

Dairy worker safety and health: Vaccination safety

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Strategic vaccination programs are an important component of herd health management for dairy operations. A successful vaccination program should reduce the incidence and limit the effects of disease in the herd while minimizing adverse health and production effects in vaccinated animals.

Many factors affect the success of a vaccination program, such as vaccine selection, storage and handling, syringe and needle selection, route of administration, nutritional and immunological status of the animals being vaccinated, environmental conditions and level of exposure.

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When training people tasked with administering vaccines to dairy animals, the focus lies on ensuring animal safety and health by following strict hygiene and adhering to label directions and vaccination protocols. However, it is extremely important to also discuss practices that will enhance the health and safety of those administering the vaccinations.

Keep in mind that a vaccine (whether for humans or livestock) is designed to elicit an immune response that will create antibodies and provide immunity against one or more diseases. Vaccines contain a pathogen (bacteria, virus), a substance produced by a pathogen or a synthetic substitute that should stimulate an immune reaction without actually causing disease. Although vaccines have been proven safe for administration in a specific animal species under specific circumstances, some individuals may react adversely, even when label instructions are followed.

Cattle vaccines are not intended for or proven safe for humans and people vaccinating livestock should protect themselves against accidental exposure. Accidental exposure to cattle vaccines may pose risks to human health. Some individuals may be allergic to one or several components of a vaccine. Besides allergic reactions, vaccines could cause other inflammatory reactions and damage to tissues and body organs. Both injectable and intranasal vaccines may carry risks of allergic reactions and tissue damage.

Even if a particular vaccine doesn't cause adverse health effects to the exposed individual, it is important for people handling vaccinations and other injections to understand that needles can transport more than just vaccines or medications. Used needles can be a source of pathogens found in the environment or animals. Some of these pathogens are able to cause disease in people that range from mild to severe.

Avoiding health and safety risks while vaccinating dairy cattle

Appropriate animal restraint: Whether vaccinating, performing a physical exam or medicating an animal, proper restraint that ensures animal and human safety is essential.

When injecting vaccines under the skin (SC) or in the muscle (IM), you should be able to restrain the animal in a way that gives you good access to the neck while protecting you from the animal's head and legs. A properly designed chute is ideal to administer SC and IM vaccines while following Dairy Beef Quality Assurance guidelines.

When administering intranasal vaccines, using a halter to restrict head movements is ideal. Although another person might be able to restrain the head of adult cattle during vaccine administration, a sudden head movement may result in human injuries and accidental exposure to the vaccine.

Injection technique and needle handling

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Accidental needle sticks can occur if, when injecting a vaccine under the skin, the needle goes through the skin and out the other side and punctures the hand or fingers of the person administering the vaccine. This tends to happen because, in order to inject under the skin, we pinch or tent the skin on the neck of cattle. The tip of the needle should point away from the hand pinching or tenting the skin. Choosing the appropriate needle size (3/4-inch or less) will help avoid accidental needle sticks.

In many cases, accidental needle sticks have nothing to do with our injection techniques, but are a result of improper needle handling. Recapping needles using both hands and keeping used needles in your pockets can also result in accidentally puncturing your hands or other body parts. Used needles should be disposed of properly in a clearly labeled sharps container to avoid injuries and potential adverse health effects.

If accidental exposure occurs

- After an accidental needle stick, rinse the puncture wound with water and apply a disinfectant such as alcohol or chlorhexidine.
- If the vaccine came in contact with a mucous membrane (mouth, nostrils, eyes), rinse or flush with copious amounts of water.
- Watch the area in contact with the vaccine (wound or mucous membrane) for signs of inflammation. Signs of inflammation are redness, heat, swelling, pain and loss of function.
- Signs of inflammation that don't resolve or worsen, or any disease symptoms that develop after accidental exposure to a vaccine, should be assessed by a physician. Be sure to explain to your physician that you work with livestock and list any exposures that you might have had with vaccines. This information should help the physician assess the symptoms and properly diagnose and treat the problem.

Employee training is essential to a successful vaccination program. Training programs for dairy employees should include safe vaccine handling and appropriate vaccination techniques. These training modules should focus on ensuring human and animal safety and highlight the relationship between increased health and productivity. **PD**

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