An Introduction to Animal Decontamination

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American Veterinary Medical Association (AVMA)

- Established 1863
- The “voice” of the veterinary profession in the US
- Over 89,000 members (Membership is voluntary)
- Full time staff of ~150 employees
- 6 Councils, 23 Committees (volunteers)
  - Committee on Disaster and Emergency Issues
AVMA Vision and Mission

Vision
The American Veterinary Medical Association's vision is to be the trusted leader in protecting, promoting and advancing a strong, unified veterinary profession that meets the needs of society.

Mission Statement
The mission of the Association is to lead the profession by advocating for its members and advancing the science and practice of veterinary medicine to improve animal and human health.
DISCLAIMER

• Ideas, attitudes, and opinions presented are our own and do not necessarily reflect the opinions of AVMA
OBJECTIVES

• Responder safety and use of personal protective equipment (PPE) when working with potentially contaminated animals

• Considerations for planning and working with other agencies

• Challenges associated with animal decontamination such as which animal species were affected and who has regulatory authority

• Ways to incorporate animal decontamination using existing equipment
WHY ANIMAL DECONAMINATION?
(1 of 3)

• For human health and safety (responder, owner, transporter, shelter worker)
  • People may not evacuate if they can not take their animals
• For animal health and safety
• To prevent contamination from spreading to other humans, animals, equipment, or areas
• To be able to re-use equipment
Human health and safety must always come first!

AP Photo/Bob Jordan
WHY ANIMAL DECONAMINATION?
(2 of 3)

Canada

Agriculture and Agri-food system (2014)
• $108.1 billion (6.6% Gross Domestic Product)
• Provides 1 out of 8 jobs
• World’s 5\textsuperscript{th} largest agriculture and agri-food system exporter
• Cattle - 12,065,000 (January 2017)
• Sheep – 814,600 (January 2017)

Pet Market
• $6.6 billion in 2014

Toronto (2016 Canadian pet survey)
• 41% households own 1 Dog x 1,047,880 households (2011 census) = 429,630 Dogs
• 37% households own 1 Cat x 1,047,880 = 387,715 cats
WHY ANIMAL DECONAMINTION?
(3 of 3)

Animals are important and integral to our lives.
OBJECTIVE 1

Responder safety and use of personal protective equipment (PPE) when working with potentially contaminated animals is a requirement for success!
DO NOT HAVE THIS TYPE OF SAFETY ATTITUDE!!!
Responder Safety
It MUST ALWAYS Be Number 1!!!

- Think before you act.
- Rely on your training.
- Do you really know what that animal has been exposed to?!?!?
- Clinicians, you are NOT in the clinical setting – need to adjust your PPE protocols.
- Follow the Pre-Plan SOPs but....
  ...allow for the unexpected.
- You are the #1 asset in ALL human and animal issues – no exceptions!
OBJECTIVE 2

Considerations for planning and working with other agencies:

“You will respond together the way you train together”
INTRO TO ANIMAL DECON

Regulatory Influence

• Is there Regulatory Authority for performing HazMat Pre-Planning?
• Is there an identified local lead authority by law at a HazMat Incident?
• Does a comprehensive and current HazMat Pre-plan already exist?
• Are animals currently addressed:
  • Companion/Service/Working
  • Food vs. Farm
  • Have all known potential animal issues been identified?
• Is Animal Decontamination addressed?
• What are your minimum training requirements by regulation/law?
• Is training of ALL response personnel addressed in the pre-plan?
• Is the appropriate level of training, including human decon, provided to all response personnel?
• Refresher training?
INTRO TO ANIMAL DECON

PRE-PLANNING ➔ CONTINUITY

• Train all Responders in the same National Incident Management System
• Ensure all Response Agencies function within the same Incident Management System from notification until the incident is....................
• Establish levels of Animal Decontamination based on the needs of the incident & clearly define in the Pre-Plan:
  • Example: Level 1 - Level 2 - Level 3
• Perform periodic inventory of animal populations in response jurisdiction
• Perform a vulnerability analysis on each population and transportation route with the aid of current information gathered and available e.g. AVMA published info.
• Establish a Basic Equipment List (BEL) for each response level and include in the Pre-Plan
INTRO TO ANIMAL DECON

PRE-PLANNING  →  CONTINUITY

- Determine how and where the equipment will be stored until it is needed as well as who the responsible parties shall be.
- What if the personnel that will be performing the animal decontamination do not have the proper PPE?
  - Sign agreement with other agencies to use their equipment
    - Possible but many legal issues with this i.e. personnel must train, test and be certified on specific equipment they will use during response.
  - Purchase new equipment
- Is training equipment available?
- Are live animals available for real time training? With their handlers?
INTRO TO ANIMAL DECON
PRE-PLANNING → CONTINUITY

• By law, who is in charge in your planning/response jurisdiction when animals are involved in an emergency incident?
  • Does it depend on the type of incident or the classification of animal?
• How is the Standard of Care affected, if at all, when the animal is a:
  • Companion Animal
  • Service Animal
  • Working Animal
  • Food Animal
• These issues must be thoroughly researched and addressed prior to responding to any emergency.
Animal Decon Operations are generally made up of personnel from either a separate organization or a combination of Emergency Response Organizations or both.

Animal Decon Ops MUST train together as a team and then with ALL Emergency Response Services/Organizations.

- Exercise/Activate that portion of the Pre-Plan that applies to each emergency response organization participating in the training.

- Have a brief after action review with the participants:
  - Was the pre-plan accurate?
  - Will it work in a true emergency?
  - Was anything overlooked?
  - There will always be room for improvement.
OBJECTIVE 3

Challenges associated with animal decontamination...dealing with fur, hair, wool, scales, feathers, wings, fangs, talons, paws, claws, and hooves
CHALLENGES ASSOCIATED with ANIMAL DECONTAMINATION (1 of 8)

- Depending on the hazard and overall incident, is animal decontamination needed?
- Has any agency such as fire department, hazardous materials specialists, or laboratory determined what the hazard(s) is?
- Is it chemical, biological, radiological, or mix?
- What businesses and industries are in the area?
CHALLENGES ASSOCIATED with ANIMAL DECONTAMINATION (2 of 8)

- Who has the statutory/regulatory authority for each species to determine how clean is clean enough for that incident?
- How clean is clean enough?
- Will the public or industry agree with or accept those levels?
CHALLENGES ASSOCIATED with ANIMAL DECONTAMINATION (3 of 8)

Statutory/Regulatory Authority

How clean is clean enough? Who decides?

• Canada - Canadian Food Inspection Agency, Canadian Wildlife Services, Canadian Environmental Assessment Agency, Public Health Agency of Canada, Atomic Energy of Canada Limited, etc.

• U.S. - Department of Agriculture/Interior/Energy, Food and Drug Administration, Environmental Protection Agency, Centers for Disease Control and Prevention, etc.

• Government of Japan - Ministry of Agriculture, Forestry, and Fisheries; Ministry of Environment; Ministry of Health, Labour and Welfare; Nuclear Regulation Authority, etc.

• Provinces/Territories/Prefectures/States

• Industry

Public or Industry perception of “clean” level
CHALLENGES ASSOCIATED with ANIMAL DECONTAMINATION (4 of 8)

- Does the type of incident set the priority of animal species to be decontaminated?
  - Mass Care or Mass Casualty incident
  - Only working and service animals
  - Impacted area - urban, suburban, rural, farms, game ranches, wildlife preserve, event grounds (racetrack, fairgrounds, rodeo)
  - Time of day
  - Season

- Which animal species and how many of each species need to be decontaminated?

- Do certain animal species categories have priority over others?
  - Owned versus stray
CHALLENGES ASSOCIATED with ANIMAL DECONTAMINATION (5 of 8)

Species Categories

- Working and service dogs and horses
- Household pet
- Household pets in facilities - kennels, pet stores, shelters, breeders, animal rescue organizations, veterinary clinics
- Livestock (beef, dairy, sheep, goats, pigs) including backyard* livestock
- Poultry including backyard* poultry
- Horses
- Wildlife
- Exotic animals
- Zoo and Aquarium animals
- Research animals

*Backyard indicates non-commercial

Ducgator
CHALLENGES ASSOCIATED with ANIMAL DECONTAMINATION (6 of 8)

Handling Animals

- People may have fears or allergies to certain animals
- Most animals are not familiar with people in PPE
- Stressed animals may be more aggressive or submissive
- Teeth, claws, talons, and hooves can puncture or tear PPE
- Need people knowledgeable about animal behavior and handling in stressful situations such as animal control officers, groomers, animal behaviorists, veterinarians, and veterinary technicians to be part of planning and decontamination lines
CHALLENGES ASSOCIATED with ANIMAL DECONTAMINATION (7 of 8)

What is the route of exposure?

- Inhalation/Respiratory
- Oral/Ingestion – grooming or licking or consuming contaminated water or food
- Eyes
- Skin
- Paws/hooves/feet/talons

How much protection does fur, hair, wool, feathers, or scales provide?

Is it possible to do spot decontamination versus whole body decontamination?
CHALLENGES ASSOCIATED with ANIMAL DECONTAMINATION (8 of 8)

How will the animal be handled after decontamination?

• Animal should be re-triaged prior to releasing to the owner or before transporting to shelter
• Ability to treat life, limb, eyesight injuries post-decontamination before transport to a higher level of veterinary medical care
• Depending on the hazard, post-decontamination monitoring may be required and a holding area established and staffed
OBJECTIVE 4

Ways to incorporate animal decontamination using existing equipment
WAYS to INCORPORATE ANIMAL DECONTAMINATION using EXISTING EQUIPMENT (1 of 9)

What is the Plan?

• Will animals be decontaminated for this incident?
• Will all humans be decontaminated first and then all the animals?
  • Need a staffed and equipped pre-decontamination animal holding area
• Is animal decontamination dependent of available resources?
• Will animals and humans be kept together going through the same decontamination line or through different decontamination lines at the same time?
• Who will decontaminate the animal – owner, trained responder, or both?
• If the owner and animal are separated, how will the owner and animal be reunited post-decontamination?
• What happens with dying/dead animals?
WAYS to INCORPORATE ANIMAL DECONTAMINATION using EXISTING EQUIPMENT (2 of 9)

• Current animal decontamination recommendations are extrapolations from human decontamination protocols

• Soap and copious amounts of water
WAYS to INCORPORATE ANIMAL DECONTAMINATION using EXISTING EQUIPMENT (3 of 9)

General Procedure for a Dog

Assumes single dog has been triaged and is healthy and easy to handle

Assumes plenty of warm water available

1. Rinse the dog thoroughly with plain warm water beginning at the head along the back and to the tail; then rinse down the dog’s sides, chest, stomach, legs, and paws.

2. Work the soap into the hair starting with the head, along the back and to the tip of the tail; next work down the animal’s sides, chest, and abdomen, legs, and paws. Ensure the soap reaches the dog’s skin. If the dog has erect ears, flush the ears with otic solution or water.

❖ NOTE: Special attention should be paid to the dog’s stomach, face, ears, eyes, under its tail, paws, and in between legs to ensure all contamination is removed.
WAYS to INCORPORATE ANIMAL DECONTAMINATION using EXISTING EQUIPMENT (4 of 9)

General Procedure for a Dog (continued)

3. Flush the eyes with copious amounts of water, ophthalmic solution, or sterile saline.

4. Rinse with plain water using the same pattern as the initial rinse (head to back to tail, then down sides, chest, stomach, legs, and paws).

5. Allow the dog to shake off excess water. A tarp or other impervious material may be placed around the dog while it shakes to prevent contamination of other people, dogs, or equipment.

❖ NOTE: Steps 1-5 may need to be repeated until all contaminants are removed.

6. Dry the dog with clean towels or other absorbent cloth material.
WAYS to INCORPORATE ANIMAL DECONTAMINATION using EXISTING EQUIPMENT (5 of 9)

Animal Decontamination Decision Trees

• The International Fund for Animal Welfare (IFAW) posted guidelines presented to the Government of Japan following the March 11, 2011 earthquake/tsunami/Fukushima Daiichi Nuclear Power Plant accident that outlines decision trees for companion animals, livestock, and wildlife removal from the radiologically impacted area.

• Nuclear Accidents and the Impact on Animals
Companion Animals Enter Staging Area

Triage

Sick/Injured Animals

All Animals Surveyed/Monitored

Initiate Treatment

All Healthy Animals Washed

Euthanize

General Sheltering

Go Home to Owner

< 10,000 cpm

Re-surveyed

> 10,000 cpm

24 hr Holding Area

2nd Bath Re-survey

< 10,000 cpm

Holding Area for 10 Days
Collect and Survey Urine

> 10,000 cpm

Re-survey

< 10,000 cpm

> 10,000 cpm

110,000 cpm used due to possible close contact with humans and multiple animal households

210 days in Holding Area based on half-life of Cesium

From: Nuclear Accidents and the Impact on Animals/IFAW
From: *Nuclear Accidents and the Impact on Animals/IFAW*

**Casualty**

- **Public**
  - **High** >100,000 cpm
    - Isolation
    - Decontaminate
    - Reduced level
    - Level still high

- **Low** <100,000 cpm
  - Volunteer ER Doctor

**Fukushima Wildlife Rehabilitation Center**

- **Survey**
  - Badly injured or sick
  - Euthanasia
  - Sampling
  - Death or euthanasia
  - Treatment

- **Disposal**
  - Badly injured or sick
  - Euthanasia
  - Death or euthanasia
  - Release to wild

**20-30km Zone**

**20-30km Zone:**

- **Local Office Nature Conservation**
  - Survey
  - Volunteer ER Doctor

**Outside 30km Zone**

- **Rescue team**
  - Euthanasia
  - Death or euthanasia
  - Successful
  - Release to wild
WAYS to INCORPORATE ANIMAL DECONTAMINATION using EXISTING EQUIPMENT (6 of 9)

What is Available for Animal Decontamination?

• Personnel
  • Trained – triage, intake, technical guidance on animal behavior and handling during decontamination
  • Physically fit to be in correct Personal Protective Equipment (PPE) for hazard(s)
  • Fit tested for required respiratory protection
  • Numbers – do you have enough responders to rotate in and out decontamination line; allow rest and eating/rehydration periods; 
injuries; keep the line continually active; and be able to adapt if the weather changes?
WAYS to INCORPORATE ANIMAL DECONTAMINATION using EXISTING EQUIPMENT

(7 of 9)

What is Available for Animal Decontamination?

• Equipment
  • Human decontamination lines (roller system), car wash, pool, dip tanks, tubs/small pools for small animals
  • Additional Equipment: cages/carriers (one for decontamination process and one for transportation after decontamination), cat restraint bags, leashes, brushes, muzzles, towels or cage dryers

Hozone Cat Washing Shower Mesh Bags

Shaws Port-A-Pet Cardboard Carriers (UK)
WAYS to INCORPORATE ANIMAL DECONTAMINATION using EXISTING EQUIPMENT (8 of 9)

What is Available for Animal Decontamination?

• Supplies
  • Water – ability to keep the water at an acceptable temperature, access to a lot of water
  • Soap – what kind(s) of soap is available, amount on hand

NOTE: Blue Dawn is the gold standard for oiled birds. There is no gold standard soap for other animal species or other chemically, biologically, and radiologically contaminated birds

• Correct PPE – various sizes, enough for the expected operation, duct tape
WAYS to INCORPORATE ANIMAL DECONTAMINATION using EXISTING EQUIPMENT (9 of 9)

What is Available for Animal Decontamination?

- Supplies (continued)
  - Method to contain and capture hazardous waste run off from decontamination
  - Method to remove hazardous run off when collection container is full
  - Vegetable oil or lighter colored oil for thick oil or tar-like substances
  - Alternative to soap and water – could sand, dirt, or rags be used for initial expedient decontamination?
  - Name tag or tracking system to follow the animal from intake through post-decontamination
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• Ways to incorporate animal decontamination using existing equipment
CONCLUSION

• Safety First!
• Animal decontamination is a complex and multi-faceted operation that involves coordination between many organizations and agencies.
• Sustained and adequate funding is needed to develop, test, and evaluate animal decontamination protocols using different methods and techniques, equipment, and “soaps” to determine best practices for various hazardous agents.
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Identifying Stakeholders and Responsible Agency for Animals

Stakeholders include but are not limited to:

- Local emergency management
- Human sheltering
- Animal control/animal services
- Animal shelters
- Animal humane societies
- Animal rescue groups
- Public health
- Veterinarians and veterinary technicians
- Animal supply stores
- Law enforcement/fire department
- County extension agents
- Animal/kennel clubs
- Animal boarding
- Livestock associations
- Agricultural industry
- Livestock/Poultry industry
Projecting Animal Demographics

Projecting Animal Demographics in a Nuclear or Radiological Emergency

IND Response and Recovery Planning Animal Work Group (FEMA)

https://asprtracie.hhs.gov/technical-resources/resource/2853/projecting-animal-demographics-in-a-nuclear-or-radiological-emergency