Infection Control Guidelines for Therapy Dogs and Cats

Joni Scheftel DVM, MPH, diplomate ACVPM
State Public Health Veterinarian
Minnesota Department of Health
joni.scheftel@state.mn.us
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Table of Contents
• Introduction
• Benefits and risks of pet therapy
• Zoonotic infections important in therapy animals
• Raw diets – relevance to therapy dogs
• Guidelines for animal-assisted interventions in healthcare facilities

Animal-Assisted Intervention Definitions
• Therapy dog or therapy animal
  – Generic name given to an animal once it has been evaluated and registered with one of the national organizations
• Different from a specially trained assistance or service dog that assists the hearing or visually impaired and others with disabilities
  – Only service dogs have federally-granted legal access to public buildings

Resident Animal Programs
• Resident animals live in a facility full time
  – They are owned by the facility
  – Cared for by staff, volunteers and residents
  – Not necessarily therapy dogs
• Resident pets shown to enhance wellness, decrease pain medication intake, and decrease loneliness among elderly and long term care patients


Animal Assisted Activities (AAA)
• Volunteers bring their therapy pets to hospitals, nursing homes, schools, and other facilities to enhance quality of life and to provide opportunities for socialization, motivation, education, etc.
• Not tailored to specific patients or medical conditions

Animal Assisted Therapy (AAT)
• Health care professionals or certified therapists use their own animal, or more commonly, work in partnership with a volunteer and the volunteer’s therapy pet to promote improvement in physical, social, emotional, or cognitive function
• Specific activities are planned to achieve measurable goals for a specific patient
The Human-Animal Bond: Benefits of Pet Therapy

- Interactions with animals can:
  - Facilitate communication between providers and patients
  - Increase verbal and social interaction among patients or residents
  - Improve emotional and physical health
  - Decrease anxiety through diversion
  - Decrease loneliness
  - Help to reinforce behaviors from reading to walking or throwing a ball

History of Pet Therapy

- The use of animals in therapy dates back to 1792 at the York Retreat for the Insane, established by Quakers in England
  - It incorporated gardening, courtyard exercise, and the presence of animals such as birds and rabbits in treatment plans

Hooker, 2002. Holist Nurse Pract

History of Pet Therapy (cont.)

- In Notes on Nursing, published in 1860, Florence Nightingale wrote:
  - “A pet bird in a cage is sometimes the only pleasure of an invalid confined for years to the same room”
  - “A small pet animal is often an excellent companion for the sick, for long chronic cases especially”

Hooker, 2002. Holist Nurse Pract

History of Pet Therapy (cont.)

- The first research-based findings on the benefits of AAT were presented to the 1961 Am Psychological Association Annual Meeting by Dr. Boris Levinson, an American child psychologist
  - Dr. Levinson found a dog’s presence to be a positive focus in beginning communication, allowing defenses to soften, building a rapport, and initiating therapy with children

Hooker, 2002. Holist Nurse Pract

History of Pet Therapy (cont.)

- During the late 20th Century, AAT usage and research increased rapidly
  - 1970’s: Sam and Elizabeth Corson expanded AAT to hospitalized teens and adults
  - 1975: They expanded the concept to nursing homes
  - 1990’s Explosion of research and usage in new populations and settings

Hooker, 2002. Holist Nurse Pract
Benefits of Pet Therapy Are Well Established. What About the Risks?

- Animal Allergies
- Trauma, including bites
- Opportunistic infections in severely immunocompromised patients
- Zoonotic infections

Animal Allergies

- 15% of the human population is allergic to dogs or cats
- Very few allergic reactions seen in nursing homes with resident pets. Thought to be due to decline in immune status with age
- Allergens can be minimized by bathing therapy animals within 2 days of a visit

Trauma and Bites

- Bites are rarely a problem because certified therapy dogs are generally carefully temperament tested and trained, and are required by most programs to be > 1 year of age
- Scratches to thin skin of the chronically ill or elderly can cause serious injury – another animal selection and training issue

Opportunistic Infections

- Many hospitalized or chronically ill people are immunocompromised, and susceptible to infection with environmental microbes that don’t cause disease in healthy people
- Critical to limit animal’s contact, especially licking, with medical equipment, catheters, and everything else attached to the patient
Two Kinds of Zoonotic Infections
Important in Therapy Animals

• Zoonotic infections spread to humans by direct contact with an infected animal
• Human pathogens that are picked up by animals from patients and then transmitted to another patient
  – Animal becomes transiently infected
  – Animal physically transports the agent in the mouth, or on fur or feet, but does not become infected itself

Zoonotic infections spread to humans by direct contact with an infected animal

Dermatophytosis (Ringworm)

• Most common source is kittens or young cats
• More frequent in stray or shelter animals
• Dogs, cattle, horses, goats, sheep, rabbits, and rodents are also sources of infection
Diarrheal Illnesses

- Animals may have diarrhea, be asymptptomatically infected, or be carriers
  - *Salmonella*
    - Reptiles, chicks, ducks, puppies, kittens
    - Dogs fed raw diets
  - *Campylobacter*
    - Puppies, kittens

Human Pathogens That May Be Transmitted from Therapy Animals to People in Hospitals or LTC Facilities

- Methicillin-Resistant *Staph aureus* (MRSA)
- *Clostridium difficile* (*C. difficile*)
- Pathogenic *E. coli* strains
- Vancomycin-resistant *Enterococcus faecium* (VRE)

What is MRSA?

- Leading cause of pneumonia, surgical wound, and bloodstream infections in hospitalized patients
- MRSA infections occur in people who have recently been hospitalized or are residents in long-term care facilities
- Community-acquired cases have been increasing
  - no history of recent hospitalization

MRSA in Pets

- *Staph intermedius* is the most common skin flora of dogs and cats
- Few case reports of MRSA in dogs and cats until recently
  - Likely acquire the infection from their owners
  - Transiently colonized, and do not need to be treated with antibiotics

*Clostridium difficile*

- *C. difficile* is a bacterium that causes chronic diarrhea, colitis, and occasionally death
- Risk factors include prior antibiotic use, hospitalization, and LTC resident
- Greater risk to the elderly
U of Minnesota Study: Animal Assisted Activities in Health Care Settings

MRSA among Therapy Dogs and Their Handlers

- 10 therapy dogs were sampled weekly for 10 weeks
  - Nasal and rectal swabs
  - Questionnaire to determine location, frequency of visits, length of visits, type of interactions
- Handlers were sampled
  - Week 1, 5, and 10
  - Nasal swabs (self-collected)

MRSA Among Therapy Dogs and Their Handlers

- From dogs: 182 nasal and rectal swabs
- From handlers: 26 nasal swabs
- MRSA was recovered from 2 dogs and their handlers
- All isolates were healthcare-associated strains and indistinguishable (USA100)

Areas Visited by U of Minnesota Study Therapy Dogs

<table>
<thead>
<tr>
<th>Location</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgery waiting room</td>
<td>37%</td>
</tr>
<tr>
<td>Oncology waiting room</td>
<td>34%</td>
</tr>
<tr>
<td>Emergency waiting room</td>
<td>26%</td>
</tr>
<tr>
<td>Intensive Care waiting room</td>
<td>18%</td>
</tr>
<tr>
<td>Rehabilitation</td>
<td>22%</td>
</tr>
<tr>
<td>Physical Therapy</td>
<td>14%</td>
</tr>
</tbody>
</table>

Recent Study in Ontario of the Incidence of Acquisition of MRSA and C. difficile by Therapy Dogs

- Dogs were enrolled in a year long study
- Samples were collected from:
  - Dogs currently enrolled in hospital visitation programs
  - Dogs involved in other animal-assisted activities as controls
- Sampled every 2 months for MRSA, VRE, E. coli, Salmonella, and C. difficile

Incidence Rate of Isolation of Pathogens from Fecal Samples (n= 1,130) Collected Every 2 Months for 1 Year From 194 Therapy Dogs During 2005-2006

<table>
<thead>
<tr>
<th>Agent</th>
<th>No. of Positive Dogs</th>
<th>IR* Hosp-Exposed</th>
<th>IR Unexposed</th>
<th>Incidence Rate Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>C. difficile</td>
<td>39</td>
<td>.31</td>
<td>.13</td>
<td>2.4</td>
</tr>
<tr>
<td>MRSA</td>
<td>9</td>
<td>.09</td>
<td>.02</td>
<td>4.7</td>
</tr>
<tr>
<td>AmpC E. coli</td>
<td>37</td>
<td>.26</td>
<td>.15</td>
<td>1.79</td>
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<tr>
<td>VRE</td>
<td>1</td>
<td>.01</td>
<td>0</td>
<td>Not calculated</td>
</tr>
</tbody>
</table>

*Incidence Rate
Risk Factors for Testing Positive for C. difficile among Therapy Dogs

- Licking patients (OR 3.5; p=0.01)
- Visiting a healthcare center (OR 2.2; p<0.001)
- Visiting groups of children (OR 2.4; p=0.002)
- Antibiotic treatment of dog (OR 1.8; p=0.02)
- Antibiotic treatment of someone in the dog’s household (OR 2.2; p=0.003)
- Going up on patient’s beds (OR 1.5; p=0.02)

Risk Factors for Testing Positive for MRSA among Therapy Dogs

- MRSA
  - Licking patients (OR 18.8; p=0.001)
  - Taking treats from patients (OR 11.2; p=0.009)
  - Visiting a healthcare center (OR 5.2; p=0.04)
  - Visiting groups of children (OR 4.0; p=0.05)

Do Visitation Animals Transmit Disease?

- There have been no reported outbreaks attributed to visitation programs
- However:
  - They can carry zoonotic agents
  - They can acquire infectious agents while visiting

Hospital Visitation Programs

- In Ontario, 201 (90%) of 223 hospitals permitted animal visitation
- Screening protocols required to participate in dog visitation programs (as reported by owners)
  - 93% routine vaccinations
  - 53% temperament testing or behavioral assessment
  - 18% annual check for internal parasites
  - 2% routine deworming

Health Requirements for Therapy Animals

- Often miss the point
  - Current vaccinations
  - Regular fecal exams
  - Ectoparasite control
- Important for the animal’s health -- not important to prevent illness in hospitalized patients or residents of long-term care facilities

Hospital Visitation Programs (Dog-Human Interactions)

- Majority of visits took place in the patient’s room
  - 79% of owners allowed dogs to lick patients
  - 73% of owners permitted their dogs on the patient’s bed
- 0 of 75 healthcare workers washed their hands either before or after touching the dogs
Study of Dogs Visiting Human Hospitals

- 102 dogs surveyed and sampled
- Zoonotic agents isolated from 80 of 102 dogs

<table>
<thead>
<tr>
<th>Agent</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Clostridium difficile</em></td>
<td>58</td>
</tr>
<tr>
<td><em>Giardia</em></td>
<td>7</td>
</tr>
<tr>
<td>ESBL <em>E. coli</em></td>
<td>4</td>
</tr>
<tr>
<td>Round and hookworms</td>
<td>3</td>
</tr>
<tr>
<td><em>Salmonella</em></td>
<td>3</td>
</tr>
<tr>
<td>Ringworm</td>
<td>1</td>
</tr>
</tbody>
</table>

Lefebvre S. J Hospital Inf 2006;62:458-66

Raw Diets and Therapy Dogs

Feeding Raw Diets and Salmonella Carriage

- A high percentage of all types of retail meats (including poultry) for human consumption are contaminated with *Campylobacter* and *Salmonella*
- Many reports of raw diets for animals, for example, Bones and Raw Food Diet (BARF) contaminated with *Salmonella*
- Many reports of animals fed these diets shedding *Salmonella* in stool

FDA/CDC/USDA (NARMS) Retail Meat Annual Report, 2007

<table>
<thead>
<tr>
<th>Year</th>
<th>Chicken breast n (%)</th>
<th>Ground turkey n (%)</th>
<th>Ground beef n (%)</th>
<th>Pork chop n (%)</th>
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</thead>
<tbody>
<tr>
<td>2007</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bacteria</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Campylobacter</em></td>
<td>475/1070 (44%)</td>
<td>34/1065 (3.2%)</td>
<td>5/1071 (0.5%)</td>
<td>4/1072 (0.4%)</td>
</tr>
<tr>
<td><em>Salmonella</em></td>
<td>99/1072 (9.2%)</td>
<td>190/1066 (17.8%)</td>
<td>13/1071 (1.2%)</td>
<td>18/1073 (1.7%)</td>
</tr>
</tbody>
</table>

Chicken Food Safety 2007 Consumer Reports

- Tested 525 fresh, whole broilers
  - 23 states, multiple sources, including leading brands, organic, no-antibiotics, and premium birds
- *Campylobacter* was present on 81%; *Salmonella* on 15%, both 13%; neither 17%
- No difference between regular and organic or no-antibiotics birds, including antibiotic resistant organisms
### Reports of Salmonella Carriage in Dogs Fed Raw Diets

- **Leonard, 2010. ZPH:** 32/138 pet dogs were positive for *Salmonella*, 24/32 were fed a raw food, or home cooked diet.
- **Lefebvre, 2007. ZPH:** 40% of therapy dogs in the study were fed raw meat; dogs fed raw meat were significantly more likely to shed *Salmonella* than those not fed it: OR 22.7, P< 0.001.
- **Joffe, 2002. Can V J:** Salmonella isolated from 80% of BARF diet samples and 30% of dogs fed the diet.
- **Finley, 2006. CID:** Review of human health risks of feeding natural pet treats such as pig’s ears.

### When is it ok to feed raw-food diets or treats?

- When your dog is not a therapy dog.
- When there are no children under age 5 in contact with the dog.
- When there are no pregnant women in contact with the dog.
- When there are no immunocompromised persons in the household.
- When you don’t mind if your dog gets *Salmonella* or *Campylobacter*.

### Guidelines for Animal-Assisted Interventions in Healthcare Facilities

- **Suitable animals:** species/temperament
- **Hand hygiene before and after contact**
- **Patients pets interact with patient and family only**
- **No staff pets unless certified**
- **No shelter, stray animals**
- **Adult animals**
- **Health screening including rabies vaccination, and external and internal parasites**

**Am J Infection Control 2008; 36: 78-85**

### Guidelines for Animal-Assisted Interventions in Healthcare Facilities (Cont.)

- **No visits while animal is ill (duh)**
- **No visits while animal being treated with antibiotics**
- **No animals fed raw diets or treats within 90 days**
- **Screening for MRSA, *C. difficile*, etc. generally not recommended**
- **Healthy handler -- flu vax**

**Am J Infection Control 2008; 36: 78-85**

### Guidelines for Animal-Assisted Interventions in Healthcare Facilities (Cont.)

- **Don’t visit patients under contact precautions**
- **Don’t visit patients while they are eating**
- **Prevent licking**
- **No high fives or shaking**
- **No treats unless shovel or spoon is used that is disinfected between patients**
- **Use a barrier sheet on the bed and discard after visit**

**Am J Infection Control 2008; 36: 78-85**

### Guidelines for Therapy Animal Health

- **Veterinarians treating therapy animals with infections should lower their threshold for submitting samples for culture and sensitivity**
  - Diarrhea
  - Skin or soft tissue infections
  - Urinary tract infections
  - Pneumonia
  - Surgical site infections
- **Standard precautions for veterinary personnel**

**Lefebvre 2008. JAVMA**
Thank you!