



Building (Enhancing) Evidence-Based Animal-Assisted Therapy Programs in Human Healthcare

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CONFLICT OF INTEREST DISCLOSURE

Grant/Research Support: Merck Animal Health

Speaker's Bureau: Zoetis, Merck Animal Health,

Virox

Consultant: Zoetis, Merck Animal Health, Virox

OBJECTIVES

- Describe documented health benefits and risks of animalassisted therapy (AAT) programs for patients and others involved in human healthcare
- Discuss evidence-based practices and protocols of an AAT program to best maximize health benefits and minimize health risks

3



HUMAN-ANIMAL BOND

Often strong bonds pets and people

- ↓ stress, anxiety, loneliness, depression¹
- *Children: better social skills, self-esteem, empathy3
- Catalyst for harm reduction (e.g., tobacco, drug use)⁴



¹ Friedmann 2009

² Patronek 1993

3 Melson 1997

⁴Lem 2013

5

6

IMMUNOCOMPROMISED

Mental & physical isolation

HIV-infected¹

- Pet as family member
- Source of support and affection
- Protect against loneliness
- Pet-owners with AIDS less depression than non-pet owners

Cancer patients²

- High level of attachment to pets
- Having a pet provided health benefits (67%)

Immunocompromised children³

¹ Siegel 1999

² Larson 2010

3Stull 2014



Photo Source: Pixabay

PETS INCORPORATED INTO HUMAN HEALTHCARE

Builders of social capital¹
Harm reduction¹
Motivators for healthy behavior change¹
Participants in treatment plans¹
Perceived benefits (patients/staff)²



¹Hodgson et al., 2015

²Stull et al., 2018.

7

PET-ASSOCIATED DISEASE

70+ pathogens of pets transmissible to people

Pets often subclinical shedding

Emerging & remerging diseases

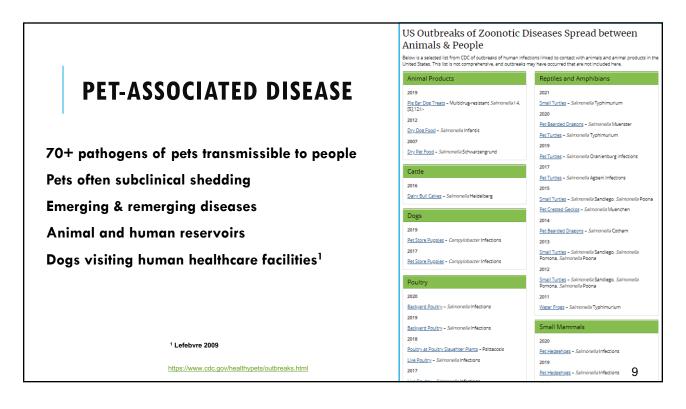
Animal and human reservoirs

Dogs visiting human healthcare facilities¹

- C. difficile (OR=2.4)
- MRSA (OR=4.7)



¹ Lefebvre 2009



		Disease in high-risk patients (age < 5 or ≥ 65 yr, immunocompromised or pregnant)		
Pathogen	Key pet sources	Incidence	Severity	
Bacterial diseases				
Bartonella species	Cats (B. clarridgeiae, B. henselae); rodents, rabbits, and dogs (B. alsatica, B. vinsonii species)	Low (likely underdiagnosed)	Low to high	
Brucella canis	Dogs	Rare	Moderate	
Campylobacter jejuni	Dogs, cats (likely other species)	High	Low	
Capnocytophaga canimorsus	Dogs, cats	Rare	High	
Chlamydophila psittaci	Birds	Rare	Moderate	
Leptospira interrogans	Dogs, cats, rodents	Low	Moderate	
Multidrug-resistant bacteria (e.g., MRSA, <i>Clostridium difficile</i> , ESBL-producing organisms)	Likely all species (although data limited)	Variable	Variable	
Mycobacterium marinum	Fish	Rare	Low	
Pasteurella multocida	Dogs, cats	Moderate	Moderate	
Salmonella species	All species; high prevalence in amphibians, reptiles, exotic animals, rodents and young poultry, in addition to certain raw pet foods (e.g., meat, eggs and animal product treats, such as pig's ears)	Moderate	Moderate (particularly in newborns and patients with sickle cell anemia)	
Parasitic diseases				
Cutaneous larva migrans (hookworms; canine and feline)	Dogs, cats (particularly juvenile animals)	Low to high (depending on geography)	Low	
Cryptosporidium species	Dogs, cats, possibly birds	Moderate	Moderate	

ORIGINAL ARTICLE WILEY

Dog-assisted therapy in the dental clinic: Part A—Hazards and assessment of potential risks to the health and safety of humans

11

Infective pathogen	Agent	Transmission route	Disease	Symptoms in humans	Actions to reduce risks of transmission	
	5	direct contact (urine, blood, other				
Brucella canis	bacterium	secretions)	Brucellosis	Fever, headache, pain in joints	Hand hygiene, avoid blood or urine contact	
Campylobacter	bacterium	fecal-oral	Campylobacteriosis	Diarrhea	Hand hygiene	
			,		-,0	
E.granulosus, E.multilocularis	parasite	fecal-oral	Echinococcosis	Cysts, mainly liver, brain	Hand hygiene, anti-parasitic treatment	
Extended-spectrum beta-		direct contact (respiratory		Asymptomatic, serious infections that lead to sepsis or		
lactamases	bacterium	secretions, skin, feces)	ESBL-infections	death	Hand hygiene	
				Diarrhea, abdominal cramps, bloating, weight loss and		
Giardia	parasite	fecal-oral	Giardiasis	malabsorption	Hand hygiene	
Methicillin-resistant	1	direct contact (respiratory	MRCA incoming	Asymptomatic, skin infections, serious infections that	Handle Control	
Staphylococcus aureus	bacterium	secretions, skin, feces)	MRSA-infections	lead to sepsis or death	Hand hygiene	
Salmonella	bacterium	fecal-oral	Salmonellosis	Diarrhea, abdominal pain, fever	Hand hygiene	
Capnocytophaga canimorsus	bacterium	direct contact (saliva)	Wound infection, sepsis	Wound infection, sepsis	Animal behaviour control	
Francisella tularensis	bacterium	direct contact (saliva)	Tularemia	Fever	Animal behaviour control	
Pasteurella multocida	bacterium	direct contact (saliva)	Wound infection, sepsis	Wound infection, osteomyelitis, endocarditis, sepsis	Animal behaviour control	
r dotedi ella manocida	Cuctoffulli	ancer connect (sun ru)	mount infection, sepons	Visceral L.: internal organs; Cutaneous L.: ulcers of	Thinnai centricul control	
Leishmania	parasite	vector (sand flies)	Leishmaniosis	the skin, mouth, nose	Canine vaccine, sand fly repellents for dogs	
*		direct contact (urine, potentially		Fever, headache, chills, pain, (meningitis, liver- and		
Leptospira spp	bacterium	other secretions)	Leptospirosis	kidney failure)	Canine vaccine, avoid urine contact	
Lyssa-virus	virus	direct contact (saliva)	Rabies	Encephalitis	Canine vaccine, animal behaviour control	
Ctenocephalides canis	parasite	direct contact (skin)	Fleas	Itchy, red swollen skin wheals	Regular inspection and treatment if needed	
Cheyletiella	parasite	direct contact (skin)	Cheyletiella	Skin itching	Regular inspection and treatment if needed	
Cheylenena	parasite	uncer contact (skill)	Cheyleticha	OKIII IKIIIIII	regular inspection and treatment it needed	
Microsporum canis	fungi	direct contact (skin)	Dermatophytosis (ring worm)	Skin lesions	Regular inspection and treatment if needed	
Gussgard, et al. 2019 12						

AMR....ESBL INFECTIONS

Healthy and sick dogs
Same strains as people¹
Pet contact associated with increased risk ESBL colonization²

Antimicrobials RF for ESBL acquisition³

¹ Damborg P, 2015

²Meyer, 2012

3Wedley AL, 2017

13

ANTIMICROBIAL RESISTANCE

Community-acquired ESBL & AmpC attributed to...

• Other people: 60% (40–74)

Food: 19% (7-38)
Dogs: 5% (0.2-16)
Cats: 2% (0.1-8)

Intracommunity spread alone unlikely to be self-maintaining without transmission to and from non-human sources

Mughini-Gras, 2019

PET-ASSOCIATED DISEASE RISKS

Disease risk greatest

- Extremes of age (<5 yrs, ≥ 65 yrs)</p>
- Pregnant
- Immunocompromised

Higher risk groups

- Particular pathogens
- Longer duration
- More severe/unexpected complications

Pet factors

15

Photo Source: Pixabay

RAW MEAT-BASED DIETS AND PETS

ESBL infections

Bacterial and protozoal contamination

- · Salmonella, Listeria, E. coli
- T. gondii and Cryptosporidium
- Exotic agents (e.g., Brucella suis)1
- Asymptomatic shedding



Recent pig ears outbreak³

¹ van Dijk, 2018 ² Clark, 2001

³CDC, 2019



Photo Source: Pixabay

16

FED RAW AT HIGHER RISK

Dogs ate raw 11X as likely to shed 3rd generation cephalosporin-resistant *E. coli* ¹

Dogs ate raw poultry 48X as likely to shed ESBL E. coli²

Dogs ate raw poultry 104X as likely to shed *E. coli* resistant to fluoroquinolones ²

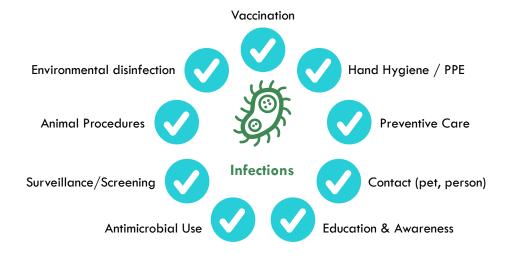
Dogs ate raw meat 2X as likely to shed ESBL producing E. coli³

Cats ate raw 32X as likely to shed ESBL-producing bacteria⁴

¹Schmidt, 2015 ² Wedley, 2017 ³ Baede, 2015 ⁴Baede 2017

17

FACTORS INFLUENCING PET-ASSOCIATED INFECTIONS



18

AAT — ARE THERE BENEFITS?



Photo Source: Pixabay

19





Systematic Review

Evidence of Animal-Assisted Therapy in Neurological Diseases in Adults: A Systematic Review

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Review article

Animal assisted intervention: A systematic review of benefits and risks

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Keywords:
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Risks & benefits
Benefits Clinical guidelines

ABSTRACT

Introduction: The therapeutic use of animals has been debated for decades, and its use explored in a variety of settings and populations. However, there is no uniformity on naming these interventions. Evidence based knowledge is essential to implement effective strategies in hospital. This review focused on the use of animal programs for hospitalized patients, and considered the potential risks. Methods: The following databases were searched: PubMed, Scopus, PsychInfo, Ebsco Animals, PROQUEST,

Methods: The following databases were searched: PubMed, Scobus, Psychinto, Losco Animals, PKOQUEST, Web of Science, CINAHI, and MEDLINE, and PRISMA guidelines were adhered to. Results: Out of 432 articles were identified 36 articles suitable for inclusion into the review. Data was beterogeneous in terms of age of patient, health issue, animals used and the length of interactions, which made comparison problematic. Studies on children, psychiatric and elderly patients were the most common. The animal—intervention programs suggested various benefits such as reducing stress, pain and anxiety. Other outcomes considered were changes in vital signs, and nutritional intake. Most studies used dogs, but other animals were effectively employed. The major risks outlined were allergies, infections and animal-related accidents. Composis was a nossible risk as well as common infections as Methicillinanimal-related accidents. Zoonosis was a possible risk, as well as common infections as Methicillin-resistant Staphylococcus Aureus. The implementation of simple hygiene protocols was effective at minimizing risk. The literature suggested that the benefits outweighed by far the risks.

Conclusion: The human relationship with animals can be useful and relatively safe for inpatients with various problems. Moreover, the implementation of security precautions and the careful selection of patients should minimize the risks, particularly those infection-related. Many aspects remain unclear, further studies are required.

21

SUMMARY

High heterogeneity (species, type interaction, outcome measured)

Observed benefits of AAT

Many methodology issues in studies make it difficult to fully assess impact

Methodological and Terminological Issues in Animal-Assisted Interventions: An Umbrella Review of Systematic Reviews

Antonio Santaniello 1,*D, Francesca Dicé 2, Roberta Claudia Carratú 2, Alessia Amato 1, Alessandro Fioretti ¹ and Lucia Francesca Menna ¹

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Simple Summary: Animal-assisted interventions (AAIs) include a wide range of activities aimed at improving the health and well-being of people with the help of pets. Although there have been many studies on the effects of these interventions on animal and human wellbeing and health, univocal data on the methodological aspects, regarding type and duration of intervention, operators involved animal species, and so on, are still lacking. In this regard, several systematic reviews in the scientific literature have already explored and outlined some methodological aspects of animal-assisted interventions. Therefore, we developed an umbrella review (UR) which summarizes the data of a set of suitable systematic reviews (SRs), in order to clarify how these Interventions are carried out. From our results, it is shown that there is a widespread heterogeneity in the scientific literature concerning the study and implementation of these interventions. These results highlight the need for the development and, consequently, the diffusion of protocols (not only operational but also research approaches) providing for a univocal use of globally recognized terminologies and facilitating comparison between the numerous experiences carried out and reported in the field.

AAT — ARE THERE RISKS?



23

PET-ASSOCIATED DISEASE

190 animals involved in AAI Endoparasites in 60 (62%) 13/60 (22%) zoonotic



MDPI

Surveillance of Zoonotic Parasites in Animals Involved in Animal-Assisted Interventions (AAIs)

Giulia Simonato ^{1,*0}, Patrizia Danesi ², Antonio Frangipane di Regalbono ¹, Giorgia Dotto ¹, Cinzia Tessarin ¹, Mario Pietrobelli ¹ and Daniela Pasotto ¹0

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Abstract: Animal-assisted interventions (AAIs) are based on the establishment of a therapeutic relationship between animals and beneficiaries that is certain to provide positive effects, while currently, it reads as if AAIs aim at exposing stakeholders to potential risk of infection. The surveillance of zoonotic pathogens is necessary for guaranteeing common health. This study investigated the presence of potentially zoonotic parasites, including dermatophytes, in animals involved in AAIs. Between 2015 and 2017, 190 animals (equids, dogs, cats, birds, rabbits, rodents, and goats) were investigated. Anamnestic and management data were recorded. Individual faecal samples were analysed using a copromicroscopic procedure. Fur and skin were examined for ectoparasites during clinical examinations, and samples for mycological investigation were collected by brushing. Parasites were described in 60 (31.6%) investigated animals. Thirteen out of the 60 (21.7%) animals harboured potentially zoonotic parasites, mainly recovered in dogs (Ancylostomatidae, Eucoleus aerophilus, Toxocara canis, and Giardia duodenalis) and a cat (G. duodenalis). Nannizzia gypsea and Paraphyton mirabile, potential agents of cutaneous mycosis, were isolated in a dog and a horse, respectively. No ectoparasites were found. AAIs might represent a source of infections either directly or via environmental contamination. Thus, active surveillance is necessary and animal screenings should be planned and scheduled according to the risk of exposure.

Evaluation of Risk of Zoonotic Pathogen Transmission in a Screening tests: 22 dogs, 2 cats **University-Based Animal Assisted** Intervention (AAI) Program 17 positive results (of 118 infectious disease screenings); 14 zoonotic Sara F. Boyle 1*, Virginia K. Corrigan 1, Virginia Buechner-Maxwell 1 and Bess J. Pierce 2 ¹ Virginia-Maryland Coilege of Veterinary Medicine, Virginia Polytechnic Institute and State University, Blacksburg, VA, Poor adherence to infection control United States, ²LMU College of Veterinary Medicine, Lincoln Memorial University, Harrogate, TN, United State practices American Journal of Infection Control 44 (2016) 846-50 Contents lists available at ScienceDirect American Journal of Infection Control journal homepage: www.ajicjournal.org 16-year program with no documented Prevention of transmitted infections in a pet therapy program: pet-associated infections An exemplar Pam Hardin ME, BS, RPP, Janice Brown MA, CIC, Mary Ellen Wright PhD, APRN, CPNP Averaging 20,000 pet therapy interactions per year

BOTTOM LINE

29 studies

High heterogeneity infection control practices

Few data confirmed pathogen transmission between therapy animals and patients

Risks exist; challenges in documenting transmission and evaluating effectiveness in prevention

Contents lists avai

Contents lists available at ScienceDirect

Complementary Therapies in Clinical Practice

Complementary Therapies in Clinical Practice 39 (2020) 101145

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

Risks associated with animal-assisted intervention programs: A literature review

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26

OPTIMIZE BENEFITS....MINIMIZE RISKS





27

RESOURCES

INFECTION CONTROL & HOSPITAL EPIDEMIOLOGY

SHEA EXPERT GUIDANCE

Animals in Healthcare Facilities: Recommendations to Minimize Potential Risks

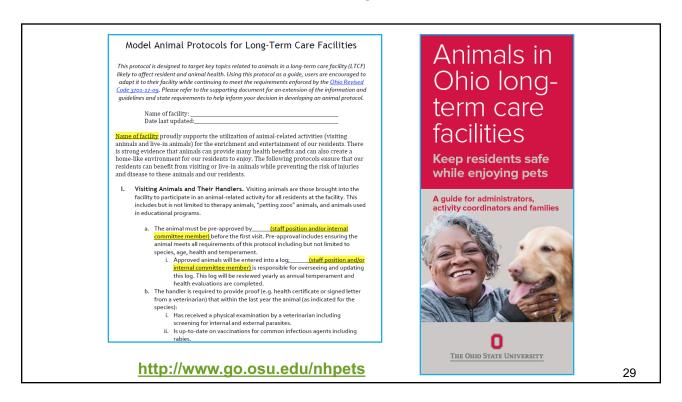
Rekha Murthy, MD;¹ Gonzalo Bearman, MD, MPH;² Sherrill Brown, MD;³ Kristina Bryant, MD;⁴ Raymond Chinn, MD;⁵
Angela Hewlett, MD, MS;⁶ B. Glenn George, JD;⁷ Ellie J.C. Goldstein, MD;⁸ Galit Holzmann-Pazgal, MD;⁹
Mark E. Rupp, MD;¹⁰ Timothy Wiemken, PhD, CIC, MPH;⁴ J. Scott Weese, DVM, DVSc, DACVIM;¹¹ David J. Weber, MD, MPH¹²

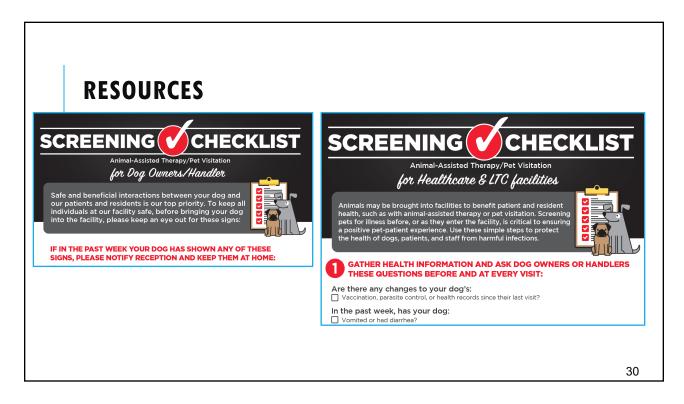
PURPOSE

Animals may be present in healthcare facilities for multiple reasons. Although specific laws regarding the use of service animals in public facilities were established in the United States in 1990, the widespread presence of animals in hospitals, including service animals to assist in patient therapy and research, has resulted in the increased presence of animals in acute care hospitals and ambulatory medical settings. The role

guidance on the management of AHC in four categories: animal-assisted activities, service animals, research animals, and personal pet visitation. Institutions considering these programs should have policies that include well-organized communication and education directed at healthcare personnel (HCP), patients, and visitors. Appropriately designed studies are needed to better define the risks and benefits of allowing animals in the healthcare setting for specific purposes.

28





2021 AAHA Working, Assistance, and Therapy Dog Guidelines

Cynthia M. Otto, DVM, PhD[†]; Julie A. Cohen, DVM; Tracy Darling, RVT, VTS (SAIM), CCRP; Lisa Murphy, VMD, DABT; Zenithson Ng, DVM, MS, DABVP[§]; Bess Pierce, MZS, DVM, DABVP, DACVIM, DACVSMR; Melissa Singletary, DVM, PhD, DACVPM; Debra Zoran, DVM, PhD, DACVIM-SAIM

ABSTRACT

The guidelines are the first comprehensive consensus report on veterinary healthcare recommendations for working, assistance, and therapy dogs. This category of canine patients includes a broad assortment of animals, some with well-defined functions and others that provide a more generalized support role. The guidelines discuss recommendations for dogs trained for protection, odor/scent detection, service functions for people with diagnosed disabilities or physical limitations, emotional support, and therapeutic intervention. Although the term is often used to describe dogs providing animal-assisted activities, true therapy dogs provide goal-directed therapy, often under the supervision of a healthcare professional such as an occupational therapist or psychologist. Many working dogs undergo extensive training and have rigorous physical demands placed upon them. These factors make working, assistance, and therapy dogs inherently valuable and impose a need for a high level of primary veterinary care as described in the guidelines. Because working dogs have a particularly close relationship with their handlers, a trust relationship between the practice team and the working-dog client is imperative. (J Am Anim Hosp Assoc 2021; 57:253–277. DOI 10.5326/JAAHA-MS-7250)

https://www.aaha.org/aaha-guidelines/2021-aaha-working-assistance-and-therapy-dog-guidelines/home/

31

BEST PRACTICES (SEE RESOURCES FOR SPECIFIC SETTINGS)

Well managed AAT program

- Written and updated policy
- Liaison/coordinator
- Log (date, patient, animal, specifics)

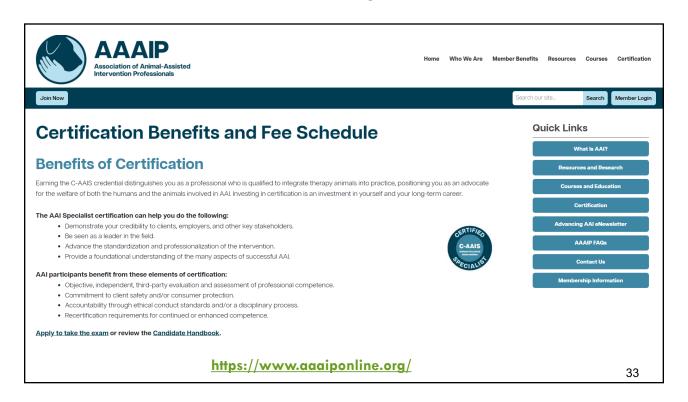
Formal training

· Handlers, facility representative

Formal audits and adjustments

- Following protocols
- Effectiveness of protocols
- Adverse events (e.g., infections, bites/scratches)







BEST PRACTICES

Right pet...right patient...right context and location

Screening

Reduce contamination

- Disposable, impermeable barrier if animal placed on bed (single patient and immediately launder)
- Areas not amenable to effective disinfection





Source: Pixabay

35

BEST PRACTICES

Hand hygiene before and after pet interaction

Consider animal contact surfaces contaminated

- Routine cleaning and disinfection
- Predominately bacteria; some concern for more difficult organisms (e.g., Cryptosporidium, C. difficile)
- SOPs to ensure compliance



EXAMPLE: AAT AT HOSPITAL¹

Requirements/screening Health and safety

- Dog at least 1 year of age
- Formal evaluation; reevaluation every 3 years
- Permanent home at least 6 months
- Health evaluation by veterinarian annually
- Vaccines, internal/external parasite control
- No known or suspected communicable diseases
- Exclude if on immunosuppressants, antimicrobials, fed raw food
- Bathing/grooming/hair/skin maintenance
- Leashed at all times
- Handlers: formally evaluated and trained, healthy, reporting injuries/events

Murthy, et al. 2015

37

CONSEQUENCES OF SOLELY RELYING ON OTHERS



38

Current Standards and Practices Within the Therapy Dog Industry: Results of a Representative Survey of United States Therapy Dog Organizations

James A. Serpell^{1*}, Katherine A. Kruger¹, Lisa M. Freeman², James A. Griffin³ and Zenithson Y. Ng⁴

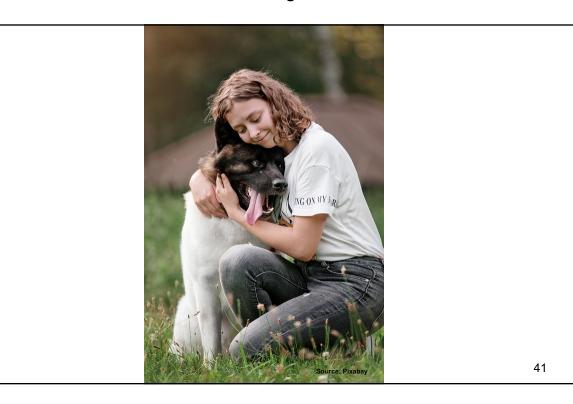
39

- Group 1 (n=4): prominent national or multiregional therapy animal certification organizations in U.S.
- Group 2 (n=24): representative national sample of U.S. therapy dog organizations
- Many gaps in AAT infection control best practices

Serpell, et al. 2020

- Vaccination against zoonoses
- Ectoparasite control
- Raw meat diets and treats

	Group 2			Group 1
Dog health and safety standards	Yes (%)	No (%)	Other (%)	Yes/no
Health clearance from a veterinarian (with documentation)	21 (88)	3 (13)	0	3/1
Physical health re-evaluated by a veterinarian on a regular basis	21 (88)	2 (8)	1 (4)	3/1
Rabies vaccinations (with documentation)	21 (88)	2 (8)	1 (4)	4/0
Distemper/adenovirus/parvovirus vaccinations (with documentation)	15 (63)	8 (33)	1 (4)	1/3
Leptospirosis vaccinations (with documentation)	7 (29)	14 (58)	3 (13)	1/3
Bordetella vaccinations (with documentation)	7 (29)	15 (63)	2 (8)	1/3
Canine influenza vaccinations (with documentation)	5 (21)	17 (71)	2 (8)	0/4
Other vaccinations (not specified above)	3 (13)	15 (63)	6 (25)	0/4
Negative fecal parasite results	18 (75)	3 (13)	3 (13)	3/1
Negative heartworm results	9 (38)	12 (50)	3 (13)	1/3
Continuous flea/tick preventative	13 (54)	10 (42)	1 (4)	0/4
Not currently taking immunosuppressive medications or antibiotics	8 (33)	12 (50)	4 (17)	3/1
Avoid AAAs if showing signs of poor health (e.g., lethargy, diarrhea, vomiting)	22 (92)	0 (0)	2 (8)	4/0
Avoid raw meat diets and treats	3 (13)	18 (75)	3 (13)	1/3





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www.webbertraining.com/schedulep1.php			
November 3, 2022	(FREE Teleclass) CIC PATHWAYS TO CERTIFICATION Speaker: Sandra Callery, CBIC President, 2022		
November 9, 2022	(South Pacific Teleclass) WHERE IS THE STRENGTH OF EVIDENCE? A REVIEW OF INFECTION PREVENTION AND CONTROL GUIDELINES Speaker: Prof. Philip Russo, Cabrini Monash University Department of Nursing Research, President ACIPC		
November 10, 2022	(<u>FREE Teleclass</u>) SHARING KNOWLEDGE: LEARNING FROM THOSE WHO HAVE CHALLENGED THE CIC Speaker: Sam MacFarlane, Public Health Ontario, Sandra Petersen, Ottawa Public Health, and Jeff Lee, Canadian Armed Forces Health Services Headquarters		
	(FREE Teleclass)		

