Report on COVID-19 and the impact on New South Wales prisoners

Introduction

We have been asked by Legal Aid New South Wales (NSW) to provide expert opinion on COVID-19 and the impact on NSW prisoners.

Qualifications and experience of experts

Tony Butler (BSc, MSC, MSc, PhD) Professor Butler is a leading expert on the health of offenders and has developed numerous policy-relevant projects in the justice health area. He is the program head of the Justice Health Research Program at the Kirby Institute for infection and immunity in society, UNSW Sydney, and leads a team of twelve researchers including PhD and post-doctoral researchers. He developed Australia's only two national offender health data collection initiatives including the National Prison Entrants Bloodborne Virus Survey. He has led novel studies examining mental illness among prisoners, the role of head injury in offending, an RCT of a pharmacotherapy-based trial for impulsive-violent offenders, and text mining police domestic violence event narratives. He leads the National Health and Medical Research Council (NHRMC)-funded Australian Centre for Offender Health Research. More recently he has developed two teaching initiatives: 'Public Health and Corrections' aimed the nexus between health and criminology, and the 'Inside the Criminal Mind' course.

Raina MacIntyre (MBBS Hons 1, M App Epid, PhD, FRACP, FAFPHM) is Professor of Global Biosecurity and Head of the Biosecurity Program at the Kirby Institute for infection and immunity in society, UNSW Sydney. She leads a research program in control and prevention of infectious diseases, spanning pandemics and emerging infections, epidemiology, vaccinology, biosecurity, risk analysis, personal protective equipment, mathematical modelling, public health and clinical trials. She has over 350 peer reviewed publications. She has received many awards including the Sir Henry Wellcome Medal and Prize from the Association of Military Surgeons of the US, the Public Health Association of Australia's National Immunisation Award, and the Frank Fenner Award for Research in Infectious Diseases. She currently heads a NHMRC Centre for Research Excellence in Epidemic Response. Her PhD research was on tuberculosis in prisons in the United States, and she also has conducted outbreak investigations in Australian prisons.

Paul L. Simpson (BSc (Psych), PhD) is Research Fellow of the Justice Health Research Program at the Kirby Institute for infection and immunity in society, UNSW Sydney, and Fellow of the NHMRC Centre for Research Excellence in Offender Health. He has led and contributed to research funded by the NHRMC, NSW Department of Justice, and the Lowitja Institute on prison crowding and infectious disease transmission, prison-based physical and sexual violence, and community attitudes to prison alternatives. He has led deliberative research projects that determined national prisoner health research priorities and key ethical issues of research involving prisoners. He currently is Chair of UNSW Human Research Ethics Advisory Panel for Health, Medical, Community and Social research, and is Chief Investigator on NHMRC project 'Second survey on sexual health and attitudes of Australian prisoners' and research evaluating the electronic monitoring of domestic violence perpetrators and victims.

Michael Levy (MBBS Hons, MPH, FAFPHM) was the Clinical Director of Justice Health Services (ACT) from 2007 to 2018. He is a Public Health and a Clinical Forensic Physician with national and international experience in prisoner health. He has worked with the World Health Organization and the European Committee for the Prevention of Torture - "CPT". Between 1995 and 1997, he worked at the Global Tuberculosis Programme at World Health Organization Headquarters (Geneva, Switzerland). He resumed active clinical practice in 2007, developing the primary care model for adult and juvenile persons in detention. He currently works part-time as a Medical Officer with a Canberra-based non-Government Organisation, focusing on clinical management of drug and alcohol affected patients. He has a professorial appointment with the School of Medicine Australian National University and is a Board Member of the Community Restorative Centre, a non-government organisation concerned with the welfare of families of prisoners and the re-integration of ex-prisoners back into the community. In June 2014 he was recognised for meritorious service with the Member of the Order of Australia in the General Division (AM) – "For significant service to medicine in the field of public health as a clinician, academic and educator".

Our instructions

We have been instructed to address the following questions:

1. What is COVID-19 and how is it spread between individuals?

2. What are the symptoms of COVID-19? Please explain what kind of symptoms a person who is severely affected by the infection would suffer, and the likely duration of such symptoms? Please also explain whether a person who is severely affected by the infection but does not die, is at risk of suffering future health complications?

3. How long may a person who has contracted COVID-19 by asymptomatic?

4. Please explain the accuracy of tests administered to screen people for COVID-19?

5. What underlying conditions (including age and pre-existing health conditions) may increase the risk of an individual (1) contracting COVID-19 (11) suffering severe symptoms; (iii) dying?

6. What is the current rate of (i) infection; (ii) suffering severe symptoms; and (iii) mortality within the community?

7. What is the likelihood of COVID-19 entering a correctional centre?

8. What is the likely rate of (i) infection; (ii) suffering severe symptoms; and (iii) mortality within the correctional centres?

9. Are there any correctional centres in NSW which would be more likely to be affected? For example, say Long Bay Hospital and Correctional Centre or correctional centres which have inmates who are being transferred to Prince of Wales Hospital for medical treatment?

10. Are current NSW correctional centre capacity levels of significance in relation to being able to control the spread of the virus?

11. Can you comment on the significance of intake and exit numbers from custody (understood to be in the order of 19,000 each, annually) for issues of containment and spread of the virus in correctional centres?

12. Once an outbreak occurs please explain what issues may potentially arise in terms of containment/management and health implications for inmates and staff.

13. What practical measure would be necessary within a correctional centre to (i) minimise the risk of individuals who are currently in custody contracting COVID-1`9 (ii) properly isolate and contain COVID-19 if an individual (individuals) contract the virus?

14. Are you able to comment on the concept of cluster amplification, and the impact of the spread of COVID-19 to correctional centres may have on the spread of the virus amongst the NSW or Australian population?

15. What implications are there for the capacity of Justice Health to deliver medical services generally (including at Long Bay Hospital and in clinics at all correctional centres) to inmates in circumstances where COVID-19 spreads to correctional centres?

16. Would you support consideration of a management approach that prioritised early release generally, and if so, are there particular inmates who should be prioritised?

17. Would you be able to comment on the known and likely effect on conditions in which inmates are held resulting from recent changes to procedures since the announcement of the pandemic of COVID-19, in particular restricting visits, lockdown procedures and access to services and programs, as these relate to:
    a. the physical conditions in which prisoners are held;
    b. inmates' access to exercise;
    c. inmates' access to training and education programs and other services;
    d. inmates' access to medical care;
    e. inmates' mental health.

18. Would you be able to comment on the known and likely effect on the conditions in which inmates are held that is likely to result if and when the virus spreads within NSW Correctional Centres, in particular as these relate to:

    a. the physical conditions in which prisoners are held;
    b. inmates' access to exercise;
    c. inmates' access to training and education programs and other services;
    d. inmates' access to medical care;
    e. inmates' mental health and psychosocial needs

19. Please comment on the increased risk of infection and issues that will arise regarding those prisoners who are housed in "rapid build" dorm style accommodation? Inmates are held in 25 bed open-plan dorm living spaces with small barriers lower than shoulder height dividing their personal areas (in Rapid-Build Prisons). These prisons were designed for inmates to be out of the living area for 12 hours per day while in programmes. If these

inmates are locked in for extended periods of time during the COVID-19 pandemic period, are they at a higher risk of contracting COVID-19 than the general prison population? Example picture of "rapid build" dorm style accommodation provided.

20. To what extent can the measures announced by relevant government agencies to date aimed at addressing the spread of the virus in correctional centres effectively address the problems arising from and likely to arise the pandemic?

21. Any other matters in addition to the above that are relevant in your opinion to the issues relating to COVID-19 and the prison population in NSW?

22. Please comment, in so far as you are able, on whether your opinion would be the same with respect to immigration centres? Please elaborate.

23. Please comment in so far as you are able, on whether your opinion would be the same with respect to children who are being held in custody by Juvenile Justice? Please elaborate.

Source materials

In formulating our opinion, we draw upon our experience as set out on page one. We have also relied on peer-reviewed academic papers from medical, epidemiology and public health journals, including: The Lancet, the British Medical Journal, Medical Journal of Australia, and the New England Journal of Medicine; reports by academic centres, research institutes and international agencies including the World Health Organization and International Centre for Prison Studies; and public health institutions such as the US Centers for Disease Control and Prevention. Sources are referenced within the body of the report where appropriate. We have also relied on current Correctives Services New South Wales (CSNSW) and Justice Health and Forensic Mental Health Network (JH&FMHN) documents, procedures and plans where available, such as the 'COVID-19 and CSNSW Response document', 'Procedures at Long Bay Hospital Pandemic Plan', and the Offender Population report for the week ending 22 March 2020; and the National Guidelines for the Prevention, Control and Public Health Management of COVID-19 Outbreaks in Correctional and Detention Facilities in Australia, produced by Communicable Diseases Network Australia (a joint initiative of the National Health and Medical Research Council and Australian Health Ministers' Advisory Council).

The questions asked

1. **What is COVID-19 and how is it spread between individuals?**

   COVID-19 is a viral respiratory infection thought to have emerged from bats and jumped the species barrier to humans in China late in 2019. It is caused by a beta-coronavirus and is most closely related to SARS, which occurred in 2002-2003. It spreads through the respiratory route – large droplets and airborne particles, as well as direct contact with contaminated surfaces. The virus is also present in faeces and may be aerosolised by flushing of the toilet. Virus has also been found in blood donations of asymptomatic people, so the possibility of blood borne transmission exists, although not proven. The main modes of transmission are breathing in contaminated air or touching a contaminated surface and then touching the mouth, nose or eyes.[1-3]

2. **What are the symptoms of COVID-19? Please explain what kind of symptoms a person who is severely affected by the infection would suffer, and the likely duration of such symptoms? Please also explain whether a person who is severely affected by the infection but does not die, is at risk of suffering future health complications?**

   The most common symptoms are fever and cough, followed by shortness of breath. A range of other symptoms including runny nose, sore throat, headache and stomach-ache may occur but are less common. The risk of severe complications and death rises with age and is also higher in people with chronic diseases such as hypertension, cardiovascular disease, diabetes and cancer. The illness typically begins as a mild prodrome that may last 5-7 days and may be like a mild cold. Some people, especially younger people, may only get a mild cold-like syndrome. After the mild prodrome, some will develop severe disease – the first sign of this is usually shortness of breath. Chest pain, diarrhoea, vomiting and other symptoms may occur. About 80% have mild illness that does not require hospitalisation, 14% may need hospitalisation and 6% require intensive care admission. About 3% of infected, symptomatic people will die of complications. The cause of death is usually respiratory failure, but all other organ systems may fail in late stage disease, including the heart and kidneys. Cardiac complications are common, through direct infection of the heart and through indirect effects of the lung infection. These include arrhythmias and cardiac injury, as well as heart failure.[1-3]

3. **How long may a person who has contracted COVID-19 by asymptomatic?**

   Some people will become infected and be entirely asymptomatic.[4,5] Data are less available for this, but the duration of virus shedding is quite long, may be 7 days for asymptomatic people. In terms of infectiousness, the highest infectiousness is early, when people have no symptoms (pre-symptomatic phase, the 2 days prior to symptoms starting) or the first day of symptoms.[1,2]

4. **Please explain the accuracy of tests administered to screen people for COVID-19?**

   The PCR based tests are used in Australia routinely and require a clinical sample (sputum, throat swab or nasal swab).[3] The sensitivity of the test is highest for sputum, followed by nasopharyngeal swab, followed by throat swab. Throat swabs may be falsely negative multiple times in people with confirmed illness. This is why in China CT scan of the chest was used to diagnose patients – it enables rapid diagnosis and isolation of the patient.[2] The CT appearance of the pneumonia is quite typical (diffuse "ground glass" appearance).

5. **What underlying conditions (including age and pre-existing health conditions) may increase the risk of an individual (1) contracting COVID_19 (11) suffering severe symptoms; (iii) dying?**

   Hypertension, cardiovascular disease, diabetes and cancer; immunosuppression of any causes (chemotherapy, autoimmune disease, HIV), and chronic respiratory disease (COPD, asthma) can increase risk of an individual contracting, suffering severe symptoms, and dying from COVID-19.[1-3]

6. **What is the current rate of (i) infection; (ii) suffering severe symptoms; and (iii) mortality within the community?**

   We do not know, because we do not test high-risk, asymptomatic people and have not done serological (blood test for antibodies) surveys. We can only refer to official case counts. New South Wales (NSW) is the most affected State with 2,886 cases on April 15th, 2020. It is estimated that there may be between 18% to 62%[5,6] of all COVID-19 cases which are asymptomatic and possibly up to 10 mild or asymptomatic cases for every confirmed case.[7]

7. **What is the likelihood of COVID-19 entering a correctional centre?**

   The likelihood of an index case (i.e. first documented patient in a disease epidemic within a population) entering a correctional centre is dependent on the characteristics of the individual, their likely exposure and infection, and the preparedness and prevention protocols practiced within a correctional centre.

   Regarding likely exposure, it is important to assess if a potential index case has resided or visited a community with a high prevalence of COVID-19. The risk of COVID-19 exposure in such cases depends not on the prevalence of disease now in such a community, but the prevalence of disease at the time of exposure and infection, so that the incubation period is considered (mean incubation period 5-7 days, range 1-14 days).[1] Regarding likely infection from exposure, and the potential for transmission, this is difficult to ascertain due to a lack of surveillance-based evidence.

Screening tools are reported by government agencies to be a key element in preventing COVID-19 entering a correctional centre. To date, there are no screening tools that offer high sensitivity to detect individuals with COVID-19 in NSW Correctional Centres. Current screening tools for people entering NSW prisons include recording: (i) history of exposure and (ii) clinical evaluation. With transmission from asymptomatic and mildly symptomatic cases possible, and if transmission becomes more widespread in NSW, identifying contact with cases (history of exposure) becomes more difficult. Regarding clinical evaluation, symptoms such as fever, cough, sore throat also show low sensitivity, but the positive predictive value of these symptoms will increase during an outbreak. It is also important to note that persons with COVID-19 can transmit the virus when they are asymptomatic and pre-symptomatic, and that fever reducing agents such as paracetamol can conceal a fever.

We can confidently state that as the pandemic progresses in the wider community, the risks of any potential index case entering a correctional centre will be high. The situation internationally, where there have been several outbreaks in prisons, supports this.

8. **What is the likely rate of (i) infection; (ii) suffering severe symptoms; and (iii) mortality within the correctional centres?**

This depends on the age structure of residents and staff. If it is a young age structure, the rate of severe illness and death would be lower than the overall rates cited above. Statistics indicate a clear trend towards increased numbers of older prisoners in Australian prisons. Despite different definitions, many writers and researchers define 'older prisoners' as being persons aged 50 years and over. This definition can provide an appropriate gauge for 'old age' in prison as research suggests a 10-year differential between the overall health of prisoners and that of the general population.[8]

9. **Are there any correctional centres in NSW which would be more likely to be affected? For example, say Long Bay Hospital and Correctional Centre or correctional centres which have inmates who are being transferred to Prince of Wales Hospital for medical treatment?**

If we are correct in interpreting the phrase 'more likely to be affected' to mean more likely to introduce an index case, then the answer would depend on the level of spatial density within cells (i.e. cell floor area per person) and the wider correctional centre, and the number of persons entering the correctional centre.

Remand and reception centres are obvious places where COVID-19 cases are more likely to be identified because of the high number of persons entering the correctional centre from the wider community (i.e. persons remanded in custody). In 2019, between 1,500 to 1,800 adult prisoners each month entered custody in NSW.[9] As of March 2020, 4,814 (53%) persons in NSW correctional centres are currently on remand.[10] There are various remand and reception centres in NSW, with most people entering the Metropolitan Remand &

Reception Centre (MRRC) at Silverwater for men or Silverwater Women's Prison for women.

The example provided in the question suggests an opinion is requested regarding prisoners' exposure to hospital settings or health care workers in such settings. There is a growing opinion that persons in contact with these [clinical] settings have a higher risk of exposure to COVID-19.[11] Infections among health care workers in these settings will likely depend on the prevalence of COVID-19 in the communities which utilises the setting. It has been reported that in the high prevalence country of Italy, 20% of responding health-care workers were infected.[11] We note that as of April 15th, 2020, three health staff at the Long Bay Prison Complex (including the Forensic Hospital) have reportedly been infected with COVID-19.

10. Are current NSW correctional centre capacity levels of significance in relation to being able to control the spread of the virus?

Current NSW correctional centre capacity levels are difficult to ascertain as there is no publicly available data for NSW on capacity or 'prison utilisation' (a term for capacity defined in the Productivity Commission, Report on Government Services 2020 as 'annual daily average prisoner populations as a percentage of the number of single and shared occupancy designated beds provided for in the design capacity of the prisons'). The most recent year in which CSNSW reported on capacity was 2016-17 where capacity stood at 123%.[12] This figure, combined with work undertaken by the NSW Inspector of Custodial Services,[13] indicate that CSNSW have experienced capacity and prison cell spatial density (cell floor area per person) issues in recent years. Two 'rapid-built' prisons have been built to mitigate these capacity issues.[14]

The concepts of crowding and prison cell spatial density are relevant to COVID-19 transmission as they have been linked to adverse health outcomes, including the transmission of infectious diseases. To determine the evidence of the association between prison cell spatial density and infectious disease, a systematic review of the literature was conducted using a protocol developed in consultation with an advisory panel comprising infectious diseases experts, public health professionals, academics and custodial administrators. Of 5,126 articles screened, seven were selected from Pakistan (2003), Chile (2016), Nigeria (2012, 2013) and the USA (1980s). While the quality of most studies was methodologically 'poor' or 'fair', there was mostly consistent evidence (according to National Health and Medical Research Council assessment criteria) that cell spatial density is associated with infectious diseases outcomes including mycobacterium tuberculosis, pneumococcal disease, and infectious dermatoses.[15]

Additionally, in 2009, the Alexander Maconochie Correctional Centre (AMC) in the Australian Capital Territory successfully contained the highly infectious disease H1N1 influenza, resulting in a single case or 0.08% of all prisoners identified with influenza-like

illness (ILI). In comparison, a study of all NSW correctional centres during the same time period showed that 43% of prisoners with ILI were positive for H1N1 2009 influenza, with five cases admitted to hospital include two prisoners transferred to intensive care. Interesting to note here, is that the AMC at the time of the study was under its official prisoner capacity and thus had low spatial density. Being the only prison in the ACT, there were no prisoner movements between prisons.[16]

Given the evidence we believe there are reasonable grounds to claim that capacity levels are of significance for infectious disease control in correctional centres. Correctional centres that have high levels of spatial density will likely be challenged in containing a COVID-19 outbreak because infection can spread rapidly in a crowded closed settings and capacity to isolate suspected or confirmed cases may be limited.

11. **Can you comment on the significance of intake and exit numbers from custody (understood to be in the order of 19,000 each, annually) for issues of containment and spread of the virus in correctional centres?**

As noted above, as the pandemic evolves in the wider community, the risks of any potential index case entering a correctional centre will increase. The larger the number of potential index cases entering or (re)entering correctional centres (prisoners, staff or visitors) the greater the risk of a 'potential' or 'confirmed' outbreak. In 2019, between 1,500 to 1,800 adult prisoners entered custody each month in NSW.[9]

12. **Once an outbreak occurs please explain what issues may potentially arise in terms of containment/management and health implications for inmates and staff.**

Both medical and social issues are likely to arise in the context of an outbreak of COVID-19 in correctional centres.

Corrective Services infection control measures may evolve and follow measures taken in the US, such as stricter 'lockdown' measures which include more time prisoners are confined in cells over periods of days or weeks, which consequently may increase tensions and psychological distress. In one review of the evidence on the psychological effects of restrictive housing in correctional settings, mixed evidence was reported with studies fraught with definitional, geographic, and methodological problems. Yet, four of the seven studies reviewed reported greater likelihood of either a decrease in psychological functioning or psychiatric diagnosis for segregated groups.[17] Segregation in this review was defined as 'any type of detention that involves three basic elements: removal from the general inmate population, whether voluntary or involuntary; placement in a locked room or cell, whether alone or with another inmate; and an inability to leave a room or cell for the vast majority of the day, typically 22 hours or more'.[17]

It is our opinion that, the reduction or removal of opportunities for meaningful and structured activities for prisoners such as exercise, education, training, work, informal socialising, and the real or perceived chance of being subject to long term cell confinement ('lockdowns') will impact on prisoner's mental health and well-being. The idea of a new

‘deadly virus’ entering the prisoner population will also not sit well for many prisoners. These factors increase the likelihood of expressions of prisoner resistance, including riots as has been witnessed internationally and locally.

13. What practical measure would be necessary within a correctional centre to (i) minimise the risk of individuals who are currently in custody contracting COVID-19 (ii) properly isolate and contain COVID-19 if an individual (individuals) contract the virus?

Standard management practices will need to be followed:

1. Identification of all cases – this will require symptom screening and testing. If the policy of not testing asymptomatic people (inmates and staff) during an outbreak is followed, many infections will be missed, and an ongoing outbreak is likely. Universal testing during an outbreak will also ease the requirements for mass quarantine.
2. Identifying close contacts and quarantining contacts for 2 weeks. This requires isolation and symptom monitoring. Anyone who develops symptoms is tested.
3. Physical distancing – spatial separation of 2m or more if possible.
4. Ceasing all visits; ceasing rotation of staff and prisoners.
5. Disinfection with chlorine or 70% ethanol-based disinfectants

14. Are you able to comment on the concept of cluster amplification, and the impact of the spread of COVID-19 to correctional centres may have on the spread of the virus amongst the NSW or Australian population?

Two characteristics of prisons have seen them labelled as ‘epidemiological pumps’:[18] high population density confinement as discussed above; and the porous borders between such a confined population and the wider community. Historical events and recent studies support this notion. As far back as the 16th Century, typhus (‘gaol fever’) was documented as being responsible for a significant number of deaths in English prisons, and responsible for community outbreaks when it ‘jumped the fence’. A more recent example of prisons impacting on the wider public health occurred in the former Soviet Union in the 1990s where the epidemic of mycobacterium tuberculosis (TB) in the prisoner population was linked to its re-emergence in the community.[19] Such events were linked to an upturn in TB incidence in Russia followed slightly later in Western countries, implicating prisons in the global re-emergence of TB.[20]

COVID-19 outbreaks on multiple cruise ships show the potential for transmission and disease in a closed setting with high spatial density to impact on the broader community. The US’ Centres for Disease Control COVID-19 Response Team have reported over 800 laboratory-confirmed COVID-19 cases occurring during outbreaks on the cruise ships Diamond Princess and Grand Princess.[21] As of 3rd of April, 2020, cruise ship voyages into Sydney with confirmed COVID-19 cases include the Ovation of the Seas (74 cases), the

Voyager of the Seas (34 cases, as well as 5 crew members), the Celebrity Solstice (11 cases), and the Ruby Princess which docked on the 19th March (337, as well as 3 crew members).[22] Outbreaks of COVID-19 on cruise ships pose a high risk for the rapid spread of disease beyond the ship.[21] Analysis of COVID-19 outbreaks 'seeding' wider community transmission supports this claim.[23] For example, clusters associated with two churches, a company conference, a tourist group, a ski chalet, and a hospital have been linked to community transmissions in several countries.[23,24] It is thus plausible that closed environments contribute to secondary transmission of COVID-19 and promote 'superspreading events'. Reduction of spatial density and close contact in closed settings are likely to help prevent cluster events spreading beyond those confines.

15. **What implications are there for the capacity of Justice Health to deliver medical services generally (including at Long Bay Hospital and in clinics at all correctional centres) to inmates in circumstances where COVID-19 spreads to correctional centres?**

Implications for the capacity of the prison health system will depend on the number of suspected and confirmed cases and the speed of case spread. It is safe to assume that a COVID-19 pandemic affects the entire NSW health care system. This is likely to take the form of reduced capacity in hospitals, local public health units, and other services. We support the view of members of the Communicable Diseases Network Australia (a joint initiative of the National Health and Medical Research Council and Australian Health Ministers' Advisory Council), that correctional centres may not be able to receive the same level of support that they currently receive from other parts of the health care system during a community outbreak, that the number of health care workers available to provide care to prisoners may be reduced by up to one-third due to personal illness, concerns about transmission in the workplace, and caregiving responsibilities, and that usual sources of supplies may be disrupted or unavailable, [25]

If estimates [by Richard Coker who uses an reproductive rate (R0) of 2.5 noting larger margins of error for smaller population sizes] are plausible and credible, that 40% to 80% of people in immigration detention could become COVID-19 infected,[18] extrapolating this to the NSW prisoner population of 14,000 (as of March 2020), then the prison health system stands to manage an additional 5,600 to 11,200 patients. If 500 cases were of a severity requiring hospital admission, then this will likely overwhelm both prison health and NSW health systems. We acknowledge that as of April 15th, 2020, R0 estimates in NSW appear under 2.5

On the 31 March, Federal Health Minister Greg Hunt announced preparedness plans for health system impacts where 34,000 private hospital bed, including Intensive Care Unit (ICU) beds, and 105,000 private sector health staff would be integrated with the public health system.[26] Under this plan, Minister Hunt stated that private hospitals would be used

for quarantine and isolation of vulnerable members of the community including prisoners. It is difficult to assess if these number of beds and staff will be adequate.

16. Would you support consideration of a management approach that prioritised early release generally, and if so, are there particular inmates who should be prioritised?

Given the importance of physical distancing in managing COVID-19 transmission, the concept of crowding is crucial to this question. As previously mentioned under question 10, CSNSW have experienced capacity and prison cell spatial density issues in recent years.[12] Prison 'cell spatial density' (cell floor area per person) is a credible and objective metric of crowding as alternative measures such as 'current prisoner population divided by reported prison capacity' or 'number of square metres/feet of the total prison floor area per person' are amenable to manipulation by correctional authorities.[8,9]

As noted above, we reviewed the global evidence on the association between prison cell spatial density and infectious disease. While the quality of most studies was methodologically 'poor' or 'fair', there was mostly consistent evidence that cell spatial density is associated with infectious diseases outcomes including mycobacterium tuberculosis, pneumococcal disease, and infectious dermatoses.[5]

Interventions and strategies that might mitigate infectious disease transmission in relation to cell spatial density, or mediating factors, was also examined in the peer-reviewed and grey literature. Nine prisoner and prison-related factors were identified as important: (i) age (older prisoners); (ii) education level (lower levels); (iii) medical conditions (particularly chronic conditions); (iv) risk behaviours (tobacco use and other drug use); (v) ventilation; (vi) duration of incarceration; (vii) cell allocation; (viii) prison health service access; and (ix) decarceration (to increase prisoner spatial separation).[10]

Given the current threat that COVID-19 presents to places of detention and the wider community, and alongside standard plans to improve prison hygiene, screening, testing and the isolation of sick people in adequate spaces, decarceration strategies ought to be prioritised as a mechanism to reduce cell spatial density thereby reducing the risk of infectious diseases transmission. While this may seem an unsettling approach to some, there are precedents. Iran recently released up to 85,000 prisoners to prevent COVID-19 spreading in prisons, with many other countries such as Afghanistan, Canada, Ethiopia, Germany, Israel, Poland, the United Kingdom, and the United States considering this option as we write.[11] The Iranian government prioritised those with pre-existing health conditions determined not be a 'risk' to the public.[12]

Consideration of the United Nations' recommendations,[13,14] the nine mediating factors highlighted above, and current COVID-19 knowledge, suggests any decarceration strategy should involve the release of prisoners based on risk to the community and the health status

of those most at risk (e.g., the elderly, those with chronic health conditions, and health risk behaviours such as intravenous drug users). The poor health outcomes of Aboriginal and Torres Strait Islander peoples make this group an obvious priority for consideration of release.

Prison facilities with high spatial density should be prioritised in any managed decarceration approach. This should be implemented before a COVID-19 index case has a chance to enter a correctional centre, as preventing an outbreak carries fewer challenges and less costs than controlling a full-blown outbreak, which should include isolating or quarantining those released in community settings. Although the risk to persons is likely to be much lower in the wider community, where physical distancing is more feasible than in a detention setting, a managed approach should ensure adequate health, social and economic supports are in place for prisoners released.

17. **Would you be able to comment on the known and likely effect on conditions in which inmates are held resulting from recent changes to procedures since the announcement of the pandemic of COVID-19, in particular restricting visits, lockdown procedures and access to services and programs, as these relate to:**
    a. **the physical conditions in which prisoners are held;**
    b. **inmates' access to exercise;**

       Regarding a. and b., keeping healthy and mentally well during longer than usual lockdown periods is important and so enabling time out of cell is important. However, this needs to be tempered with maintaining physical distancing and so an approach that involves smaller numbers of prisoners being let out to exercise is endorsed. This may entail letting prisoners out to exercise around the clock.

    c. **inmates' access to training and education programs and other services;**

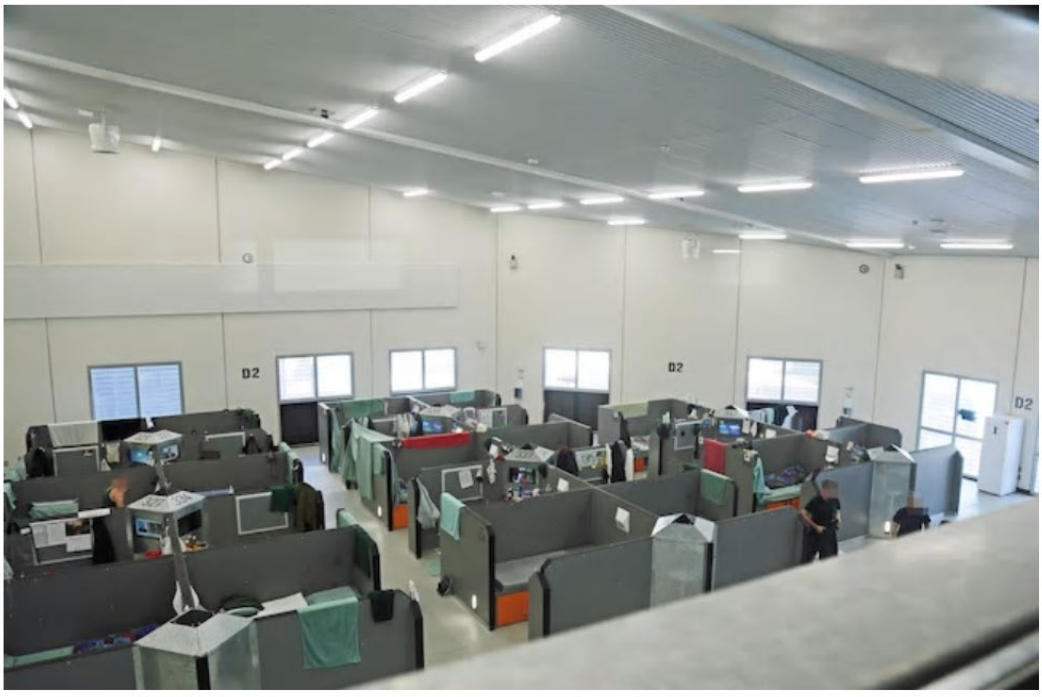
       Approaches that enable training and studying to continue are endorsed but will require modification to accommodate potential periods of lockdown.

    d. **inmates' access to medical care;**
       As noted above, the ability of 'the system' to provide care to prisoners may be compromised during a community outbreak.
    e. **inmates' mental health.**
       Measures to maintain mental health are important during periods of prolonged lockdown.

18. **Would you be able to comment on the known and likely effect on the conditions in which inmates are held that is likely to result if and when the virus spreads within NSW Correctional Centres, in particular as these relate to:**
    f. **the physical conditions in which prisoners are held;**
    g. **inmates' access to exercise;**
    h. **inmates' access to training and education programs and other services;**
    i. **inmates' access to medical care;**

As noted under questions 12 and 18, the reduction or removal of opportunities for meaningful and structured activities for prisoners such as exercise, education, training, work, informal socialising, and the real or perceived chance of being subject to long term cell confinement ('lockdowns') will impact on prisoner's mental health and well-being.

19. Please comment on the increased risk of infection and issues that will arise regarding those prisoners who are housed in "rapid build" dorm style accommodation? Inmates are held in 25 bed open-plan dorm living spaces with small barriers lower than shoulder height dividing their personal areas (in Rapid-Build Prisons). These prisons were designed for inmates to be out of the living area for 12 hours per day while in programmes. If these inmates are locked in for extended periods of time during the COVID-19 pandemic period, are they at a higher risk of contracting COVID-19 than the general prison population? Example picture of "rapid build" dorm style accommodation:



An aerial view of a rapid-build prison wing. Credit: Corrective Services New South Wales

As noted above, assuming an infectious agent has been introduced into a closed setting, spatial density becomes a key consideration of potential exposure and infection among other prisoners within that closed setting. A closed setting with no exposure as a result of no contact with external persons may act as a quarantine space, but prisons and prison dormitories are unlikely to meet these conditions.

Another key consideration is ventilation and airflow. Adequacy of ventilation can be measured by determining carbon dioxide levels and the volume of outside air per occupant and is inversely proportional to spatial density levels. Very high carbon dioxide levels within a closed setting serves as an indicator of insufficient ventilation.[27] One study which investigated an

outbreak of pneumococcal disease in a US' jail designed for persons on remand concluded that host susceptibility, ventilation and spatial density contributed to the outbreak. Disease attack rates were highest in 4-person cells (2.9m^2 per person cells) and dormitories (2.6m^2 per person).[27] Another US' study reported an outbreak of TB in HIV-infected prisoners housed in a dormitory with subsequent transmission of TB outside the prison. This study did not define the spatial dimensions of the dormitory.

It is plausible then, that if prisoners in dormitories are locked in for extended periods of time during a COVID-19 outbreak period, and exposure to a COVID-19 case within the dormitory by fellow prisoners or staff has occurred, then these prisoners are at a much higher risk of contracting COVID-19 than the general prison population. Adequate ventilation and low spatial density levels would mitigate this risk.

20. To what extent can the measures announced by relevant government agencies to date aimed at addressing the spread of the virus in correctional centres effectively address the problems arising from and likely to arise the pandemic?

Government measures announced for the NSW correctional system appear to be aligned with the National Guidelines for the Prevention, Control and Public Health Management of COVID-19 Outbreaks in Correctional and Detention Facilities in Australia, produced by Communicable Diseases Network Australia (CDNA). These CDNA Guidelines were adapted from the CDNA National Guidelines for COVID-19 Outbreaks in Residential Care Facilities in Australia, and guidelines from international health authorities including the Public Health Agency of Canada and the Ministry of Justice and Public Health England. Both guidelines and announced government measures seem reasonable given the evolving nature of both the pandemic and COVID-19 knowledge acquisition. However, we have three key concerns with announced guidelines/measures which relate to: (i) overlooking the asymptomatic issue; (ii) reducing spatial density before an outbreak; and (iii) prisoner and staff well-being following certain outbreak response measures.

Both government measures and CDNA guidance appears to accept that COVID-19 is containable through the identification of prisoners with clinical signs or symptoms. This overlooks the issues of asymptomatic cases, which are likely to range from 18% (Diamond Princess cruise ship)[5] to 48% (Singapore) and 62% (China),[6] with one Japanese study indicating that for every confirmed case there may be up to 10 mild or asymptomatic cases.[7] If transmission from asymptomatic cases represents a substantial proportion of transmissions, then this has significant implications for correctional and health agencies. Current measures reliant on the identification of persons who are infected through syndromic surveillance (fever, sore throat, cough etc) and isolation of such cases will not stop COVID-19 transmission in prisons or other places of detention.[18] Addressing the asymptomatic issue would begin by testing all persons before they (re)enter a correctional centre. 'Cohorting' as a containment practice features in CDNA guidelines and may be considered by Correctives Services.[18] Cohorting involves isolating a number of similarly classed persons based on signs or symptoms

to the same room or area, and is unlikely to be effective in containing an outbreak, as asymptomatic cases can be overlooked.

A special provision in the COVID-19 Legislation Amendment (Emergency Measures) Bill 2020 was passed allowing the Commissioner of Corrective Services to release on early parole prisoners in circumstances where the Commissioner is "satisfied that releasing the inmate on parole is reasonably necessary because of the risk to public health or to the good order and security of correctional premises arising from the COVID-19 pandemic." As of April 15th, 2020, we are unaware of any prisoner being released under this provision, which suggests a reactive approach to COVID-19 management. As noted above, measures to increase the spatial separation of prisoners, particularly in correctional centres with prison cell spatial density problems, would assist to minimise the likelihood, and impacts, of an outbreak, and that such a measure should be implemented before an outbreak occurs rather than adopting what seems to be 'wait and see' approach by government. Increasing the spatial separation of prisoners on remand should also be prioritised given the likelihood of an index case entering the correctional system in reception and remand centres, as noted above. Transparent monitoring and reporting of public health information such as testing, diagnosis and case isolation details of persons in prisons and other places of detention is required. Evidence of these responses is relevant for judicial considerations at bail hearings and for administrative decisions on releasing prisoners.

Finally, there is a lack of detail by Australian government agencies on preparedness planning regarding prisoner and staff safety and well-being following the implementation of COVID-19 related measures. As stated previously, the reduction or removal of opportunities for meaningful and structured activities for prisoners such as exercise, education, training, work, informal socialising, and the real or perceived chance of being subject to long term cell confinement ('lockdowns') will impact on prisoner's mental health and well-being. The idea of a new 'deadly virus' entering the prisoner population will also not sit well for many prisoners. These factors increase the likelihood of expressions of prisoner resistance, including riots as has been witnessed internationally.

21. Any other matters in addition to the above that are relevant in your opinion to the issues relating to COVID-19 and the prison population in NSW?

No further comment.

22. Please comment, in so far as you are able, on whether your opinion would be the same with respect to immigration centres? Please elaborate.

Our three key concerns described under question 20 are likely to be relevant to immigration detention centres: (i) overlooking the asymptomatic issue; (ii) reducing spatial density before an outbreak; and (iii) detainee and staff well-being following certain outbreak response measures.

23. Please comment in so far as you are able, on whether your opinion would be the same with respect to children who are being held in custody by Juvenile Justice? Please elaborate.

Our three key concerns described under question 20 are likely to be relevant to Juvenile Justice detention centres: (i) overlooking the asymptomatic issue; (ii) reducing spatial density before an outbreak; and (iii) juvenile detainee and staff well-being following certain outbreak response measures.

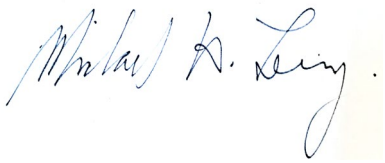
Declaration

The contents of this report are true to the best of our knowledge and belief. We understand that in preparing this report we have an overriding duty to the Court as outlined in the Uniform Civil Procedure Rules 2005, Schedule 7 Expert witness code of conduct, and we confirm that we have complied with this duty. We, the undersigned, would be prepared to attend the Court to give evidence if required.

Professor Tony Butler BSc, MSC, MSc, PhD
Justice Health Research Program
The Kirby Institute
University of New South Wales

Professor Raina MacIntyre MBBS Hons 1, M App Epid, PhD, FRACP, FAFPHM
Biosecurity Program
The Kirby Institute
University of New South Wales

Dr Paul Simpson BSc (Psych), PhD
Justice Health Research Program
The Kirby Institute
University of New South Wales



Professor Michael Levy AM MBBS Hons, MPH, FAFPHM
Honorary Professor, The Australian National University Medical School

16th April 2020

References

1. British Medical Journal (BMJ). BMJ Best Practice: Coronavirus disease 2019 (COVID-19): British Medical Journal 2020. https://bestpractice.bmj.com/topics/en-gb/3000168
2. MacIntyre CR. On a knife's edge of a COVID-19 pandemic: is containment still possible? Public Health Research & Practice 2020;30. https://www.phrp.com.au/issues/march-2020-volume-30-issue-1/on-a-knifes-edge-of-a-covid-19-pandemic-is-containment-still-possible/
3. Thevarajan I, Buising K, Cowie B. Clinical presentation and management of COVID-19. Medical Journal of Australia 2020;Published online: 8 April 2020. https://www.mja.com.au/journal/2020/clinical-presentation-and-management-covid-19
4. Day M. Covid-19: four fifths of cases are asymptomatic, China figures indicate. BMJ 2020;369:m1375. https://www.bmj.com/content/369/bmj.m1375
5. Mizumoto K, Kagaya K, Zarebski A, Chowell G. Estimating the asymptomatic proportion of coronavirus disease 2019 (COVID-19) cases on board the Diamond Princess cruise ship, Yokohama, Japan, 2020. Euro Surveill 2020;25:2000180. https://www.eurosurveillance.org/content/10.2807/1560-7917.ES.2020.25.10.2000180
6. Ganyani T, Kremer C, Chen D, et al. Estimating the generation interval for COVID-19 based on symptom onset data. medRxiv 2020:2020.03.05.20031815. https://www.medrxiv.org/content/10.1101/2020.03.05.20031815v1
7. Nishiura H, Kobayashi T, Yang Y, et al. The Rate of Underascertainment of Novel Coronavirus (2019-nCoV) Infection: Estimation Using Japanese Passengers Data on Evacuation Flights. Journal of clinical medicine 2020;9. https://www.mdpi.com/2077-0383/9/2/419
8. Ginnivan N, Butler T, Withall A. The rising health, social and economic costs of Australia's ageing prisoner population. Medical Journal of Australia 2018;209. https://www.mja.com.au/journal/2018/209/10/rising-health-social-and-economic-costs-australias-ageing-prisoner-population
9. BOCSAR. New South Wales Custody Statistics Quarterly Update December 2019: New South Wales Department of Justice and Communities 2020. https://www.bocsar.nsw.gov.au/Pages/bocsar_media_releases/2020/mr-Custody-Dec-2019.aspx
10. Corrections Research Evaluation and Statistics. Offender population report - week ending 22 March 2020: NSW Department of Justice and Communities; 2020.
11. The Lancet. COVID-19: protecting health-care workers. The Lancet 2020;395:922. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30644-9/fulltext
12. Report on government services 2020 - C Justice. Canberra: Australian Government Productivity Commission; 2020. https://www.pc.gov.au/research/ongoing/report-on-government-services/2020/justice/corrective-services
13. NSW Inspector of Custodial Services. Full House: The growth of the inmate population in NSW: Department of Justice; 2015. http://www.custodialinspector.justice.nsw.gov.au/Documents/Full%20House%20-%20Final%20report%20April%202015.pdf
14. New Prisons: The NSW Government is taking action to address the State's growing prison population and reduce reoffending. NSW Department of Justice and Communities 2020. (Accessed 8 April, 2020, at https://www.correctiveservices.justice.nsw.gov.au/new-prisons.)
15. Simpson PL, Simpson M, Adily A, Grant L, Butler T. Prison cell spatial density and infectious and communicable diseases: a systematic review. BMJ open 2019;9:e026806. https://bmjopen.bmj.com/content/bmjopen/9/7/e026806.full.pdf

16. Guthrie JA, Lokuge KM, Levy MH. Influenza control can be achieved in a custodial setting: Pandemic (H1N1) 2009 and 2011 in an Australian prison. Public Health 2012;126:1032-7. https://openresearch-repository.anu.edu.au/bitstream/1885/10558/1/Guthrie_InfluenzaControl2012.pdf
17. Astor JH, Fagan TJ, Shapiro D. The Effects of Restrictive Housing on the Psychological Functioning of Inmates. Journal of Correctional Health Care 2018;24:8-20. https://journals.sagepub.com/doi/full/10.1177/1078345817744795
18. Coker R. Supplementary report on coronavirus and immigration detention: Instruction by Duncan Lewis Solicitors; 2020
19. Stern V. Sentenced to Die? : The Problem of TB in Prisons in Eastern Europe and Central Asia. London: International Centre for Prison Studies; 1999. https://www.ncjrs.gov/App/Publications/abstract.aspx?ID=182081
20. Coker R. Detention and mandatory treatment for tuberculosis patients in Russia. The Lancet 2001;358:349-50.
21. Moriarty L, Plucinski M, B. M. Public Health Responses to COVID-19 Outbreaks on Cruise Ships — Worldwide. MMWR 2020;69:347-52. https://www.cdc.gov/mmwr/volumes/69/wr/mm6912e3.htm
22. COVID-19 (Coronavirus) statistics. NSW Government, 2020. (Accessed 15 April, 2020, at https://www.health.nsw.gov.au/news/Pages/20200402_00.aspx.)
23. Nishiura H, Oshitani H, Kobayashi T, et al. Closed environments facilitate secondary transmission of coronavirus disease 2019 (COVID-19). medRxiv 2020:2020.02.28.20029272. https://www.medrxiv.org/content/10.1101/2020.02.28.20029272v1.full.pdf
24. Pung R, Chiew CJ, Young BE, et al. Investigation of three clusters of COVID-19 in Singapore: implications for surveillance and response measures. The Lancet 2020;395:1039-46. https://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(20)30528-6.pdf
25. CDNA. CDNA National Guidelines for the Prevention, Control and Public Health Management of COVID-19 Outbreaks in Correctional and Detention Facilities in Australia: Communicable Diseases Network Australia; 2020. https://www.health.gov.au/sites/default/files/documents/2020/03/cdna-guidelines-for-the-prevention-control-and-public-health-management-of-covid-19-outbreaks-in-correctional-and-detention-facilities-in-australia.pdf
26. Australian Government partnership with private health sector secures 30,000 hospital beds and 105,000 nurses and staff, to help fight COVID-19 pandemic. Federal Department of Health, 2020. (Accessed 5 April, 2020, at https://www.health.gov.au/ministers/the-hon-greg-hunt-mp/media/australian-government-partnership-with-private-health-sector-secures-30000-hospital-beds-and-105000-nurses-and-staff-to-help-fight-covid-19-pandemic.)
27. Hoge CW, Reichler MR, Dominguez EA, et al. An epidemic of pneumococcal disease in an overcrowded, inadequately ventilated jail. The New England journal of medicine 1994;331:643-8. https://www.nejm.org/doi/full/10.1056/nejm199409083311004