Occupational Health and Safety Working with Calves

When working with calves/young cattle, you should be familiar with the following safe practices and potential health risks:

Physical Injury

Bites, scratches, and kicks are potential hazards associated with research animal contact. They may be prevented or minimized through proper training in animal-handling technique. Personnel working with large domestic animals might sustain crushing injuries when the animals kick, fall, or simply shift their body weight.

Staying Healthy

Wash your hands after animal handling and use. The most common way to contract a zoonotic infection is to place the infectious material directly in your own mouth. Always wash your hands after handling an animal or anything that the animal has touched. Never smoke, drink, or eat in the animal room, or before washing your hands. Wear protective clothing and appropriate personal protective equipment

Allergy to Animals

Personnel may be allergic to any animal species. The allergens are proteins that are excreted in the animals' saliva, urine, and/or from various glands associated with the skin. A person who is already allergic to one allergen (animal or otherwise) has a greater chance of becoming allergic to a new allergen than a person that has no allergies at all. The most effective way to control and prevent allergies is to minimize exposure to the allergens.

Campylobacteriosis

Organisms of the genus *Campylobacter* have been recognized as a leading cause of diarrhea in humans and animals in recent years. Numerous cases involving the zoonotic transmission of the organisms in laboratory animals have been described. Young animals readily acquire the infection and shed the organism. Young animals often are implicated as the source of zoonotic transmission. The organism is transmitted by the fecal-oral route via contaminated food or water, or by direct contact with infected animals.

Campylobacter produces an acute gastrointestinal illness, which, in most cases, is brief and self-limiting. The clinical signs of *Campylobacter enteritis* include watery diarrhea, sometimes with mucus, blood and leukocytes; abdominal pain; fever; and nausea and vomiting. Unusual complications of the disease include typhoid-like syndrome, reactive arthritis, hepatitis, interstitial nephritis, hemolytic-uremic syndrome, febrile convulsions, meningitis, and Guillain-Barré syndrome.

Cryptosporidiosis

Cryptosporidium are common protozoans that cause enteritis and diarrhea in a number of domestic species. Cross-infectivity studies have shown a lack of host specificity for many of the organisms. Cryptosporidiosis is common in young animals, particularly ruminants and piglets.

Transmission is usually by the fecal–oral route but can also occur by aerosols. Sporulated oocysts are shed in the feces and are immediately infectious; they may survive for 2 to 6 months in a moist environment. Direct transmission between animals or humans is common. An estimated 50% of dairy calves shed oocysts; calves often spread cryptosporidiosis to each other or to humans.

In humans, the disease is characterized by cramping, abdominal pain, profuse watery diarrhea, anorexia, weight loss, and malaise. Symptoms can wax and wane for up to 30 days, with eventual resolution. However, in immunocompromised persons, the disease can have a prolonged course that contributes to death.

Colibacillosis

Escherichia coli is a normal component of the flora in the large intestine of warm-blooded animals. The pathogenic strains, which cause enteric disease, are grouped into six categories. These categories differ in their pathogenesis and virulence properties, and each comprises a distinct group of O:H serotypes.

In terms of zoonoses, the most important category is the enterohemorrhagic, which is also the most severe. Cattle are considered the primary reservoir for the enterohemorrhagic group. The principal etiologic agent of this colibacillosis is *E. coli* O157:H7.

In man, the incubation period varies from two to nine days. The appearance of the disease ranges from a slight case of d8iarrhea to severe hemorrhagic colitis, with strong abdominal pains and little or no fever. At the outset, diarrhea is watery but later becomes hemorrhagic, either with traces of blood or highly hemorrhagic stools. Diarrhea lasts an average of four days and about 50% of patients experience vomiting. *E. coli* O157:H7 is feared primarily because of complication, which can include hemolytic uremic syndrome, or thrombotic thrombocytopenic purpura,

Giardiasis

Giardia is a flagellate protozoan that lives in the anterior portion of the host's small intestine. Giardiasis is endemic throughout the world. The infection has been confirmed in a wide variety of domestic and wild mammal species. The giardias that infect man and domestic and wild animals are morphologically identical, and cross-species infections can occur. Surveys from all over the world have found prevalences of 5% to 90% in calves.

In man, the incubation period is generally 3-25 days. The symptomatology consists mainly of diarrhea and bloating, frequently accompanied by abdominal pain. Nausea and vomiting occur less frequently. The acute phase of the disease lasts 3-4 days. In some persons, giardiasis may be a prolonged illness, with episodes of recurring diarrhea and flatulence, urticaria, and intolerance of certain foods.

Leptospirosis

This is a contagious bacterial disease of animals and humans due to infection with *Leptospira interrogans* species. Domestic livestock are among the animals that are considered reservoir hosts. Leptospires are shed in the urine of reservoir animals, which often remain asymptomatic and carry the organism in their renal tubules for years.

The usual mode of transmission occurs through abraded skin or mucous membranes, and is often related to direct contact with urine or tissues of infected animals.

Clinical symptoms may be severe, mild or absent, and may cause a wide variety of symptoms including fever, myalgia, headache, chills, icterus and conjunctival suffusion.

Salmonellosis

Enteric infection with *Salmonella spp*. has a worldwide distribution among humans and animals. The organism is transmitted by the fecal-oral route, via direct contact with infected animals.

Salmonella infection of animal origin produces a sudden onset of fever, myalgias, cephalalgia, and malaise. The main symptoms consist of abdominal pain, nausea, vomiting, and diarrhea. Dehydration may be serious. The presence and severity of symptoms depends on the infecting dose. Typically there is watery diarrhea for about ten days, possibly leading to dehydration, with abdominal pain and low-grade fever. Septicemia and focal infections occur as secondary complications. Focal infections can be localized in any tissue of the body, so the disease has diverse manifestations.