COVID-19 Evidence Update

COVID-19 Update from SAHMRI, Health Translation SA and the Commission on Excellence and Innovation in Health

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Meatpacking plants and COVID-19 outbreaks

Executive Summary

Meatpacking plants involve the processing of animal carcases and packaging of meat along a production line. Over 100 outbreaks of COVID-19 have been associated with meatpacking plants in the United States. Victoria's largest cluster to date occurred in a meatpacking plant. This has raised concerns about these settings as potential sources of outbreaks.

<u>State of evidence</u>: There is an absence of published studies about meat packing plants and COVID-19. There is considerable expert opinion about mechanisms including some pre-print studies. The US Centers for Disease Control and Prevention (US CDC) and the Occupational Safety and Health Administration (OSHA) have published interim guidance for Meat and Poultry Processing Workers and Employers.

Reasons for outbreaks suggested by risk management assessments and experts:

- Difficulty maintaining physical distance on the production line
- Difficulty in adhering to protective behaviours such as covering mouth while coughing and sneezing due to the speed of the production line
- Long hours of work in proximity to other workers
- Difficulty maintaining physical distance during breaks, and when workers enter and exit the facility
- Many workers touching the same object
- Workers coming to work while unwell

Other possibilities raised by experts:

- The cold temperature of meatpacking plants (SARS-CoV-2 may be more stable in cold conditions)
- While the US FDA highlight that there is currently no evidence associating food or food packaging with transmission, it is possible that meat foods (beef, pork poultry, seafood, etc.) may serve as a critical surface for transmission of COVID-19 as they are rich in heparan sulphate (glycosaminoglycans), which are highly charged anchors for SARS-CoV-2 to interact with host tissue epithelia.
- Livestock could potentially be infected (no studies have shown this).







<u>Guidelines</u>: The US CDC and OSHA released interim guidelines to reduce the risk of transmission in such settings. National Beef in US have issued a document outlining the steps their factories have taken. Such steps include:

- Staggering start and stop times and staggering breaks
- Require cloth face coverings and donning and doffing training
- Installing physical barriers between workers and in tearooms
- Screen all workers and visitors to the facility for symptoms and temperature
- Reduce rate of animal processing
- Increase cleaning of high touch areas and ensure adequate sanitiser and soap facilities
- Provide additional sick leave for employees
- Discourage carpooling
- Minimise risk of fans blowing from one person to another.

Context

• News reports, particularly from the United States and Ireland, indicate that abattoirs have been associated with a large number of COVID-19 clusters.

Cluster in Cedar Meats in Melbourne, Victoria (Sources: media reports)

- There is a cluster of 75 cases (as at Saturday, 10 May 2020) linked to Cedar Meats Australia. Approximately 16% of the workforce at Cedar Meats have been infected).
 - <u>A news report in the Guardian indicated</u> that the first case was on 24 April, and the second case on 27 April. Another <u>media report by the Guardian</u>, indicated that there were unconfirmed reports that another employee was diagnosed on 2 April, and that there were mixed accounts about whether the person had been working at the factory thereafter. The report indicated that government claimed that the person was not at work for four weeks. A 3AW radio host claimed he had been told the employee was working at the factory the whole time.
 - While Cedar Meats continued operations, on 29 April, workers were <u>reportedly</u> given the option to stay home. <u>The news report in the Guardian</u> indicated that workers felt that there would be consequences if they missed work. It was also reported that among some workers, English is a second language and so they would 'just stay silent and work'.
 - <u>A news article in the Herald Sun</u> indicated that working hours increased at Cedar Meats in the days (from around 5-6 hour shifts to 10-11 hour shifts) after the abattoir was notified of a COVID-19 outbreak. The article reports that Cedar Meats confirmed that it continued receiving livestock days after being notified of coronavirus-positive workers, but denied that it increased production.
 - \circ $\,$ The plant was then closed on 1 May and is planned to reopen on 18 May.
 - A News report on 10 May has indicated that none of the cases have been hospitalised so far.







SUMMARY OF KEY EVIDENCE AND EXPERT OPINION

Scope of the outbreaks in the United States

- An online, not-for profit, investigative journalism source complied news reports, state data, company press releases and original reporting, and reported that that in the United States 'As of May 10, there have been at least 12,500 reported positive cases tied to¹ meatpacking facilities in at least 174 plants in 30 states, and at least 51 reported worker deaths at 27 plants in 18 states'. The webpage also lists the company names and locations including number of deaths tied to facilities (1).
- A report by the US CDC indicates a more conservative number of 4,913 cases and 20 deaths, but this number was reported one week earlier on 1 May (2).

Indications for cause of outbreaks

- 1. Expert opinion by Prof Benjamin Cowie, Doherty Institute
- Prof Benjamin Cowie, epidemiologist and infectious disease expert at the Doherty Institute has suggest the following reasons for the outbreak in a <u>news article on 9 May</u>:
 - "The workers have to be in **relatively close proximity**, based on the way the actual workflow occurs, it means that physical distancing is quite challenging".
 - "Shifts at meatworks are long, meaning in busy periods workers may be standing within a metre of each other for 10 to 12 hours a day. Cowie says this "unquestionably" increases the risk of infection. "If you are standing within 1.5 metres of someone for more than 15 minutes you are considered a close contact ... The risk is really substantially greater for every extra hour you're spending in close proximity to someone,"
 - "Also many parts of a meatworks are kept at quite a cold temperature. Certainly, we know that the coronavirus that causes Covid-19, similar to many other respiratory viruses, is more stable in cold conditions, and that may have some role in increasing the potential for contamination or transmission."
 - The production lines also involve potentially dozens of workers touching the same object, but Cowie says not enough research has been done into how the virus survives on animal flesh to know if this is a significant risk factor.
- In the same article, Matthew Journeaux, the secretary of the Queensland branch of the Australasian Meat Industry Employees Union says there are limits to the way work patterns in abattoirs can be altered.
 "Basically at the abattoir animals are put on a chain which moves along and everyone has a particular job to do along the way," he says. "It's not as simple as moving people apart ... You have work stations and many of them have specific machinery installed there, up and down platforms and things like that." Many of the stations are within a metre of each other. "There is very little automation in meat processing, each step is highly labour-intensive so this means you end up with a lot of people all in the same factory," Journeaux says.

¹ "Tied to" includes positive tests among workers and people who interacted with workers, such as family members; it's primarily workers who have tested positive.







- No news reports indicate whether cloth masks are worn routinely by workers in meatpacking plants in Australia as part of usual PPE.
- See video here for further imagery of meatpacking plant (in the United States).

2. Evidence from the literature

Meat products themselves

Currently, no evidence associates food or packaging with the transmission of SARS-CoV-2. However, some published theories point to the potential that meat itself could be a surface for transmission, and that livestock could potentially become infected, but more research is required.

- As noted by the US Food and Drug Administration (US FDA), there is no evidence associating food or food packaging with the transmission of SARS-CoV-2 (3). Furthermore, the US CDC & OSHA (1) reported that "Workers involved in meat and poultry processing are not exposed to SARS-CoV-2 through the meat products they handle"
- However, it has been argued by Pressman, Naidu and Clemens (2020), (3) that as studies have demonstrated that the viral pathogen can last for days on inanimate surfaces, and the fact that meat foods (beef, pork poultry, seafood, etc.) are rich in heparan sulphate (glycosaminoglycans), which are highly charged anchors for SARS-CoV-2 to interact with host tissue epithelia indicate that it 'obvious that animal (meat) tissue surfaces may be critical basements for foodborne transmission of COVID-19' (4). Additional studies are warranted to evaluate the possible foodborne transmission of COVID-19 via meat foods and food processing.' (3).
- Authors (Grunig, Durmus and Marsh, 2020, pre-print, yet to be peer reviewed) of another study discusses that 'there are no reports that livestock like pigs, chicken or cattle are infected by SARS-CoV-2. However, experimental infection studies were only performed via the airway route, the oral infection route was not explored, and systematic testing of meats and poultry is lacking (5, 6). On the other hand comparative analysis of the ACE-2 binding site for the SARS-CoV-2 spike protein (7), and a cell transfection study with pig ACE-2 (8) has suggested that livestock could be potentially infected' (9). The authors note that more research is needed.

Working while unwell

The US CDC report in its MMWR (Morbidity and Mortality Weekly Report) discusses that socioeconomic challenges of workers may contribute to them working while ill, particularly if management practices encourage and incentivize attendance (2). Sally McManus (Secretary of the Australian Council of Trade Unions) has publicly suggested paid pandemic leave for employees (such as casual staff who do not have access to sick leave) and this call has been supported by Professor Doherty (immunologist, Nobel Prize winner, and former Australian of the Year).

Working conditions

• A piece in <u>The Conversation</u> highlights that in order to maximize efficiency, production takes place on an assembly line and workers stand close together and perform repetitive tasks on animal parts as the parts stream by. Work is fast paced and at a rate that **makes it difficult to practice protective behaviours** such as covering sneezes and coughs.







Qualitative data from risk assessments conducted in the US indicates the following challenges and recommended changes to practice (2):

TABLE 2. Observed challenges and recommended changes in practice in response to COVID-19 among workers in meat and poultry processing facilities — selected states,* April 2020

Category	Challenges to effective prevention and control of COVID-19	Recommended changes in facility practice ⁺
Structural	Maintaining physical distancing during breaks and when employees enter and exit the facility	Adjust start and stop times of breaks and shifts Add outdoor breakrooms
	Maintaining physical distancing on production line	Install physical barriers between workers
	Excluding symptomatic workers	Screen all workers and visitors entering facility and plan for effective isolation for workers who become ill at work
Operational	Maintaining physical distancing on production line	Reduce rate of animal processing
	Adhering to face covering recommendations	Require universal face covering Ensure face coverings conformed to CDC guidance Provide training on donning and doffing
	Adhering to heightened cleaning and disinfection guidelines	Assign additional staff to sanitize "high touch" areas (e.g., handles, buttons, railings) more frequently Add several hand sanitizer dispensers and handwashing stations Implement touch-free time clocks
Sociocultural	Communicating through language and cultural barriers	Engage community partners to develop culturally informed messaging Disseminate messaging in languages spoken among the work force
	Employees live in crowded, multigenerational settings	Include messaging about behaviors employees should take to limit the spread of the virus while at home
	Employees share transportation to and from work	Add additional vehicles to shuttle routes Require use of face coverings during commute
Economic	Employees incentivized to work while ill	Implement personnel policies that provide additional medical leave and disability benefits without loss of seniority or pay Remove financial incentives, such as attendance bonuses

Guidelines to reduce potential transmission

1. Interim guidance from the US CDC and US OSHA provided on April 26 2020 (10)

As noted above, the US CDC and US OSHA highlighted that 'workers involved in meat and poultry processing are not exposed to SARS-CoV-2 through the meat products they handle'. However, their close contact work environment may contribute to exposure. The guidance states **the following factors that may increase workers' risk for exposure**:

- **Distance between workers** meat and poultry processing workers often work close to one another on processing lines and at other times (e.g. clocking in and out, during breaks and in change rooms).
- **Duration of contact** meat and poultry processing workers often have prolonged closeness to coworkers (e.g., for 10-12 hours per shift).
- **Type of contact** meat and poultry processing workers may be exposed to the infectious virus through respiratory droplets in the air for example, when workers in the plant who have the virus cough or







sneeze. It is also possible that exposure could occur from contact with contaminated surfaces or objects, such as tools, workstations, or break room tables and shared spaces including break rooms.

- Other distinctive factors that may increase risk among these workers include:
 - A common practice at some workplaces of sharing transportation such as ride-share vans or shuttle vehicles, car-pools, and public transportation
 - Frequent contact with fellow workers in community settings in areas where there is ongoing community transmission.

The US CDC recommends:

- A workplace coordinator be identified to develop infection control and occupational safety and health plans using the <u>hierarchy of controls</u>
 - Engineering controls include: configuring communal environments to space people apart, modify workstations where feasible to ensure workers are at least 6 feet apart in all directions (see example in Appendix 1), use physical barriers (e.g. flexiglass), ensure adequate ventilation, minimise risk of fans blowing on one person to another, use sanitiser stations that are touch free, add additional clock in and out stations if required.
 - Administrative controls include: the promotion of physical distancing by encouraging single file movement, monitoring distancing and including lines on the floor, stagger breaks, stagger arrival and departure times, discourage carpooling. If shuttles are required then limit the number of people, encourage social distancing, use hand hygiene before entering vehicle, clean commonly touched surfaces, wear cloth masks, follow coughing and sneezing etiquette.
 - Review leave and incentivize policies: analyse sick leave policies to make sure no ill workers are in the workplace, modify policies so employees are not penalized from taking sick leave if they have COVID-19; give advances on sick leave.
 - Consider grouping together employees within the same shifts to reduce the number that may need to quarantine
 - Establish system for employees to alert supervisors if they are unwell
 - Provide soap, running water, single use paper towels, sanitizer.
 - Workers encouraged to avoid touching their face.
 - Educate workers about how they can reduce the spread
 - Screen and monitor workers including:
 - Verbal screening to determine symptoms such as fever, felt feverish, had chills, coughing or difficulty breathing in the last 24 hours
 - Check temperatures and do not allow anyone in with a fever of 100.4°F (38°C) if they have a fever, encourage them to self-isolate and contact a health care provider
 - Ensure that the person doing the screening is appropriately protected with PPE (i.e. gloves, gown, face shield and face mask)
 - Personal Protective Equipment (PPE)
 - All employees to wear cloth face coverings as a protective measure in addition to social distancing (6 ft) Cloth face coverings may be especially important when social distancing is not possible or feasible based on working conditions. (CDC Note: Cloth face coverings are not PPE and not appropriate substitutes for N95 respirators or surgical masks). Employers should ensure that cloth face coverings:
 - fit over the nose and mouth and fit snugly but comfortably against the side of the face;
 - are secured with ties or ear loops;
 - include multiple layers of fabric;







- allow for breathing without restriction;
- can be laundered using the warmest appropriate water setting and machine dried daily after the shift, without damage or change to shape (a clean cloth face covering should be used each day);
- are not used if they become wet or contaminated; are replaced with clean replacements, provided by employer, as needed.
- are handled as little as possible to prevent transferring infectious materials to the cloth; and
- are not worn with or instead of <u>respiratory protection</u> when respirators are needed.
- Instruct workers how to put on and take off appropriate PPE
- Stress hand hygiene
- Consider allowing staff to use filtered respirators (e.g. N95 masks) as a voluntary measure
- Manage sick workers by sending them home immediately and if a worker has been confirmed, employer to inform anyone they have been in contact with and the infected person is to abide by the instructions of the appropriate authorities for contact tracing purposes.

2. National Beef (11) in the US has 9,400 employees and has reported they are following the guidance of the CDC including:

- Temperature screening of all employees and personnel entering their facilities. Employees with a temperature higher than 100.4°F (38°C) are required to return home until they are fever free for 72 hours
- Regular updates on practices to stop spread of COVID-19
- Daily reminders to employees who are sick to stay home
- Emergency response pay and benefits require employees who don't feel well to stay home
- Restricted travel for associates and ask employees to follow any self-quarantine restrictions necessary

Safety measures

- Supply of disposable face masks (face shields available)
- Installed stainless steel partitions between workstations
- Continued sanitisation protocols
- Pre-packaged food in cafeteria
- Drivers to stay in trucks while on property
- All visitors to have temperature checks and essential visitors only
- Increased sanitation for employee common areas
- Increased hand sanitizer stations
- Plexiglass dividers at cafeteria tables
- Staggered lunch breaks
- Increased cafeteria areas to allow social distancing (including tents)
- Limit meetings to 10 or less

Pay and benefits

- Emergency response pay (increase of \$2 per hour in base salary for employees)
- Up to 2 weeks quarantine pay if required by government
- Waive 7 day waiting period for disability benefits
- 24/7 access to health providers over the phone
- All employees can fill 90 day prescriptions at local pharmacies with a 30 day co-pay







- 3. The NZ Food safety science research centre (12) conducted a literature review on the potential for foodborne transmission of COVID-19 (more broadly, not specifically related to meat packing plants). It concluded that:
 - The best practice for reducing risk of contamination of food products is to manage the risk among workers.
 - Recommendations for this are:
 - Workers informing their employer and seeking medical attention if they any symptoms of respiratory illness or have travelled to affected regions
 - Promote and implement good hygiene practices
- Authors: Prof Caroline Miler, Dr Jacqueline Bowden, Jo Dono (SAHMRI)
- Searchers: Dr Ingrid Lensink, Nikki May (CEIH)
- Expert input: Prof Steve Wesselingh







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Appendix 1: CDC Infographic from <u>https://www.cdc.gov/coronavirus/2019-</u> ncov/community/organizations/meat-poultry-processing-workers-employers.html (10)

How to Align Meatpacking and Meat Processing Workstations, If Feasible







