Best Milking Practices for Identifying HPAI and Preventing Spread to Humans or Other Animals

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Highly pathogenic avian influenza (HPAI) findings have determined that one of the key contributors of HPAI spread within herds is due to **cross-contamination during milking**. Milking also presents a higher-risk period for human exposure to HPAI because milking procedures often take place at eye-level. The virus is replicating in udder tissues and is shed in raw milk at high concentrations; therefore, anything that comes into contact with unpasteurized raw milk, spilled milk, as well as the udders of infected animals, etc., may spread the virus, including other animals, vehicles, and other objects or materials.

Milking Protocols Should Now Include:

1) The use of personal protective equipment (PPE) (see *Considerations of Human Safety* below) for milking staff to reduce the risk of exposure to HPAI
2) Instructions for identifying cows that have clinical signs of HPAI infection (see symptoms below)

Identifying cows with HPAI is a critical step to ensure extra precautions can be taken to prevent them from spreading HPAI to employees or other animals.

It should be noted that cows can test positive for HPAI **without any clinical signs of illness**. If animals in your herd test positive for HPAI all raw milk (from cows with and without clinical signs) should be handled with care. Do not drink or feed raw milk to calves or other animals unless it is pasteurized first.

Considerations for Human Health Safety

Human cases of avian influenza are rare, but infections can occur when the virus enters the body through the mouth, eyes, or nose. HPAI can be present in raw milk from cows with and without clinical symptoms, therefore, providing milking staff with additional PPE during milking is highly recommended. PPE recommended for reducing exposure to HPAI can be found here Avian Influenza (AI) Personal Protective Equipment | AgSafe (agsafebc.ca)

Personal protective equipment should include:

- Medical mask
- Rubber or disposable gloves
- Eye protection (e.g., safety goggles, face shields)
- Fluid-resistant disposable coveralls or fluid-resistant milking aprons. Regular coveralls can be worn but must be removed and washed after each milking.
- Rubber boots or disposable protective boot covers

Disposable gloves are not a replacement for hand washing - Wash your hands often, even if gloved, and avoid touching your face when working with raw milk. Do not eat, drink, smoke, vape, chew gum, dip tobacco, or use the bathroom while wearing PPE.

Once milking is complete and the parlour has been washed down, milking staff should dispose of PPE in a designated area into designated garbage bags. PPE that is re-usable such as safety goggles, face shields, and rubber boots should be disinfected before they are used again. Soiled milking aprons or coveralls should be handled with care and washed separately from other clothing. Disinfected goggles and face shields should be stored in Ziploc bags to keep them clean.

Consider Establishing a "Clean Zone" within the Barn

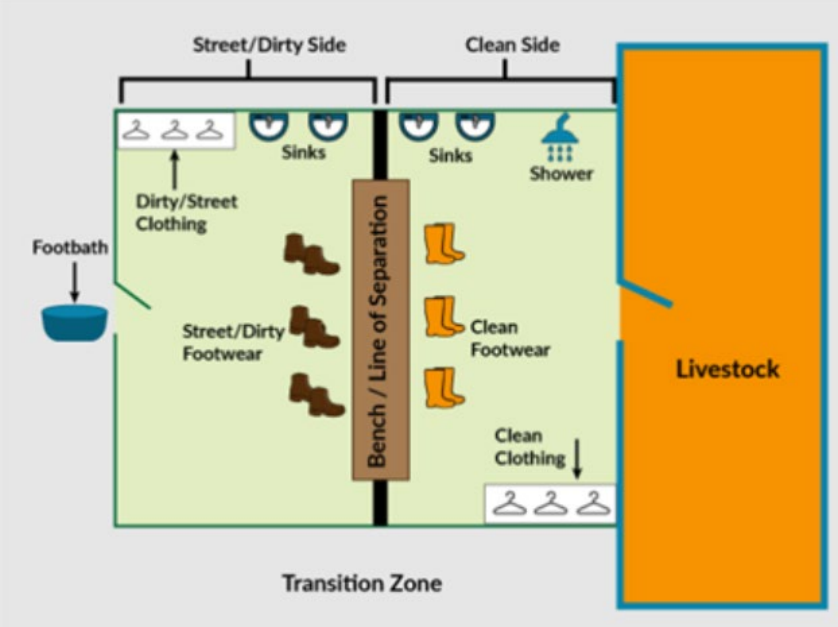
A "clean zone" within the LOS interior (ie. In the barn) is an area that is maintained as a "disease free zone" by cleaning and decontaminating anything (and anyone) that enters the area. This area can serve as a storage area for PPE to be used by employees during activities that put them at risk of contracting HPAI. No animals should access the clean zone at any time.

The "clean zone" in the barn can be the staff room, office, or other confided space. Staff should be required to thoroughly wash their hands and remove any soiled clothing and footwear before entering the "clean zone". If handwashing facilities are only available in the clean zone, the employee can remove all contaminated clothing before entering, and

then proceed to the handwashing area immediately. Once hands and other exposed skin are thoroughly washed, the area surrounding the handwashing area should be decontaminated as well. If HPAI infected equipment, clothing, footwear, etc., enters the "clean zone" it can contaminate the PPE, surfaces, and other equipment in the clean zone, deeming the area "unclean".

If space within the barn cannot accommodate a "clean zone" consider establishing another area outside the barn that can be used to store PPE in a clean manner. Create a "border" around this area that can only be crossed if the employee has washed their hands, removed soiled clothing, and removed or disinfected their footwear.

The Danish entry system could also be considered as an option to increase biosecurity. https://www.dairyherd.com/news/education/consider-danish-entry-calf-biosecurity



Best Milking Practices

While bringing cows to the parlour for milking, or while checking the robotic milking herd, observe cows for signs of HPAI. Milk these cows last and separate them from the main herd for a more thorough examination and necessary treatment.

Clinical signs of HPAI:

1. Abnormal, thick colostrum-like milk
2. Decreased milk production

- Consideration should be given to milking these animals only once per day.

3. Fever
4. Lethargy
5. Respiratory signs, including clear nasal discharge
6. Dry manure or diarrhea
7. Dehydration

Recommendations for Milking Parlours

1. Ensure proper PPE is available for all staff during milking.
2. Udder prep procedures should include fore-stripping each quarter to assess the milk for signs of HPAI. Cows with clinical signs of HPAI can have abnormal, thick colostrum-like milk.
3. If a cow has signs of HPAI:
    - Her milk must be diverted away from the bulk tank (see *Waste Milk Management* section below)
        1. Handle waste milk with caution. If possible, pasteurize the waste milk before disposal.
    - The milking unit **MUST** be disinfected and then rinsed with potable water before being used on the next animal. The HPAI virus can persist inside the milking claw inflation for as long as 5 hours after exposure to infected milk.
    - She should be marked, and then segregated from the main herd so that she can be milked with the last group of animals and receive necessary treatment.
4. Grain feeders in parlours should be thoroughly cleaned between milkings to reduce the risk of rodents or birds entering the parlour. Mice and birds can spread HPAI.
5. After milking is complete, external stainless-steel surfaces in the milking parlour and milking claws should be disinfected with an approved disinfectant.
    - The HPAI virus has been shown to survive on stainless steel surfaces for up to 5 hours after exposure to the virus.

If HPAI has been detected on your premise, do not feed raw milk to another animals (ie. calves, cats, dogs) and keep free-roaming animals out of milk parlours and away from infected cattle.

Recommendations for Robotic Milking Systems

1. Ensure proper PPE is available for all staff when working in robot rooms.
2. Milk conductivity setting on the robot should identify abnormal milk that is consistent with HPAI and divert the milk to waste milk. Consult your service provider if needed to confirm settings are in place.
3. If your robotic milking system diverts abnormal milk automatically it is highly recommended to check the cow for symptoms of HPAI immediately.
    - Review her milk production – Is her milk volume decreasing?
    - Review her visits – Is she visiting the robot less?
4. If a cow shows symptoms of HPAI, her milk must be diverted to waste milk (see *Waste Milk Management* section below).
    - The location that waste milk is discarded (i.e. in the robot room) could increase the risk of HPAI infecting other animals. Ensure that waste milk is diverted directly into the drain or carefully collected so it can be disposed of safely.
    - If possible, pasteurise the waste milk before disposal to kill any virus present in the milk.
5. The robotic milking system must complete a full rinse and sanitize cycle after a cow infected with HPAI visits the robot. HPAI virus can persist inside milking claw inflations for as long as 5 hours after being exposed to infected milk.
6. Robots equipped with a sanitized back-flush will aid in preventing spread from cow-to-cow. Consult your service provider if this option is appropriate for you robotic milking system.
7. Disinfect the robot milking stall and other external surfaces around the robot with an approved disinfectant throughout the day to kill any virus.
    - The HPAI virus has been shown to survive on stainless steel surfaces for as long as 5 hours after milking is completed.
8. Keep feed troughs in the robot stalls as clean as possible. Spilt feed can attract rodents, and mice can become infected with HPAI and spread the virus.

Waste Milk Management

Waste milk from cows diagnosed with HPAI should be handled with great care. **Employees should wear a medical mask, face shield or safety goggles, gloves, and rubber boots while working with the waste milk. Coveralls should be worn and changed/discarded once milk is discarded.**

Disposal:

a. Waste milk should be pasteurized before disposal
b. Removal of waster milk under a License to Transport (CFIA/ACIA 4206TT) to an off-site location for viral inactivation
c. Sub-surface injection when combined with slurry
d. The CFIA will allow waste milk to be discarded in manure pits/slurry tanks with an appropriate holding period on a case-by-case basis.

Refer to the ***Recommendations for Raw Waste Milk Disposal*** document for more information

One waste milk is disposed of PPE should be discarded or cleaned and disinfected. Reusable PPE should be rinsed or wiped clean with warm water and then disinfected with cleaning solution (ie. Household products known to kill viruses). Store disinfected PPE in individual zipper lock plastic bags.

Additional Recommendations

If you develop symptoms of influenza-like illness within 10 days after exposure, tell your health care provider that you have been in contact with animals and are concerned about avian influenza. This will help them give you appropriate advice on testing and treatment.

Season Influenza Vaccine ("flu shot")

- People who interact with animals that may be infected with avian influenza virus or contaminated material are recommended to receive the seasonal influenza vaccine, or the "flu shot".
- The flu shot protects against seasonal (human) influenza rather than avian influenza. However, it helps prevent the development of new influenza viruses which can occur when a person is infected with both human and avian influenza viruses.
- The flu shot is available annually starting in the fall and throughout the respiratory season.

More Resources

BC Centre for Disease Control – Avian Influenza. http://www.bccdc.ca/health-info/diseases-conditions/avian-influenza

AgSafe – Avian Influenza (AI) Exposure Prevention Safe Work Practice. https://agsafebc.ca/download/ai-exposure-prevention-swp/

Canadian Centre for Occupational Health and Safety – Avian Influenza. https://www.ccohs.ca/oshanswers/diseases/avian_influenza.html