

Zoonotic Consideration in Animal- Assisted Interventions

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November 2, 2023





Webinar Outline

- Benefits of Animal Contact in Clinical Practice
- Risks Associated with Animal-Assisted Interventions (AAI)
 - Zoonotic Transmission
 - Reverse Zoonotic Transmission
- Utilizing a One Health Approach to AAI
- Recommendations for Prevention and Control



Benefits of Animal Contact in Clinical Practice

The Importance of AAI as a
Therapeutic Tool



The Spectrum of Animal-Assisted Interventions

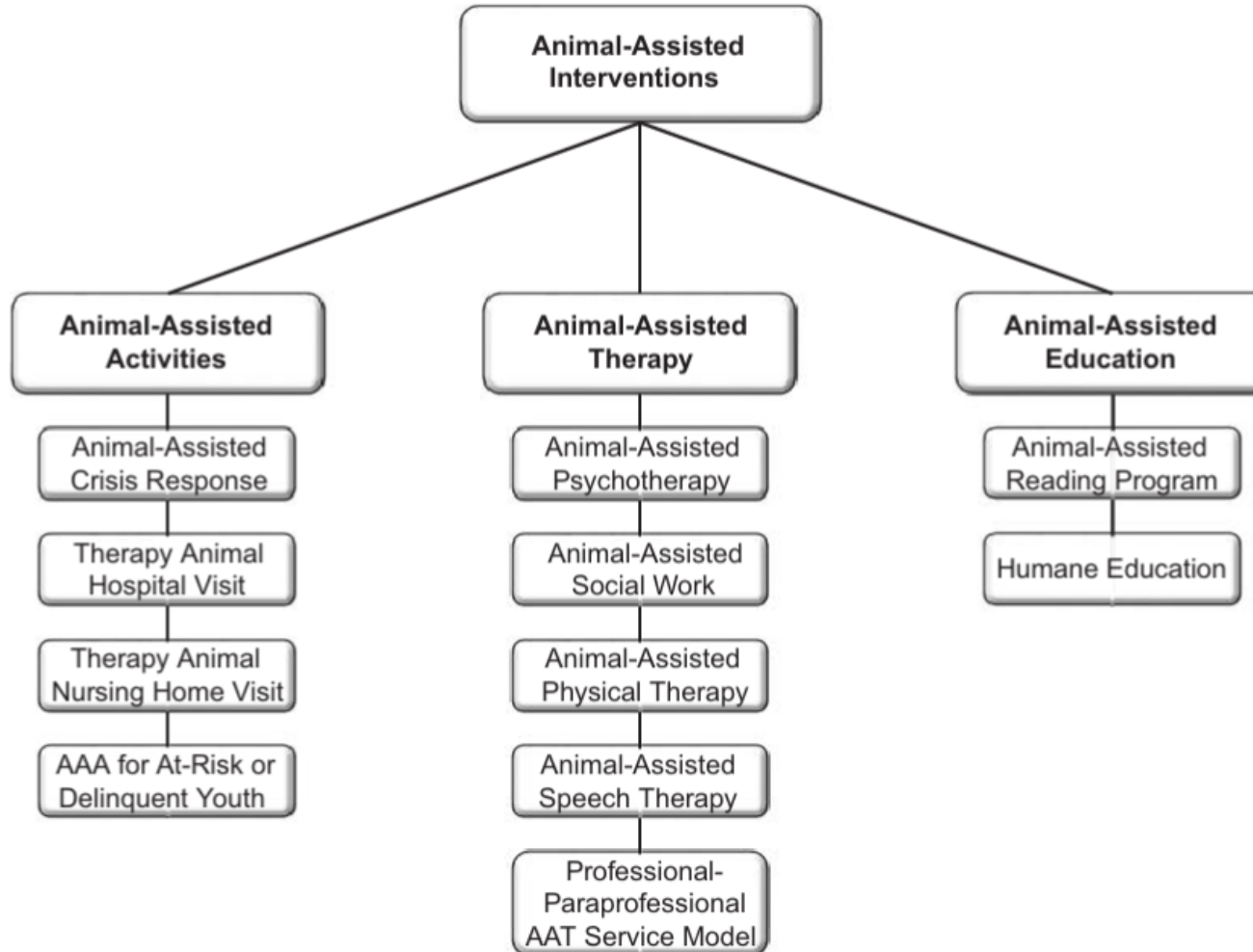


FIGURE 3.1 The spectrum of animal assisted interventions.

Image Source: Fine, A. H., Tedeschi, P., & Elvove, E. (2015). Forward thinking: The evolving field of human–animal interactions. In *Handbook on animal-assisted therapy* (pp. 21-35). Academic Press.

Animal Assisted Therapy (AAT)

- **Animal Assisted Therapy (AAT)** is a health intervention that incorporates animals as the focus of the treatment
- AAT differs from other animal-based activities (ex. pet visitation) as it has:
 - Set goals and objectives for treatment outcomes
 - Oversight from a trained handler and/or provider
 - Integrates a trained therapy animal¹
- The goal is to improve the well-being of the population of interest, but this cannot be achieved without also considering potential health risks to humans and animals



Animals and Patient Outcomes

Lundqvist et al. *BMC Complementary and Alternative Medicine* (2017) 17:358
DOI 10.1186/s12906-017-1844-7

BMC Complementary and
Alternative Medicine

RESEARCH ARTICLE

Open Access



Patient benefit of dog-assisted interventions in health care: a systematic review

Martina Lundqvist^{1*}, Per Carlsson¹, Rune Sjö Dahl², Elvar Theodorsson³ and Lars-Åke Levin¹

- Of 18 studies included in the analysis, 15 had at least one significant positive effect, including²:
 - Health, wellbeing, depression and quality of life among those with severe cognitive disorders
 - Stress and mood of patients

Animals and Patient Outcomes



- A randomized controlled trial (RCT) across psychiatric residential care homes in Iran found that those who received animal-assisted therapy with a bird for 8 weeks reported⁴:
 - Higher levels of happiness
 - Quality of life increases across:
 - Satisfaction with life
 - Psychological well-being
 - Daily life activities

Animals and Patient Outcomes

Complementary Therapies in Clinical Practice 43 (2021) 101347

Contents lists available at [ScienceDirect](#)

 **ELSEVIER**

Complementary Therapies in Clinical Practice

journal homepage: <http://www.elsevier.com/locate/ctcp>



Animal assisted intervention for oncology and palliative care patients: A systematic review



Karina Diniz Pinto^{*}, Claudia Teresa Vieira de Souza, Maria de Lourdes Benamor Teixeira, Maria Isabel Fragoso da Silveira Gouvêa

Laboratory of Epidemiology Research and Social Determinants of Health, Evandro Chagas National Institute of Infectious Diseases – Fiocruz, Rio de Janeiro, RJ, Brazil

- Of the ten studies that made it into the analysis, AAI benefits to oncology and palliative care patients included³:
 - Mood
 - Pain perception
 - Quality of life

Animal and Health Care Worker Outcomes








animals




Systematic Review

Animal-Assisted Intervention and Health Care Workers' Psychological Health: A Systematic Review of the Literature

Daniela Acquadro Maran ¹, Ilaria Capitanelli ², Claudio Giovanni Cortese ^{1,*}, Olayinka Stephen Ilesanmi ³,
Maria Michela Gianino ⁴ and Francesco Chirico ⁵

- Of 12 studies included in the analysis, positive effects were found across⁵:
 - Stress levels
 - Self-reported anxiety
 - Levels of compassion
 - Happiness
 - Reduced burnout
 - Job perception and satisfaction
 - Reduced desire to quit



Risks Associated with Animal- Assisted Interventions (AAI)

Zoonoses and Reverse Zoonoses
Threats



More than half of all infections that people can get are zoonotic (they can spread between animals and people).



Definitions

- **Zoonoses:** Diseases shared between animals and humans
 - This term is typically indicating pathogen transmission from an animal to a person
 - Zoonotic diseases can come from companion animals (pets), livestock (including poultry), and wildlife
- **Reverse zoonoses:** A term to indicate a zoonotic disease transmission in which a human was the cause of an animal infection



Zoonotic Risks and Transmission

- Contact with a therapy animal may be **direct** (e.g. petting or stroking the animal) or **indirect** (e.g. observing the animal)
- **Hazards and Risks**
 - Physical injuries such as bites, scratches, or trip hazards
- **Zoonotic Disease Transmission**
 - Bite or scratch infections
 - Inhalation
 - Contact with urine
 - Direct contact with fur, feathers, skin, or contaminated bedding or items
 - Accidental fecal-oral ingestion



TRANSMISSION ROUTES OF ZONOTIC DISEASES OF COMPANION ANIMALS

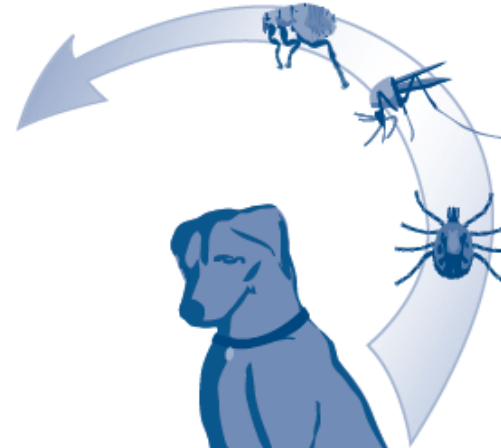
Aerosol

Inhalation of droplets passed through the air from an infected animal. Exposure can occur from droplets created by coughing, sneezing, or from air-borne dust or soil contaminated with feces, urine, saliva or bacteria.



Vectors

Transfer of certain pathogens can occur from an infected animal to another animal or person by insects, such as fleas, ticks or mosquitoes.



Oral

Ingestion of food or water, such as unpasteurized milk or under cooked meat, contaminated with a pathogen. Eating or drinking after handling animals or feces without washing your hands can also lead to oral transmission of diseases.

Direct Contact

Exposure can occur when a pathogen directly touches an open wound or mucous membranes. It can also be transmitted by bites and scratches and rarely through direct penetration of the skin.



Fomites

Objects or surfaces contaminated by an infected animal can lead to pathogen exposure for other animals and people. Examples include cages, aquaria, bowls, toys, or bedding.

Aerosolized Zoonotic Pathogens

- Examples include, but are not limited to⁶:
 - *Bordetella* Infection
 - Cryptococcosis
 - Hantavirus
 - Influenza
 - Leptospirosis
 - Melioidosis
 - Plague
 - Psittacosis
 - Q Fever
 - Tularemia

Aerosolized fluids are transmitted in the air via sneezes, coughs, singing, etc. to a new host who inhales infectious particles.



Edema of the lower limbs with diffuse maculopapular rash.

Image source: Weygaerde, Y. V., Versteele, C., Thijs, E., De Spiegeleer, A., Boelens, J., Vanrompay, D., ... & Vermaelen, K. (2018). An unusual presentation of a case of human psittacosis. *Respiratory medicine case reports*, 23, 138-142.

Oral Zoonotic Pathogens

- Examples include, but are not limited to⁶:
 - Baylisascariasis
 - Campylobacteriosis
 - Cryptosporidiosis
 - *Escherichia coli* 0157:H7
 - Echinococcosis
 - Giardiasis
 - Hookworm
 - Leptospirosis
 - Salmonellosis
 - Toxocariasis
 - Toxoplasmosis
 - Trichuriasis
 - Tularemia
 - Yersiniosis

Typically, from accidental fecal ingestion. This happens due to contaminated food or water or soil, hands, or objects.



Image source: Centers for Disease Control and Prevention (n.d.). DPDx, <https://www.cdc.gov/dpdx/giardiasis/index.html> .

Direct Contact and Fomite Zoonotic Pathogens

- Examples include, but are not limited to⁶:
 - Acariasis (mange)
 - Brucellosis
 - Cat Scratch Disease (*Bartonella* spp.)
 - Dermatophytosis (Ringworm)
 - Glanders
 - Influenza
 - Leptospirosis
 - Melioidosis
 - Mpox
 - Mycobacteriosis
 - Methicillin-Resistant *Staphylococcus aureus* (MRSA)
 - Pasteurellosis
 - Plague
 - Q Fever
 - Rabies
 - Rat Bite Fever
 - Salmonellosis
 - Sporotrichosis
 - Tularemia

Spread via bites, scratches, direct contact with animal tissues/fluids (ex. saliva, urine, feces) or contaminated items or surfaces (ex. cages, food bowls, leashes, beds, etc.)

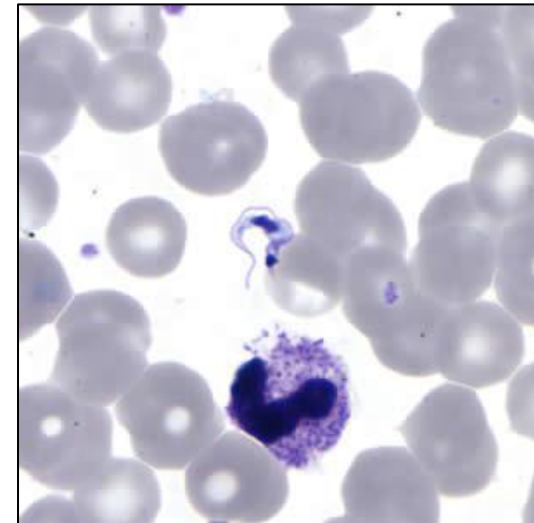


Image courtesy of https://health.hawaii.gov/docd/disease_listing/ringworm/

Vector-borne Zoonotic Pathogens

- Examples include, but are not limited to⁶:
 - **Fleas**
 - Plague
 - Flea-borne (murine) typhus
 - **Mosquitoes**
 - West Nile Virus
 - Eastern Equine Encephalitis Virus
 - **Sand Flies**
 - Leishmaniasis
 - **Ticks**
 - Lyme Disease
 - Ehrlichiosis
 - Rocky Mountain Spotted Fever
 - Tularemia
 - Anaplasmosis
 - Babesiosis
 - **Triatomine “kissing bug”**
 - Trypanosomiasis (Chagas disease)

Transmitted by an
arthropod vector.



T. cruzi trypomastigote in a thin blood smear stained with Giemsa.

Zoonotic Disease Considerations with AAT Practice

- Animal-assisted therapy involves some type of contact with an animal for a desired health outcome
- This creates an inherent risk for zoonotic disease transmission
- Zoonotic exposure threats depend upon:
 - **Animal species** and
 - **Contact type**
- Zoonotic infection and/or severity depends upon:
 - **Immune status of human/animal** and
 - **Type of pathogen**





Utilizing a One Health Approach to AAI

Recognizing the holistic nature
of humans, animals, and their
shared environment



One Health



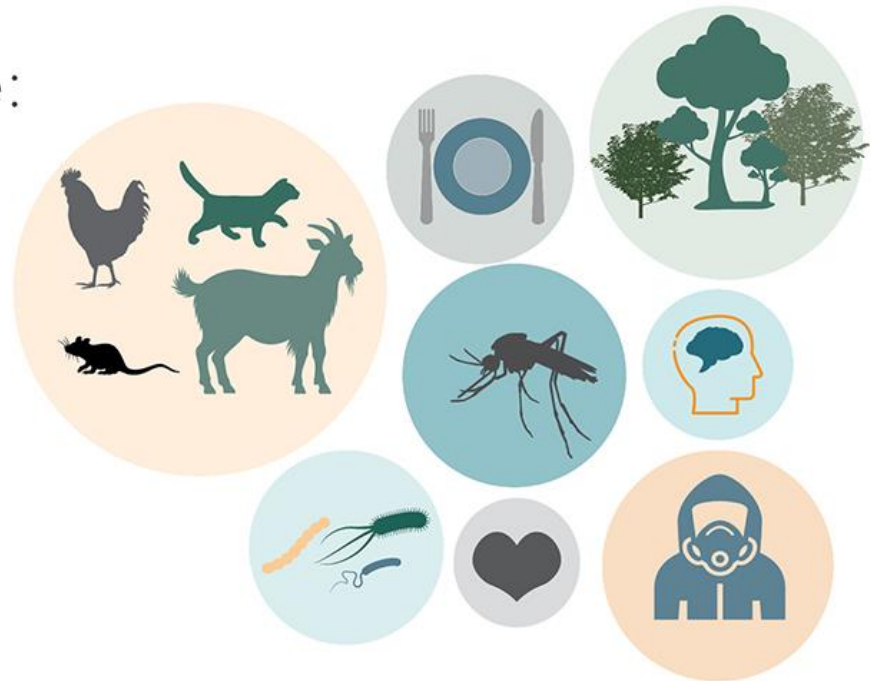
“**One Health** is a collaborative, multisectoral, and transdisciplinary approach—working at the local, regional, national, and global levels—with the goal of achieving optimal health outcomes recognizing the interconnection between people, animals, plants, and their shared environment.” — Centers for Disease Control and Prevention (CDC)

Did You Know?

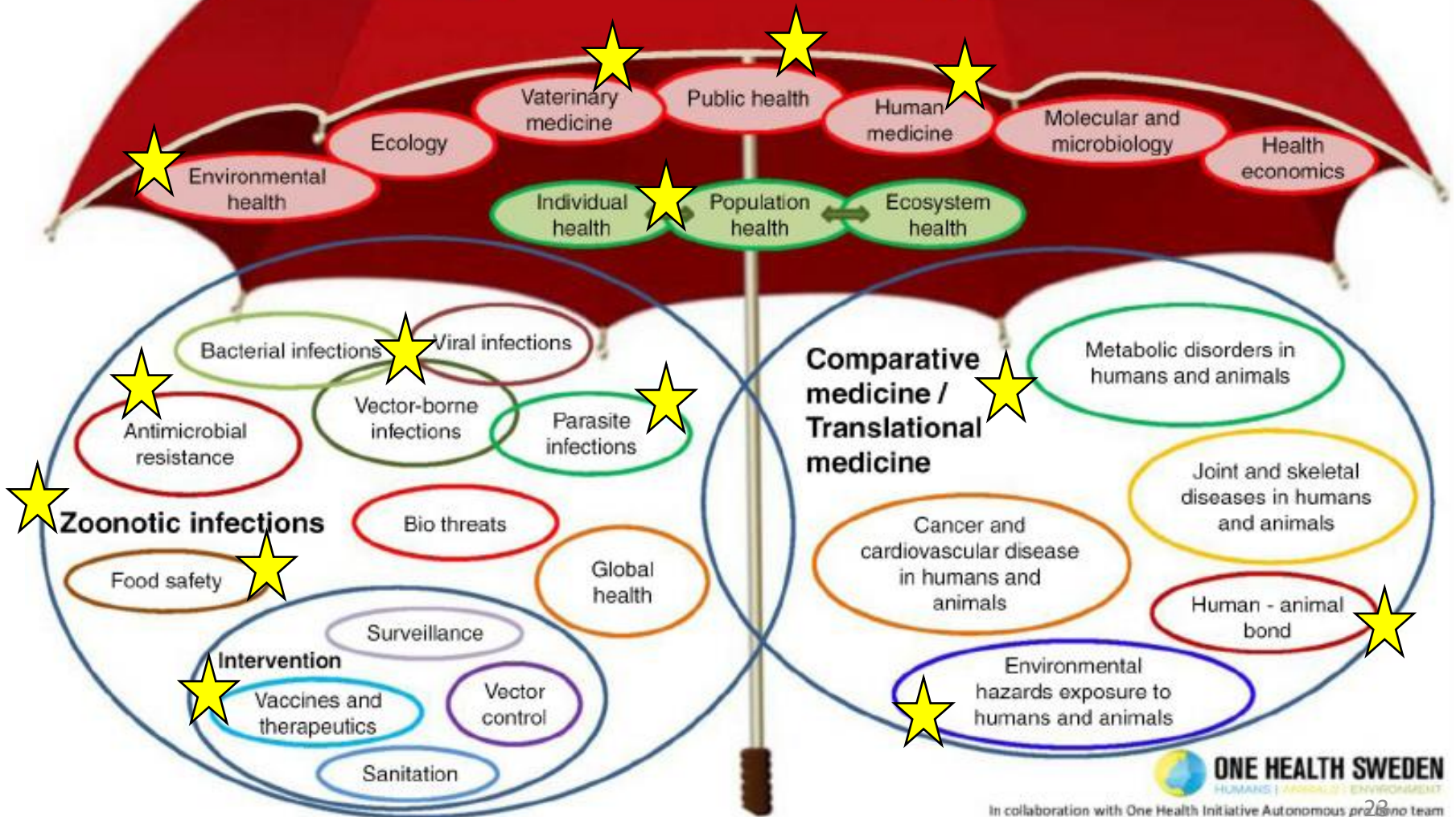
One Health issues include:


- Zoonotic diseases
- Antibiotic resistance
- Food safety and security
- Vector-borne diseases
- Environmental health
- Chronic diseases
- Mental health
- Occupational health

...And more!



One Health



A close-up photograph of a female veterinarian with her eyes closed, wearing teal scrubs and a stethoscope. She is using a reflex hammer to examine a ginger cat lying on a metal table. The scene is set in a clinical environment with warm lighting.

Recommendations for Prevention and Control

Using Guidance from The
Society for Healthcare
Epidemiology of America
(SHEA)

A healthcare worker in a white coat is standing and talking to an elderly patient who is lying in a hospital bed. The patient is wearing glasses and a white hospital gown. The setting is a hospital room with medical equipment visible in the background.

SHEA

“The Society for Healthcare Epidemiology of America (SHEA) is, “a professional society that improves public health by establishing infection-prevention measures and supporting antibiotic stewardship among healthcare providers”

SHEA's Guidelines for Animals in Healthcare Facilities



<https://shea-online.org/guidance/animals-in-healthcare-facilities/>



Overview of Management of an Animal-Assisted Activities Program Within a Healthcare Facility

- Key recommendations:
 1. Facilities need a written policy for AAT
 2. Exclusion of certain animals that cannot be trained to stay out of high-risk areas (ex. preference for dogs over cats unless leash trained)
 3. Animals and handlers should be screened, formally trained and evaluated
 4. Infection control professionals at the facility should be consulted for selecting appropriate locations
 5. All clinical staff should be educated on program rules



Training and Management of Animal-Assisted Activities Handlers. Facilities Should do the Following:

6. Handlers should understand the infection prevention and control policies of the facility
7. Handlers should be offered all immunizations recommended for health care workers
8. Handlers should be required to escort the animal throughout the facility and to follow hospital policy
9. Handlers should prevent the animal from having contact with anyone other than the intended patient
10. One animal per handler

A white dog with brown patches is drinking from a metal bowl on a grassy field. The background is a blurred green field.

Training and Management of Animal-Assisted Activities Handlers. Facilities Should do the Following (Cont.):

11. Training modules should be required of the handler on:

- Zoonotic disease
- Hand hygiene and standard precautions
- Proper cleaning and disinfecting areas from animal waste
- Proper animal waste disposal
- How to inspect for ectoparasites
- How to read an animal's body language for signs of distress
- Identification of contacts in case of emergency or injury



Training and Management of Animal-Assisted Activities Handlers. Facilities Should do the Following (Cont.):

12. Handler should direct patients to only touch the animal in areas that are not as high-risk (avoiding mouth, nose, bottom) and how to avoid startling the animal
13. Restrict sessions to a max of 1 hour
14. Handler should be required to self-screen for illnesses

A person is sitting on a bed, feeding a brown rabbit. The rabbit is sitting up and eating from the person's hand. The background is a window with blinds and some indoor plants.


Training and Management of Animal-Assisted Activities Handlers. Facilities Should do the Following (Cont.):

15. Handler must keep control of the animal at all times and manage the animals:
 - Approaching a patient in bed with medical devices, bandages, breaks in skin, etc.
 - Riding in an elevator
 - Requiring anyone who touches the animal to practice hand hygiene
 - Not allow patients to eat or drink during animal contact
 - Reporting any scratches or bites immediately
 - Removing any animals with illness or incontinence
16. Maintain a log of AAT visits by rooms, animals and handlers for future contact tracing

A group of chickens, including several white ones and one black and white speckled one, are standing in a grassy field. The background shows trees and a clear sky. An orange horizontal bar is located in the top left corner of the image.

Requirements of Acceptable Animals for Animal-Assisted Activities Programs:

17. Temperament screening of animal should be thorough and reevaluations should be regular
18. Health screenings for animals should include:
 - Required rabies vaccination
 - Exclusion of animals with known infectious diseases
 - Temporary exclusion of animals who are sick until a veterinarian finds that they no longer pose a risk
 - Animals must have a health evaluation by veterinarian at least once a year
 - Exclusion any animals who have been fed raw or dehydrated (raw) foods, chews, or treats of animal origin unless they have been irradiated or pasteurized



Preparing Animals for Visits:

19. Handlers should prepare animals for visits by:

- Brushing out loose hair
- Clipping nails
- Inspecting for fleas or ticks
- Using a non-retractable leash
- Providing a place to use the bathroom outside of the facility and practice hand hygiene after clean up

20. Handlers must get consent from the patient or caregiver and ideally the provider before a visit and permission from others in the room



Managing Appropriate Contact Between Animals and People During Visits

21. Handlers should notify a health care worker of the visit
22. No visiting animals should be in ICUs, isolation rooms, neonatal and newborn nurseries, and other rooms identified by the infection control team
23. If animals get on the bed, the sheets should be clean and a barrier should be placed between the animal and bed
24. Handlers should discourage patients and health care workers from shaking the animal's paw or giving the animal treats
25. Handlers should discourage the animal from licking patients and health care workers



Environmental Cleaning

- 26. Environmental cleaning and disinfection should be done routinely after a visit
- 27. Bed sheets should be changed if the animal has had contact without a barrier in place

CDC Resource Page for Healthy Pets, Healthy People

Keeping Pets Healthy Keeps People Healthy Too!

Studies have shown that the bond between people and their pets can increase fitness, lower stress, and bring happiness to their owners. But there's something else you should know.

Pets sometimes carry germs that can make people sick. The diseases people get from animals are known as zoonotic (zoe-oh-NOT-ic) diseases. [Learn more about the benefits and risks of having pets.](#)

Outbreak of Campylobacter Linked to Pet Store Puppies

About Pets & People

Pets & Other Animals



Animal-Related Diseases

Information For You

Teachers & Daycare Staff	Organ Transplant Patients
Veterinarians	Animal Exhibit Managers & Visitors
Healthcare Providers	Pregnant Women
Parents & Caregivers	Media

[See More Groups](#)

Outbreaks

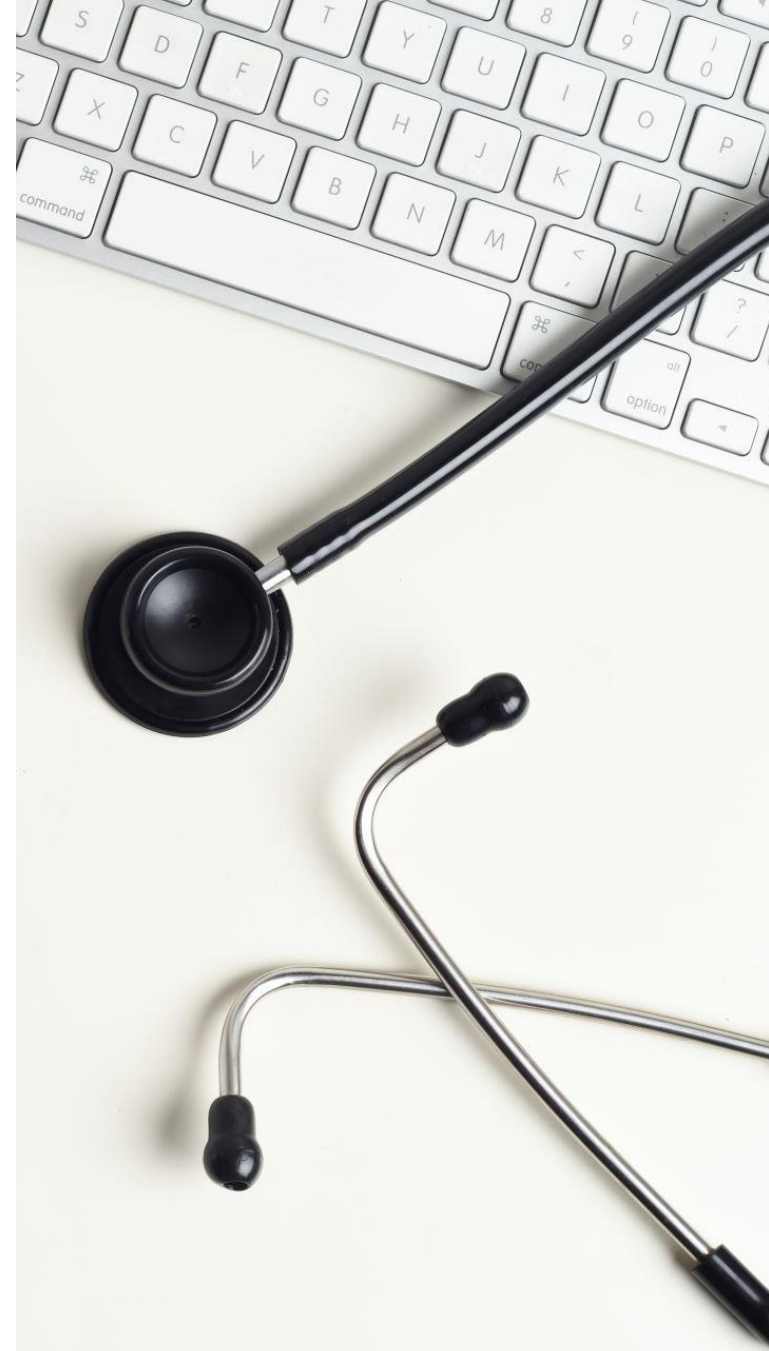
-  [Outbreak of *Salmonella* Infections Linked to Small Pet Turtles](#)
-  [Outbreak of Multidrug-resistant *Campylobacter* Infections Linked to Contact with Pet Store Puppies](#)

[See More Outbreaks](#)

New & Noteworthy

Additional Resources

- **The Center for Food Security & Public Health, Iowa State University, College of Veterinary Medicine:**
<https://www.cfsph.iastate.edu/>
 - Zoonotic Diseases page:
<https://www.cfsph.iastate.edu/zoonoses/>
 - Wallchart on Select Zoonotic Diseases of Companion Animals:
<https://www.cfsph.iastate.edu/product/select-zoonotic-diseases-of-companion-animals-wallchart/>
 - Pdf version:
<https://www.cfsph.iastate.edu/Assets/select-zoonoses-companion-animal-chart.pdf>
- **Healthy Pets, Healthy People, Centers for Disease Control and Prevention:**
<https://www.cdc.gov/healthypets/index.html>
 - Information for Healthcare Providers:
<https://www.cdc.gov/healthypets/specific-groups/healthcare-providers.html>
 - Educational Materials:
<https://www.cdc.gov/healthypets/publications/index.html>
- **Animals in Healthcare Facilities, Guidelines from The Society for Healthcare Epidemiology in America:**
<https://shea-online.org/guidance/animals-in-healthcare-facilities/>
 - Online version:
<https://eguideline.guidelinecentral.com/i/517746-animals-in-healthcare-facilities-shea/0>



In Conclusion

- The human-animal bond is profound
- Therapy animals have proven successful in health interventions across a variety of illness and disease
- Close contact between humans and animals, without the necessary safety precautions, can put both parties at risk for zoonotic disease
- Following health and safety guidelines for animal assisted therapy will protect clients, handlers, and animals



Thank you!

Questions?



Comments?



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https://www.cfsph.iastate.edu/Zoonoses_Textbook/Assets/zoonotic_diseases_by_routes_of_transmission_CA.pdf