Built environment: Guidance on reducing the risk of communicable disease transmission in food processing facilities

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Definitions of key terms:

Cohorts or work pods: A cohort or work pod is the same group of workers assigned to the same shifts.

Food processing facility: In this guidance, food processing facilities include all food premises where food is packaged, distributed, transported, and/or processed. Food processing activities include washing, rinsing, cooking, smoking, salting, canning, freezing, pasteurizing, reprocessing, and packing. as well as shipping of food at distribution centres, slaughter facilities, and food manufacturing sites (for example, bakeries).[1]

Worker: In this guidance, a food worker includes anyone who physically visits or is present at any time inside the food processing facility. This includes owners, operators, managers, supervisors, food handlers, cleaners, maintenance contractors, delivery workers, enforcement officials and anyone else who may be present where food is processed, packaged or handled.

Employers and owners/operators of food processing facilities must protect themselves and their workers from acquiring communicable diseases such as COVID-19 on the job. This document provides guidance on limiting the spread of illnesses at the workplace. Facilities should create and maintain a culture of workplace safety that embraces personal responsibility for wellness at the workplace supported by management and workers alike. Facilities can foster a culture of safety by including expectations for staff health and wellness in a communicable disease prevention plan. The COVID-19 pandemic has reinforced the importance of infection control and prevention measures to mitigate and prevent communicable diseases, keep workers healthy and food processing facilities operating. Food processing facilities in B.C. already have communicable disease prevention plans, policies and practices in place with COVID-19 safety plans that should contain written procedures to support activities that demonstrate compliance with procedures, visitor log records, worker health checks, and training records. Employers and owners/operators are required to provide information when requested by WorkSafeBC and other enforcement officials. WorkSafe BC has identified five elements of a successful communicable disease prevention plan: ventilation; hand hygiene; vaccine promotion; cleaning and sanitation; as well as worker illness policies. Please see this guidance for further details.[2]

This fact sheet reviews the built environment: ventilation, distancing measures such cohorts (work pods), cleaning and sanitation.

Key principles to prevent spread of communicable diseases

There are three key principles to prevent illness at the workplace, including food processing facilities:

1. **Building structures (referred to as the built environment) and reduction of communicable disease transmission risk.**
   - o **This section covers ventilation, cleanliness, and sanitation at the work site, reducing crowding between workers, and cohorts (assign workers to the same shifts with the same coworkers).**
2. Personal hygiene and personal protective equipment (PPE)
   - o Hygiene practices and use of required PPE are measures to prevent the spread of communicable diseases, immunizations, and
3. Managing illness at work
   - o Workers' actions including reporting illnesses before arriving at work and while at work and staying home if sick.

Throughout these sections administrative policies and protocols will be discussed.

Building structures (built environment) and communicable disease transmission

Why are we still concerned about COVID-19 and other communicable diseases in food processing workplaces?

Food processing facilities are essential to provide food to our communities. However, food processing facilities can also pose a high risk of communicable disease transmission. These workplaces are often crowded with people and equipment, workers may be in close contact for long periods because of production line work, facilities are noisy, requiring workers to shout to be heard, environments are kept cold and moist to protect food, full use of personal protective equipment and barriers can be challenging, outbreaks and clusters have occurred. Workers may live or work in congregate settings, and shift work can lead to crowding in small, shared spaces, such as break rooms. Conditions in food processing facilities may allow rapid transmission of communicable diseases between workers when multiple layers of protection are not present. Worldwide, the Food and Agriculture Organization (FAO) found that food processing facilities have become super spreader sites for COVID-19, leading to many outbreaks, worker deaths, and facility closures[3].

Owners/operators of processing facilities need to assess their building structure and workflow to determine high risk areas. Physical distancing between workers may be limited by equipment and the physical size of the room. Reduce crowding in common areas by staggering shifts and breaks. Improve ventilation by opening windows, doors where possible, and/or consider upgrades to heating, ventilation and air conditioning (HVAC) systems. Implement regularly scheduled cleanliness and sanitation practices in the workplace.

Construction design, refits and modifying existing building structures to improve ventilation is important (future-proofing). More information about ventilation and future-proofing can be found in the guidance, COVID-19 and indoor air: Risk mitigating measures and future-proofing. (June 2021).

Ventilation

Transmission of respiratory illness occurs more frequently in spaces where ventilation is poor, fewer air exchanges occur, there is close contact between people who breathe the same air at the same time, or before the air "clears out" (for example, before a door, window is opened or an HVAC system becomes active). These risk factors are described as the three C's:

- closed spaces,
- crowding, and
- close contact between workers for longer than 15 minutes.[4]

When conditions allow virus survival, higher loads of respiratory virus may be transported over longer distances within a building when the air clearance (rate of air changes per hour) is low. Generally, higher humidity and lower temperatures, present in many types of food processing facilities, allow for longer viral survival. Activities such as pressure washing or equipment (fans) may move infectious particles through the facility when ventilation is not adequate to remove them from the building. Improving the ventilation within the building can reduce transmission of respiratory illness. WorkSafeBC's communicable disease prevention require ventilation systems to be in good operating condition as designed and maintained. Here are some ways to improve ventilation in the workplace:

- Consider general ventilation adjustments at the workplace, such as increasing ventilation and increasing the amount of fresh (outdoor) air used by the system.
- Ensure air flow goes from cleaner areas of the premises to less clean areas (e.g., air should flow from ready-to-eat food areas to raw preparation food areas, if applicable).
- Upgrade the filters to at least a minimum efficiency reporting value 14 (MERV 14) if possible.
- Identify and protect vulnerable air intakes, such as air return/make up air intakes in close proximity to workers.
- Maintain the indoor air temperature and humidity at comfortable levels for building occupants; except in areas required to have lower temperatures for food processing.
- For complex buildings, consult a ventilation technician or other expert on adjusting the HVAC system.
- If using portable fans or air conditioners, make sure they are arranged so they don't blow air from one worker to another.[5] In particular,
    - Ensure the fan is not directing air at face level and blowing air from one worker to another,
    - Ensure air is moved from higher to lower places.

Owners/operators may consider the following ventilation controls:
- Run HVAC fans constantly, set systems on 100% outdoor air, and increase fresh air intake
- Open windows:
    - Note that open windows and doors must be screened against pest entry. Some areas, such as food processing areas, may also require screening for dusts or contaminants. Ensure safety and security concerns are managed to prevent unauthorized access.
- Run exhaust fans constantly
- Consider carbon dioxide (CO_2) monitoring to evaluate whether concentrations remain stable when occupied (a good indicator of adequate ventilation), or whether they increase over time (a good indicator of inadequate ventilation)
- Supplement air exchange with portable air purifiers with high efficiency particulate air (HEPA) filters
- Use ultraviolet germicidal irradiation devices to clean the air

Physical distancing and barriers

Food processing plant equipment can be congested and noisy, and tasks may require workers to be close to each other for periods longer than 15 minutes. To limit congestion and crowding, implement controls at areas where workers are in close proximity to one another; including production lines, common areas like break rooms, change rooms, and dining areas. Where crowding cannot be easily reduced, require workers to wear masks. Barriers are useful in some circumstances. See WorkSafeBC's Designing effective barriers guidance and the National Collaborating Centre for Environmental Health's (NCCEH) review on physical barriers for more information.[6] Car-pooling and congregate housing for workers require special consideration, see the sections below for more information.

In primary production facilities:

- Close contact with other workers is the greatest source of risk for acquiring respiratory illness.
- Contact with livestock (e.g., poultry, cattle, pigs) can also transmit enteric communicable diseases such as *Salmonella* and respiratory viruses, such as Avian Influenza.
- Protect workers from direct contact with livestock, wild animals and domestic animals capable of transmitting communicable diseases.

On the production line:

- Create floor markings to encourage workers to spread out within the workplace.
- If workers are working within close proximity to others, both should wear masks. The use of masks are only recommended if they do not present a safety risk.
- Add more space between workers on production lines by expanding the length of the line or by removing every other worker from a 'like task' line so workers can be further apart.
- Stagger workstations so workers do not face each other across a processing line.
- Reduce production speed to decrease the number of workers needed on the line (running multiple shifts may allow for additional production) or reduce number of products or volume on the line.
- Where feasible, worker traffic flow should be one-way through the facility. Post signs and use line marking as appropriate to reduce crowding.
- Limit close contact between workers when transferring items, tools, materials, or documents etc. by designating a drop-off and pick-up point for transferring items, tools or materials between workers.
- Where possible provide each worker with their own set of tools/utensils to avoid sharing.
- Provide for communication between workers in a noisy environment that does not involve close personal contact between workers – use hand-held signs, hand signals, radios, cell phones, etc.
- Post signs (e.g. masking, sickness, self-screening, hand hygiene, PPE, respect personal space) in languages understood by workers.
- Remove unnecessary items and equipment to increase floor space.
- Schedule contractors and visitors to come into the facility during production down times.

Food Transportation

- Many workers are not employees of the food processing facility (e.g., contractors, temporary workers). Educate all workers on infection prevention and control and other policies.
- Require transportation workers to wash hands before coming in contact with others (upon entering the premises), after using the toilet, before eating, and when leaving due to any contact with shared objects.

- Require high touch points (e.g. door knobs, equipment controls) used by transportation workers to be cleaned and sanitized regularly.
- Limit interaction and face-to-face communication between transportation workers and facility workers. Use cell phones/telephones/emails and other electronic technology for communication where possible.

Cohorting

- Cohorting may reduce the spread of workplace respiratory disease in the workplace by minimizing the number of different individuals who come into close contact with each other over the course of a week. If self-isolation is necessary as advised by public health officials, cohorts minimize the number of workers self-isolating at home until they can return to work.
- Assign workers to the same shifts with the same coworkers. This is known as a cohort or work pod.
- Employers should keep a record of cohorts. If possible, limit the number of workers in a cohort to six or fewer.
- Do not reassign workers between cohorts. If necessary, merge two work cohorts (to 12 workers) and monitor.
- If an employer operates more than one work site, the employer should avoid scheduling workers to work at multiple sites.

Congregation

Congregation such as carpooling, shared housing and being in the same space in close proximity increases the risk of communicable disease transmission between workers. Shared spaces include break rooms, change rooms, washrooms, and offices where staff may be crowded together. Congestion in areas shared for more than 15 minutes can create a higher risk of transmission, such as eating and socializing in common areas. Break/lunch areas can be very high risk for transmission of respiratory diseases, particularly as workers are unmasked when eating/drinking. Additional and updated advice may be found in other BCCDC guidance documents.[7]

- **Use all available space for break and lunch rooms to reduce crowding, especially at times when workers are unmasked (e.g., eating or drinking). Where there is insufficient space at break times, consider use of outdoor spaces (weather permitting), placement of barriers, stagger break times, or use of other offices/meeting rooms.**
- Stagger work schedules to avoid crowding when workers arrive and leave work. Add additional clock-in/out stations, if possible, that are spaced apart, to reduce crowding at check-in.
- Where feasible, keep separate entry and exits into the facility and ensure that traffic flows in a single direction through the facility.
- Encourage all workers to respect personal space in assigned change rooms, locker areas and washrooms.

Carpooling

- If the facility provides transportation, facility operators should consider creating cohorts of workers who carpool together. Limit the number of workers in each vehicle to maintain distance between workers (e.g., only fill every other seat).
- Open windows slightly whenever possible, and avoid using the recirculate function on the ventilation system of the vehicle

Congregate housing (e.g., dormitories, bunkhouses, etc.)

- Workers who stay in the same congregate housing should be in the same work cohort.

- Sleeping areas should allow maximum space between workers. Arrange beds using a head-to-toe design to maximize space. If adequate spacing is not possible, use temporary barriers between beds, such as curtains, to prevent droplet spread. Open windows (when possible) to maximize fresh air and ventilation.
- Workers who are ill should be isolated to their own room where possible.

Cleaning the workplace

Regularly scheduled cleaning and disinfecting should occur in non-food areas, with emphasis on high-touch areas. Cleaning and sanitizing should occur in food areas. Disinfectants are different from sanitizers in that they have a greater ability to destroy bacteria, viruses and molds. Disinfectants are used at a higher concentration and require a longer contact time than sanitizers. Food grade sanitizers are used after cleaning to reduce the level of bacteria to a safe level when following the manufacturer's instruction for concentration and contact time.

- A cleaning and disinfection schedule is in place in non-food areas to cover all high touch areas, equipment, barriers and devices. A cleaning and sanitation schedule is in place in food preparation areas for all food contact surfaces, equipment, barriers, devices, and utensils.
- A log or tracking sheet is used to confirm that cleaning and disinfection/sanitation occurred.
- Disinfectants are not used in food preparation areas.
- Disinfectants and sanitizers are approved by Health Canada and used according to the manufacturer's instructions.
- Personnel are assigned and trained on cleaning and disinfection/sanitation procedures.
- Equipment, including ventilation systems (e.g., fans and HVAC water reservoirs), are regularly cleaned according to the manufacturer's instructions.
- Cleaning and disinfecting/sanitizing schedules
  - Are included in the sanitation plan
  - Timing for cleaning of equipment considers minimizing cross contamination opportunities and is scheduled between shift changes or production down times
  - Should not introduce a food safety hazard, e.g., communication devices on the production floor are cleaned and sanitized

References

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