandatory Influenza Vaccination for All Heath Care Workers? Seven Reasons to Say “No”' (2006) 42(8) Clinical Infectious Diseases 1141.

\(^{135}\) As discussed in chapter 7 above.

have little value. If it is later demonstrated that regular vaccination against seasonal influenza increases risk during a pandemic outbreak, then healthcare workers who have been compelled to accept vaccination may face an even higher danger.

Healthcare workers are asked to submit to vaccination for the purposes of protecting their patients. Vaccination is justified on the basis that the health worker should cause their patient ‘no harm’ (non-maleficence). Yet, as discussed, evidence that influenza vaccination of healthcare workers will result in a demonstrable benefit for patients is weak.\textsuperscript{137} While the principle of non-maleficence may encourage workers to accept vaccination, this ethical principle clashes with the concept of autonomy. If people are to be compelled to accept a vaccination, particularly if primarily for a hypothetical (and not clearly proven) benefit for others rather than for their own wellbeing, there should be clear evidence that the intervention is of value.

\textbf{VIII PANDEMIC INFLUENZA}

Despite the proposal of the WHO that staff should be vaccinated to protect them in a pandemic, there will necessarily be a delay between the appearance of the pandemic virus and preparation of a vaccine. Because of this lag effect, the question of pandemic-specific vaccination as a preventative does not arise.

It is impossible to make a ‘best guess’ at what a novel strain of influenza might look like. For many years it was anticipated that H5N1 could be the next pandemic, until the H1N1 strain appeared. While some limited stocks of a vaccine against an H5N1 outbreak of disease had been created, it is likely that, as in 2009, the next pandemic will be caused by a different influenza. Currently, attempts are being made to develop a universal vaccine, aimed at a structural core of all

\textsuperscript{137} Gayle P Dolan et al, ‘Vaccination of healthcare workers to protect patients at increased risk of acute respiratory disease: summary of a systematic review’ (2013) 7 Influenza and Other Respiratory Viruses 93, where the authors (tentatively) conclude that the evidence ‘suggest[s] that influenza vaccination of HCWs is likely to offer some protection’. Roger E Thomas et al, ‘Influenza vaccination for health-care workers who work with elderly people in institutions: a systematic review’ (2006) 6(5) The Lancet Infectious Diseases 273 [determining that influenza vaccination of staff was only of value if residents were also vaccinated].
influenza A viruses. If this scientific endeavour is successful, such a vaccine would presumably also work against a novel influenza strain. However the prospects of success are uncertain and so do not currently provide a sound basis for framing legal and policy measures.

I Development of a pandemic vaccine

During a pandemic the dominant new virus effectively displaces the majority of all other circulating influenza viruses. As with production of the seasonal vaccine, several months may pass before a vaccine can be developed. The 2009 pandemic was announced on 11 June with a vaccine available for distribution in the United States in October 2009. Unlike the case of seasonal influenza, with pandemic influenza the virus is known. It is therefore probable that such a vaccine, once produced, would be quite effective because (unless the virus has changed in the interim) it is likely to be a clear match for the circulating virus. However, the time lag will seriously compromise the benefit of vaccination for workers who have already been exposed.

II Pre-exposure

If the 2009 pandemic influenza experience is any guide, the population (including healthcare workers) will have been exposed to the disease prior to the pandemic announcement. Healthcare workers may have been exposed in the course of their duties or, just as easily, in the community as they went about their daily life. They could have experienced an illness or they may not even have realised they had been infected. As immunity to an infectious disease can be gained by natural means, it is highly probable that some of these workers will have already

138 Natalie and Palese, above n 95.
139 For example, see chapter 1 where it was evident that the H1N1 virus was circulating well before the ‘pandemic’ announcement was made.
141 Alexander G Elder et al, ‘Incidence and recall of influenza in a cohort of Glasgow healthcare workers during the 1993–4 epidemic: results of serum testing and questionnaire’ (1996) 313(7067) British Medical Journal 1241. The study revealed that 28 per cent (32/518) had no recollection of having a respiratory illness but showed serological evidence of having been infected with influenza.
achieved a degree of immunity to the virus. This could be demonstrated by serological testing of their blood to look for antibodies.

III Risk from pandemic influenza vaccines

While generally safe, vaccines against the pandemic influenza of 2009 were not without their difficulties. One batch prepared in 2010 resulted in a high number of febrile convulsions in children under five years of age, with 1 in 110 vaccinated children experiencing a seizure.\textsuperscript{142} A spike in the incidence of narcolepsy among adolescents (1 in around every 55,000 vaccinated) was noted in Sweden and Finland.\textsuperscript{143} Vaccination against influenza has also been associated with a ‘small but significantly increased risk for hospitalization’\textsuperscript{144} with Gullian-Barré Syndrome.\textsuperscript{145}

During the 2009 pandemic, there was an indication that people who had previously received seasonal vaccination might have faced a slightly higher risk during that outbreak.\textsuperscript{146} Even if the risk is small, it could be detrimental to the health workforce (and the wider community) if compulsory seasonal influenza vaccination caused workers to face a higher risk during a pandemic.

\begin{itemize}
  \item Sleeping sickness was a side effect of the 1918 pandemic: Molly Caldwell Crosby, \textit{Asleep: The forgotten epidemic that remains one of medicine’s greatest mysteries} (Berkley Books, 2010). See also Elizabeth Miller et al, 'Risk of narcolepsy in children and young people receiving AS03 adjuvanted pandemic A/H1N1 2009 influenza vaccine: retrospective analysis' (2013) 346 \textit{British Medical Journal} f794.
  \item David N Juurlink et al, 'Guillain-Barré syndrome after influenza vaccination in adults: a population-based study' (2006) 166(20) \textit{Archives of Internal Medicine} 2217.
  \item This is an autoimmune disorder of unknown cause, which causes damage to the nervous system and can result in paralysis. Recovery can be complete (may take many months) or a person may be left with some residual weakness. May occur after infection with influenza. \url{http://www.mayoclinic.org/diseases-conditions/guillain-barré-syndrome/basics/definition/CON-20025832}.
  \item Danuta M Skowronska et al, 'Association between the 2008–09 seasonal influenza vaccine and pandemic H1NI illness during spring–summer 2009: four observational studies from Canada' (2010) 7(4) \textit{PloS Medicine} e1000258; Rogier Bodewes, Joost HCM Kreijtz and Guus F Rimmelzwaan, 'Yearly influenza vaccinations: a double-edged sword?' (2009) 9(12) \textit{The Lancet Infectious Diseases} 784 [however authors noted they could not exclude bias in the studies reviewed]. The issue was reported in the news: Annie Guest, 'Vaccines may have increased swine flu risk' \url{http://www.abc.net.au/news/2011-03-04/vaccines-may-have-increased-swine-flu-risk/1967508} last accessed 2 March 2015.
\end{itemize}
A  Compulsory vaccination against pandemic influenza?

Given that healthcare workers may have already been exposed to the pandemic strain of influenza prior to vaccine availability, it is arguable that the individual worker should be able to determine whether, or not, they wish to accept vaccination. In fact, if the vaccine is in short supply it may be an inappropriate use of a scarce resource to compel workers to ‘accept’ the vaccine. Although the concept behind compulsory vaccination is the commendable goal of the maintenance of the health workforce, this value has likely been lost because of the delay in vaccine production.

A determination as to who should receive the vaccine should be made on the basis of who faces the highest clinical risk of serious complications if infected. If, as was the case with pandemic influenza in 1918, a virus disproportionally impacted upon a certain age group, then the healthcare workers falling in that age group should be targeted, rather than the total occupational category. Preferential vaccination of children has been suggested (because of their increased risk of transmitting disease), so perhaps workers with children should be vaccinated to protect colleagues. Likewise health workers who are pregnant, or individuals with significant risk factors, should receive the first option to refuse a scarce vaccine. Healthcare workers with an underlying condition that may increase their risk of serious illness may also be more amenable to the concept of vaccination.

As mentioned, in the past, compulsory vaccination with no exemptions has resulted in public opposition. A survey of vaccination intention during a hypothetical H5N1 outbreak the willingness of health workers, across 31 intuitions, to accept vaccination rose slightly as the WHO pandemic alerts were escalated but never reached 50 per cent. In 2009, once the new influenza pandemic vaccine became available, the New York Health Department issued a directive requiring all

148 Chor, Josette S Y et al, ‘Willingness of Hong Kong healthcare workers to accept pre-pandemic influenza vaccination at different WHO alert levels: two questionnaire surveys’ (2009) 339(aug25_2) BMJ b3391
health workers to submit to vaccination. This directive was subjected to a court hearing with a temporary injunction in favour of the employees. Ultimately, due to a shortage of vaccine, the directive was withdrawn.

As an overarching consideration it is suggested that the potential danger in mandating vaccination of healthcare workers against influenza could prove counterproductive, by providing anti-vaccinationists with another platform for debate. These groups will be able to argue that even healthcare workers need to be compelled in order to accept vaccination. The argument of the anti-vaccinationists could be bolstered by evidence, such as provided above, that challenges the questionable worth of vaccination against influenza. If questions are raised about the efficacy and value of the seasonal influenza vaccine this could have flow-on effects for other vaccines, despite evidence of their clear benefit.

B Influenza and influence

Concerns have been raised relating to the interconnected behaviours of public health protection agencies and companies that produce vaccines. For example, funding for the Immunization Action Committee comes from several drug companies that produce influenza vaccines. Likewise concerns have been raised about the involvement of the CDC with an industry funded group ‘Families Fighting Flu’. The concern is that the primary goal of vaccination should not be directed toward merely increasing vaccination rates. Rather there needs to be

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151 The directive was revoked by the NY Governor, on 22 October 2009, due to a shortage of vaccine: Rick Karlin, ‘State Reverse Manadatory Vaccine’ Times Union (online) 33 October 2009.

152 As conspiracy theories are often a concern of many anti-vaccinationists, evidence raising questions about the value of one vaccine may lead to arguments that other vaccines are just there to make money.

153 The group behind the ‘honor roll’.


155 Richards, Tran and Fugh-Berman, above n 87, especially 67. http://www.familiesfightingflu.org/
clear evidence that mortality rates and hospitalisations are reduced as a consequence. While industry have a promotional role to play, this should not be to the ‘exclusion of other infection control measures’ and that there needs to be discussion ‘about the extent to which public health recommendations are distorted by relationships with industry’. A similar criticism was raised during the 2009 pandemic when plans triggered a mass production of vaccines.

IX CONCLUSION

While vaccines have reduced the burden of many infectious illnesses, evidence demonstrating the benefit of influenza vaccination is less clear. The need to ‘predict’ the circulating strain when preparing an annual influenza vaccine often finds the vaccine to be a poor match. Despite the fact that an influenza vaccine may present little risk to healthcare workers, it seems difficult to justify mandatory vaccination given the lack of evidence to show that this intervention has achieved the stated objective by improving the wellbeing of patients.

Clearly more research is needed, but further studies may support the tentative findings that seasonal influenza vaccination increased the risk of infection during an outbreak of pandemic influenza. If this is proven to be so, the fact that a health workforce has been directed to accept seasonal vaccination could mean further disruption to the health workforce at a time when the health system is under pressure. Finally, as healthcare workers will have been exposed to a pandemic strain in the months before a vaccine is produced, they could have already developed immunity to the disease. The compulsory vaccination of this workforce may be a waste of a scarce resource. If, as in New York, healthcare workers launch legal action against being vaccinated, their public refusal could have a detrimental impact on the community’s acceptance of the pandemic influenza, and perhaps other, vaccines.

156 ibid 69.
Chapter 9
CONCLUSION

Benjamin Franklin once wrote ‘[i]n this world nothing can be said to be certain, except death and taxes’ but a future outbreak of pandemic influenza is certain. Uncertainty lies in when that pandemic will occur and how dangerous it will be. While the adage, ‘prepare for the worst but expect the best’, might be a good way to prepare for an emergency, one unintended consequence may be to increase fear, leading to over-reaction. Fear and uncertainty over the potential impact of a modern pandemic leads people to seek answers in historical events. The 1918 pandemic has been ‘rediscovered’ as one potential source of answers, and the perceived high death rates of that time, particularly among the fit and healthy, have been cause for alarm.

However, while the 1918 pandemic may provide some indication of what could occur in a future pandemic, reference to that event cannot be made without it first being placed in perspective. Considerable changes have happened in society and medicine since then. The primary risk of influenza infection arises from complications and, even in 1918, more than 98 per cent of those affected recovered despite the absence of any effective treatments. Medicine has advanced beyond the realms of what could be imagined at that time. Survival rates today would be much greater.

This thesis has considered the 1918 pandemic and the ways in which medical care, and the nursing profession, have changed. The analysis has investigated medical and historical literature, including local records from the Royal Prince Alfred and Sydney Hospitals and newspaper reports. Considerable differences between the nursing workforce of 1918 and the workforce of 2016 have been revealed.

Although influenza is a known disease other infectious diseases can arise from time to time which may also have pandemic potential. However, this discussion has been strictly limited to the question of an influenza outbreak. It is not necessarily the case (although, a widespread outbreak of disease may well give rise to similar issues) that an obligation to work would always be found.

It would be interesting to further explore the understanding that nurses (including students of nursing) have in relation to pandemic influenza. In particular, it would be of value to identify, perhaps by way of a survey, whether students are advised of the risk of caring for patients with infectious diseases during their undergraduate training. Because, if infectious disease (other than as a study of illness and treatments) does not also include discussions around professional and ethical obligations this could later give rise to objections and confusion in relation to work obligations during a pandemic.

In addition an online educational module could be developed which nurses might access and complete as part of their professional obligation to undertake ongoing education.

However education must not be limited to the nurse workforce. There is a need for workplace education explaining that pandemic influenza is not a risk limited to the workplace and that workers are not likely to be more at risk than are members of the general public. Given the wide-range of individual players who make up the ‘health workforce’ consideration needs to be given to how this message can best be fashioned to meet various needs. It might also need to be a message that can be distributed during a pandemic, by these workers, to loved ones who may be unnecessarily concerned about workplace risks. All of these matters are open to further research and identification of the most effective way this public health message can be promulgated.

There is a need for education explaining that pandemic influenza is not a risk limited to the workplace and that workers are not likely to be more at risk than are members of the general public. Given the wide-range of individual players who make up the ‘health workforce’ consideration needs to be given to how this message can best be fashioned to meet the needs of multiple workers.
Finally, it would be worth considering whether the combination of emergency acts with public health acts would allow for directions to be issued which would require that a health care worker continues to provide care during a pandemic.

While it is not possible to predict the severity of the next pandemic virus, it is clear that the 1918 pandemic was an extraordinary event. Although the overall mortality rate (especially when compared with other infectious disease then commonplace) was not particularly high, it was an aggressive virus. It may be that the particular circumstances of war and large congregations of people and animals provided an incubator, allowing for the rapid percolation and then dispersal of the virus.

In 2016, the scientific and medical professions face a different problem. Influenza has been studied for over a century and, as noted in chapter 2, the ability to detect new influenza viruses has vastly improved. In consequence, increased sensitivity in testing can result in higher detection rates of ‘new viruses’. So the detection in 1997 of a highly pathogenic avian influenza in humans, with a mortality rate of around 60 per cent, substantiated fears that a new influenza pandemic would have a high mortality rate. Then, the SARS outbreak showed how quickly a virus could spread globally. As discussed in chapter 3, healthcare workers were over-represented in those affected by SARS: a disease with an overall mortality rate of around 10 per cent. A major concern for healthcare workers was the fear that caring for SARS patients would expose their families to the virus and, understandably, this led to some workers refusing to work.

The conflation of the two diseases, and the fact that some health workers refused to work during the SARS outbreak, has led researchers to wonder if hospital workers would abandon their posts during an influenza pandemic. Some of this literature was explored in chapter 4, along with the various arguments put forward to encourage (or even compel) work performance.

During the 1918 pandemic nurses faced a high risk of occupational exposure. They worked long hours. They were short of staff and cared for large numbers of patients. They worked months without a day off. They wore ineffective cloth masks while sometimes working in a ‘fog of infective droplets’. Yet, although they
experienced high levels of illness, the occupational mortality rate (with few exceptions) was similar to that of the wider population. Unlike the events of SARS, the evidence does not support the proposition that those nurses faced a higher risk of death. In chapter 7, evidence from the 2009 influenza outbreak suggests that for workers today, interactions with children rather than occupational exposure, may present the highest risk.

The primary argument is that an influenza pandemic presents a different situation to that of SARS. SARS did put healthcare workers at a greater risk. Seriously ill SARS patients were admitted to the hospital sector from home quarantine, meaning that workers faced a higher exposure to the virus than did the general population. Nurses, quite reasonably, were concerned about the risk to their families because of their work. Those caring for patients during the SARS outbreaks, when others refused to do so, were doing something more ‘dangerous’ and something over and above what was usually expected of them. In light of this they were offered (at least in Canada) ‘danger money’ in recognition. In circumstances where the health workforce is at a higher risk, ‘danger money’ may be needed in order to reward (and encourage people) to work.

But not all infectious diseases are the same, and a response needs to be designed to ‘fit’ the outbreak. Although SARS provides an interesting counterpoint in demonstrating how a serious respiratory disease can create a major disruption, influenza is a completely different disease. During an influenza pandemic, unlike SARS, the risk is community-wide rather than concentrated in the hospital environment. If the ‘normal’ baseline is little or no infectious disease, that baseline changes during a pandemic, putting everyone at some risk. This is a very important point and, for that reason, the analysis provided in relation to a duty to work during an influenza pandemic cannot be assumed to apply to all outbreaks of infectious disease.

In light of that globally altered baseline, it has been argued that nurses, and other employees, should expect to work in line with their contract of employment during an influenza pandemic. As outlined in chapter 4, arguments do not need to be made about a duty to treat or to care. Ethical arguments (although valuable as an adjunct) to justify working are not necessary. Nor do obligations to work lie
only with those who have ‘agreed’ to take care of infectious patients. The influenza virus may impact upon the person having a heart attack, or a patient following an operation, or a mother after childbirth. The virus does not discriminate. All specialities within the health system will be impacted.

Workers in the public health system, it has been argued, have an additional legal obligation to work in order to ensure that the ‘public interest’ in the provision of accessible health care is served. This reflects the higher standards public sector workers are subject to in return for the greater levels of protection in employment they receive.

The ‘worst’ influenza pandemic, occurring in the absence of any effective medical intervention, had a mortality rate of around 2 per cent. Even at that time, the majority of people who became unwell recovered without complication. Although H5N1, in the critically ill, continues to have a high mortality rate, this will not be sustained if the virus (or any other novel influenza virus) becomes readily transmissible. However there is also a risk that, given increased sensitivities in testing, influenza pandemics may seem to ‘appear’ more frequently. In light of material explored in the thesis, the following recommendations are made.

I RECOMMENDATIONS ARISING FROM THIS THESIS

A Employment obligations

It has been argued that, in the event of an influenza pandemic, it would be lawful and reasonable to expect that an employee will continue to work in line with their employment contract. This expectation should be made known to the employee before an influenza pandemic.

It would be possible to extend essential services legislation in states and territories where such legislation is absent. However as argued in chapter 5, this legislation could be unnecessary given the primary place of hospital admissions will be in the public sector. As the public sector is there to ‘serve the public’, statements of legal work expectations, during an influenza pandemic, should be generated as a local policy or directive. Any policy should be developed well
before a pandemic and made available to staff. The policy should advise employees that they have a common law obligation to work and their employment may be terminated if they refuse to work during an influenza pandemic.

However, before losing the services of an employee, a policy should provide a mechanism for a designated person (perhaps their direct manager or an infection control practitioner) to answer any questions an employee may have. During this discussion it could be explained why it is important that the worker remains in the public sector and at work. Depending on the nature of employment it may be possible to offer the worker alternative duties: but, given the widespread nature of the virus, this will not automatically ensure their safety. The policy should also allow the employee to take a few days (using paid leave if available to them) to consider their decision.

If, after this intervention, the employee still refuses to work, then it is proposed that a penalty should apply. For example, perhaps the worker should be barred from seeking employment in the public sector for a period of time — perhaps 3–6 months. This exclusion period could be revoked if the worker asks to return to work before the pandemic has ended.\(^2\) This exclusion period, if implemented, would not preclude the worker from seeking alternative employment elsewhere (including in the private healthcare sector).

It would be best if all state public sector employers held similar policies. Provided the policy is published beforehand, and followed, the rights of review (or appeal) should be limited.

Professionally regulated workers should be advised that, the refusal to work will see a voluntary notification made to the relevant National Board: for nurses the Nursing and Midwifery Board of Australia. That body can then determine what, if any, sanction should be issued against the practitioner.

\(^2\) Though, depending on the circumstances, a position may no longer exist.
B Increasing the nursing workforce

Unlike 1918, most qualified nurses are now employees rather than private practitioners. The scarcity of nurses, experienced in 1918, is no longer a problem. As outlined in chapter 6, there are many nurses who hold a valid registration but who are not working. Under the National Health Law 2009 they would be able to recommence work without restriction. These workers may be willing to accept short term contracts and are in addition to the, near, 50 per cent of the workforce who work part-time: some of whom may be prepared to increase their hours of work. Nurses holding a ‘non-practising’ registration will be able to reactivate their registration without difficulty. In 2015, that potential pool of additional nurse workers is around 53,000.

As the nursing workforce ages, more workers are recently retired. These workers may have surrendered their registration as they have no intention of re-entering the workforce or they may be included in the numbers above. If they have maintained their registration they would be able to work.

If the retiree has relinquished their registration, provided they have not been out of the workforce for 5 years or longer they would be able to reactivate their registration status. A fast-track process could be implemented by the NMBA to allow these workers to reactivate their licence. As the mandate of the NMBA is to ‘protect the public,’ where these workers can receive an endorsement from their past employer (along with an offer of a short term contract) this should be taken as raising a presumption of satisfying the regulation authority that the applicant is fit to practice. There is a considerable benefit for the employer in re-employing recent past employees, with known skills, who know the workplace. This type of registration may be of particular importance when expanding the critical care nurse workforce, since such highly specialised skills obtained over years of practice cannot be easily replicated.

While the cost of registration is not prohibitive (in 2015 it was $150) consideration may need to be given to waiving, or reducing this fee, given the period of registration is likely to be short particularly if the worker is provided with
‘limited registration’. In the alternative, the organisation intending to utilise the worker may be prepared to cover this cost.

The NMBA could send a group email to (a) nurse who are registered but not working; (b) those who are holding a non-practising registration as well as (c) to those who have surrendered, or allowed their registration to lapse (this group will most likely include recent retirees) asking that they consider making themselves available during a time of a public health emergency and outlining the fast-track registration process, costs and what, if any, limitations that may apply to the registration of those in category (c).

In the public sector, HR and employment policies are often not responsive, and systems may not be capable of appointing individuals quickly. In part this can be because state service principles require certain procedures to be followed. Employers may need to consider whether the right to directly appoint appropriately qualified individuals to a position of need, on a short term basis, should be delegated to lie with a nurse manager when people are being reemployed to meet needs during a pandemic. If the authority can be delegated, a policy needs to set out circumstances where, when, and to whom, these powers apply along with any limit on the extent of the power to appoint.

In addition to activating workers who are currently not working in nursing, around half the nursing workforce work on a part time basis and some of these workers may be willing to increase their hours of work on a temporary basis during a pandemic.

Given the potential pool of workers, it is not believed that it would be necessary to utilise students of nursing during a pandemic. If it is anticipated that students will be required, then industrial agreements must be put in place clearly identifying their scope of practice, duties, supervision requirements as well as their pay and other industrial entitlements. Nurses, who may be working with these individuals, would also need to be educated as to the role that could be expected from these workers.

It is also suggested that the NMBA generate a statement directed toward reminding professionals that, at a time when a disease is community-wide, nurses have a professional duty to continue to provide care if they are employed to do so.
This statement may also remind individuals that working while unwell could expose others (patients and staff) to risk and that individuals should seriously consider whether it is professionally appropriate to work when unwell.

C WHS and infection control

It has been argued there would be benefits from establishing infection control obligations as a sub-set (or ‘sub-discipline’) within the WHS obligation. This would have a number of potential advantages. First, it resolves the difficulties that can arise from having ‘parallel’ disciplines. Secondly, because under the Model Act patients, staff and visitors are in a workplace, primacy being given to WHS would justify visitor restrictions during a pandemic as a means of protecting staff as well as patients. Thirdly, the conceptual change would improve workplace safety culture and encourage other researchers to investigate ways in which elimination or reduction of risk could be generated by manipulation of the work environment.

As a broader recommendation, given the health workforce may be exposed to a new disease before it becomes known that a disease outbreak has commenced, workers should routine contemplate using (at a minimum) a mask when a patient presents with a fever and a cough.

D Vaccination

Many healthcare workers are being asked to submit to seasonal vaccination for the purposes of protecting their patients. However, as has been discussed, evidence that influenza vaccination of workers results in a demonstrable benefit for patients is weak. While the bioethical principle of non-maleficence may encourage workers to accept vaccination, this ethical principle clashes with the concept of autonomy. If people are to be compelled to accept a vaccination, particularly if for a hypothetical (and not clearly proven) benefit for others rather than for their own wellbeing, there must be clear evidence that the intervention is of value: that evidence currently does not exist. The concern that previous seasonal vaccination may increase the risk for the individual during a pandemic outbreak also needs to
be explored before a recommendation is made to compel seasonal influenza vaccination. A process needs to be normalised on the evidence, rather than being merely taken ‘on faith’.

Historically compulsory vaccination has been opposed. In 2009, healthcare workers in New York actively agitated against being compelled to accept a vaccine against the H1N1 virus. Given the delays in vaccine production, workers may already have immunity against the disease. Requiring their vaccination could be an inappropriate use of what might be a scarce resource. This fact, coupled with the risk that health workers petitioning against vaccination contrary to their wishes could discourage others from accepting vaccination, leads to a recommendation that vaccination against pandemic influenza should not be made compulsory.

E Education: including the public health message.

Acknowledging that education is not a panacea, a basic understanding of a few matters may help alleviate the concerns of the health workforce (and so concerns of their families). While the thesis has had nurses as the focus, a vast range of players work in the health arena. Some workers are well educated, while others may have limited literacy skills.

It has become apparent that some healthcare workers do not understand the meaning of the word ‘pandemic’. Collignon has recommended that ‘pandemic’ must include some assessment of ‘severity’. While not disagreeing with this suggestion where the word is used as a ‘trigger’ to commence various pandemic plans, it is important that workers understand that ‘pandemic’ simply means ‘widespread’. They also need to understand that an assessment of viral virulence will not necessarily be made at the outset of a new influenza outbreak. For most people influenza will be a short-term, self limiting disease which will not require treatment.

Likewise, workers should be advised that good hand hygiene and cough etiquette will probably provide sufficient protection during a pandemic. It would
be appropriate to advise workers to take these precautions at home. The use of alcohol-based wipes to clean surfaces and frequently handled items might assist in reduced viral exposure. They should be advised to stay away from the workplace if they have a respiratory illness in order to protect their colleagues and patients.

A very simple factsheet, in a range of languages, could be generated for immediate distribution to staff when a pandemic announcement is made. If created for the health care workforce there should be statement about the importance of the role of all health workers (particularly those in the public sector) during this time.

Public health messaging before and during an outbreak is very important. The most important message, and one sometimes lost, is that many people with influenza have a self-limiting disease and will recover without complications. Anti-viral medication has not proven to be as valuable as first anticipated. This means that, as in 1918, no real treatment can be offered for uncomplicated influenza. Yet, because of the ‘fear’ generated, the ‘worried well’ inundated medical practices and the laboratory system was overwhelmed in 2009. However, a public health message about a low risk disease potentially conflicts with the concurrent message stressing the importance of vaccination. Given the concerns about the value of influenza vaccines, it has to be asked whether the public health message should be reconsidered. That should not be taken to suggest that vaccination as a strategy should be abandoned, but merely a query as to whether the message can be finessed. While the question is raised here, the answer must lie with public health professionals.

The concern about ‘working’ during a pandemic may be conceptualised at an academic level rather than in the clinical/practical arena: particularly given the fact that workers continued to attend work during the 2009 pandemic. The counter argument to that could be ‘yes, but 2009 was not a highly pathogenic virus’. While the mortality rate of that pandemic was ultimately low, this was uncertain at the outset. It is true that, while the pandemic increased workloads, the health system (although under stress) managed meet the patient demand. A portion of the workload was caused by the worried well who, like many health
practitioners, had come to believe that the outbreak would cause high numbers of deaths. Therefore, as an aside, it is suggested that academics stop putting hypothetical ‘will you work in an influenza pandemic?’ scenarios to health workers: scenarios which reinforce the perception that the workers are being asked to do something ‘extra’ a perception further strengthened when a scenario is accompanied by dangerous, and differently transmitted, diseases.

II FINAL NOTE

While an influenza pandemic occurred in 2009 that does not mean a new influenza virus might not appear again. Given the increased sensitivity of viral detection there is a risk that outbreaks, previously not recognised as a new pandemic, might be identified meaning that pandemics may seem to occur more frequently. It is therefore important that the health care workforce understand that their workplace risk is not likely to be exceptionally high during pandemic influenza. For the health workforce, while workloads will increase, it will be a day (nearly) like any other during an influenza pandemic.
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