Animal Contamination

Wyoming Department of Health

Adapted from "**Veterinary Decontamination Procedures"** by Wayne E. Wingfield, MS, DVM, Colorado State University

Animal Contamination

Working animals (WAs) are potentially at the highest risk of becoming contaminated during the course of their duties. It is important to remember the working animal's risk often differs from that of the human handler. The human handler is wearing clothes that can easily be removed thus eliminating a substantial amount of contamination. The WA is covered in hair that collects hazardous particles and obviously cannot remove his/her "coat". The WA's contaminated hair coat thus becomes a means to spread the contaminant to other animals, including humans! Additionally, especially with dogs, the animal cleans him/herself with its tongue, thereby ingesting the contaminant.

Chemical and biologic agent exposure may occur by three primary routes:

1) *Inhalation/absorption through mucous membranes.*
   Inhaled gases, vapors and aerosols may be absorbed by any part of the respiratory tract including mucosa of the nasal passages, mouth, airways, and lungs. Due to permeability and surface area along with the direct and systemic effects, especially of chemical agents, this is the route most likely to cause severe intoxication. There is currently no equipment designed to protect animals from this route of exposure. Protective shelters are under investigation but until available the only means to protect from this route is evacuation or expedient shelter.
2) *Absorption through the skin.*
   Liquid droplets and solid particles which come in contact with skin may be directly absorbed and have both direct and systemic effects. Due to the protective effect of the thick coat and the lower density of sweat glands in canine skin, we expect that animals are inherently less sensitive to cutaneous toxicity from chemical agents. All non-haired portions of the skin, the dense eccrine sweat gland areas of the foot pads and nose, and damaged or inflamed skin will likely promote absorption of chemical agent. In the horse, sweat glands are prominent over the body in spite of the dense hair coat and absorption of chemical weapons is likely in this species. Animals can only be protected from cutaneous absorption by preventing contact with the agent using shelters or evacuation. There is no protective garment for animals. Protection of skin integrity (maintaining healthy skin) and use of skin protectants should help reduce risk of cutaneous absorption.
3) *Ingestion.*
   Ingestion of agent may occur due to feeding of contaminated food or water or the animal licking a contaminated surface including its own skin and hair. Ingested agents will have direct effect on the gastrointestinal tract and absorption may result in systemic toxicity. The most important prevention is limiting the animal from being exposed to contaminated food, water, and environments.