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Animal-Assisted Interventions: Taxonomy and Best Practices

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Animals, particularly dogs, are gaining momentum in specialized Human-Animal Interactions. Dogs' roles range from pets, family members, volunteer visitors, and canine colleagues, to assistance dogs. This has also resulted in a need for uniform terminology to delineate between the different jobs dogs do within HAI as many of these roles are now the subject of scientific inquiry and laws. While the international literature has demonstrated growth in these areas, the terminology can leave readers confused when it comes to dogs working in the contexts of Animal Assisted Interventions (AAIs) and Assistance Dogs (AD). This article looks towards organizations with significant national and international representation to clarify the movement toward a uniform terminology that may impact the development of standards of practice and research for a variety of disciplines using AAIs and clarify laws for AD.

keywords: animal assisted interventions, animal assisted activities, animal assisted therapy, animal assisted education, animal support

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"All therapeutic interventions involving animals rest on a powerful assumption: There is something about animals that powerfully attracts and motivates humans" (Melson & Fine, 2006).

There is a growing body of knowledge surrounding the human-animal bond. More specifically, dogs have been found to be important social supports with measurable health benefits in the role of pets, visitors, canine colleagues, and assistants to people with disabilities (Allen, Blascovich, & Mendes, 2002; Allen, Shykoff, & Izzo, 2001; Nimer & Lundahl, 2007; Winkle, Crowe, & Hendrix, 2011). In many cultures, the human-animal bond begins early in life and grows over time. According to Melson, one of the first categories that children acquire is that of animals and describes evidence that this influences early perceptual, cognitive, and language development (2000). In general, as part of the animal kingdom, dogs have been regarded as having a central position in theories concerning the ontology and treatment of sickness and disease (Melson, 2000). Dogs work by our sides as volunteers, as part of educational and therapy team members, and are trained and permanently placed with people with disabilities as assistance dogs (AD).

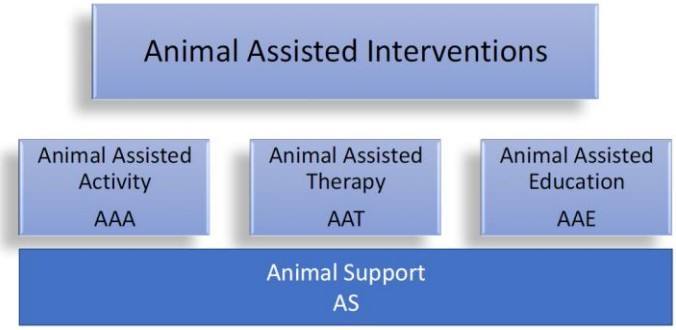
As human-animal interactions (HAI) continue to evolve and include the demands

of professional positions, it is increasingly important that considerations are given to both ends of the leash. This has created an interdisciplinary movement between veterinarians, dog trainers and handlers, as well as healthcare and human service professionals to ensure consistent taxonomy, professional standards, and ethical practices. This article will explore animal-assisted interventions (AAI), with a focus on the most common species, dogs. The goal of this article is to encourage the field of HAI to properly use terminology that can then guide outcomes, research, and evidence-based practice. To establish the effectiveness of any AAI (Animal Assisted Activities, Animal Assisted Therapy, and Animal Assisted Education), it is critical to have clear terminology, to identify if it is a visit or part of a treatment, to identify changes, to compare to other treatments, to identify contextual factors, processes, and generalizability of the information (McCardle, McCune, Griffin, & Maholmes, 2011).

Animal-Assisted Interventions Taxonomy

One of the greatest challenges in these equally important, but very different, areas is the lack of uniform terminology use. Community members, volunteers, and professionals alike can be guilty of not knowing or misusing the terminology. It is not uncommon for a human-animal team to state that they are 'certified therapy team,' only to find out that the organization through which they are registered does not use the term certified, and that they are a *registered* volunteer visiting team rather than the indicated therapy provider with a professional degree, according to their choice of words. Many agree that for people who enjoy animals, any contact may have therapeutic effects. However, this does not fall under the definition of animal-assisted therapy (AAT), which requires the integration of a licensed or degreed professional with prescribed therapeutic goals. To correct this issue, many degreed professionals have inadvertently complicated matters by introducing completely new terms in formal practice and literature. Understanding and utilizing accurate terminology is critical for several reasons. First, there is a difference in the specialized education, qualifications, and intent between AAI providers. Healthcare, human service, and formal education disciplines are charged with delivering interventions that are evidence based, requiring research that is developed and delivered by similar professionals or interdisciplinary team members. Professionals may be surprised to see that upon careful inspection, a large percentage of published studies may be titled AAT only to find that the study evaluated the impact of volunteer visiting teams in a recreational capacity. Further, the studies lack structured hypotheses and rigorous research design, which decreases both applicability to the fields over the long term and hinders accurate comparison of studies (Fine & Beck, 2010; Fine, O'Callaghan, Chandler, Schaffer, Pichot, & Gimeno, 2010; Griffin, McCune, Maholmes, & Hurley, 2011). Second, the physical, cognitive, and emotional expectations for an animal in a two-hour recreational capacity is very different than the animal that is working longer hours in a formal practice setting alongside a healthcare or human service provider. Both animal and handler require different education, evaluation, and skill level to work in this context, with potentially increased proxemics, distance, duration, and activity level demands. Using accurate and standardized terminology allows for optimal and clear communication of the requirements for the teams working in these very different contexts. For example, the term "therapy dog" has been used in many contexts and

Figure 1. Description of Terminology for Animal Assisted Interventions.



could refer to any dog working within AAI. Due to the confusion, we recommend avoiding using this term and instead using descriptors for the work that the animal-handler team is doing (e.g., a volunteer visiting team in animal-assisted activities or a team working alongside a therapist or paraprofessional in animal-assisted therapy, or a licensed or degreed professional that handles their own dog)."

Several well respected national and international organizations that specialize in AAIs and ADs have indeed differentiated and agreed on terminology and the definitions that follow. There are many organizations that provide guidance on terminology and best practices and this is not an exhaustion review. The organizations discussed in this review were chosen based on global reach and their international representation. *AAIs* are intended to facilitate improvements in physical, cognitive, and psychosocial functioning. This may include volunteer or paid positions in healthcare, human service, and educational settings. AAI typically involves a human-animal team who has specialized training in their respective areas (Pet Partners, 2017; Animal-Assisted Intervention International, 2013; International Association of Human-Animal Interaction Organizations, 2014). AAIs include Animal-Assisted Activities (AAA), Animal-Assisted Education (AAE), and Animal-Assisted Therapy (AAT) see Figure 1.*AAA* human-animal team visitations are often offered by volunteers in a recreational and motivational capacity, to enhance the quality of life. AAA teams may also work with formally trained healthcare and human service providers and their patients/clients, in a formal AAT or AAE capacity (Pet Partners, 2017; Animal-assisted Intervention International, 2013; International Association of Human-Animal Interaction Organizations, 2014). *AAT* occurs when a human-animal team works in a formal capacity with a degreed or qualified healthcare or human service professional to work on defined physical, cognitive, or psychosocial goals. (Pet Partners, 2017; Animal-Assisted Intervention International, 2013; International Association of Human-Animal Interaction Organizations, 2014). It is important to note that there are many disciplines in which AAT is utilized as an intervention. Further descriptive terminology within these disciplines (e.g., animal-assisted psychotherapy or animal-assisted physical therapy) is outside the scope of this review. Delineating between AAA and AAT is more important to describe than the discipline within which it is being applied. *AAE* occurs when a human-animal team works in a formal capacity with a degreed or qualified

educational professional to attain formal defined educationally relevant goals (Pet Partners, 2017; Animal-Assisted Intervention International, 2013; International Association of Human-Animal Interaction Organizations, 2014). AAT and AAE both involve professionals with formal degrees, treatment or teaching plans to meet predetermined goals, and measured outcomes. Historically, for the past few decades, this basic terminology has been generally accepted to discriminate between volunteers (which covers the AAA aspect) and professionals (which covers the AAT component). The critical distinction is the therapeutic goal setting that is done in AAT by a licensed or degreed professional working within their discipline. Healthcare, human service, and educational professionals have several avenues to include an animal in practice. Professionals may call in a volunteer visiting team, they may seek training for and handle their own animal, or they may contact a professional dog training organization. It is interesting to note that many AD training organizations also train dogs for work in the AAI realm.

Another significant designation in animal-assisted interventions is *Animal Support* (AS) personnel. AS is meant for anyone who handles the animal in AAA, AAT, AAE or trains animals for this kind of work. This area, recognized by Animal-Assisted Intervention International (AAII), is not specifically an intervention, per se. However, it is critical that each of the categories have standards for training, handling, and welfare for the animals and people involved in AAI (2014). This person carries the responsibility of ensuring that the animals we work with are not exploited, are cared for, cared about, and enjoy all aspects of their living and working situation. AS personnel includes anyone who trains and engages an animal in AAI and is responsible for monitoring and advocating for the animal regardless of the context. For example, an occupational therapist or psychologist who provides AAT and handles her own dog, would also carry the responsibility of AS. In another case, a physical therapist might call in a volunteer team to work within a therapy session, and the owner of the dog would primarily carry the AS responsibilities.

Application of AAI: Case Studies

Example 1: An 8-year-old with mild cerebral palsy, presents with atypical fine motor skills (coordination of small hand muscles to perform tasks), decreased upper body strength, and vestibular processing challenges (balance and movement/spatial orientation). He participates in occupational therapy to improve these areas. The occupational therapist may ask a dog to lie on a mat across the room, and have the patient lay on his stomach on a scooter board. He uses small tongs to grasp one piece of kibble at a time, propel himself using his hands and arms, to take the treat to the dog and drop it into a bowl. He then returns to get another treat. There are many variables the dog would be trained for, so that many goals can be achieved by the patient by participating in AAT.

Example 2: An adult with developmental delay and an inability to speak, has historically refused to try a computerized communication device. His speech therapist, who has a dog in her practice (AAT) has been trained to respond to her typical basic obedience cues, coming from the communication device. She brings her patient in with the dog and communication device, and he observes her to press the ‘sit’ button, which triggers the computer to say ‘sit,’ and the dog sits. The patient is more interested in exploring the communication devise to communicate with

the dog, and perhaps with the therapist in ongoing sessions.

Example 3: One resident in an elder care facility did not want to participate in animal visits (AAA). This unintentionally isolated her because the visits occurred in a main recreational room where the phone, internet, and reading materials were located. The resident's family called the facility contact person and alerted him to the situation. The facility contacts then held a discussion among the residents and staff to brainstorm alternative solutions. The residents also preferred a quieter place for visitation in more of a one-on-one setting. A staff member suggested using an empty storage room for visitation and the administration agreed. The storage room was renovated into a quiet area for animal visitation and successful communication allowed for a more effective experience for everyone involved.

Example 4: Hospitalized adolescents with a range of acute psychiatric disorders may participate in AAT plans that involve dog-play activities, physical contact, grooming, basic obedience and agility. They may be asked to work with the dog individually to learn individual interaction techniques that may lead to relationship development, to work with the dog in a team or group setting to gain psychosocial functioning by developing cooperative skills with peers, which all may impact improvements in global functioning and decreasing internalizing symptoms (Stefanini, Martino, Bacci, & Tani, 2016).

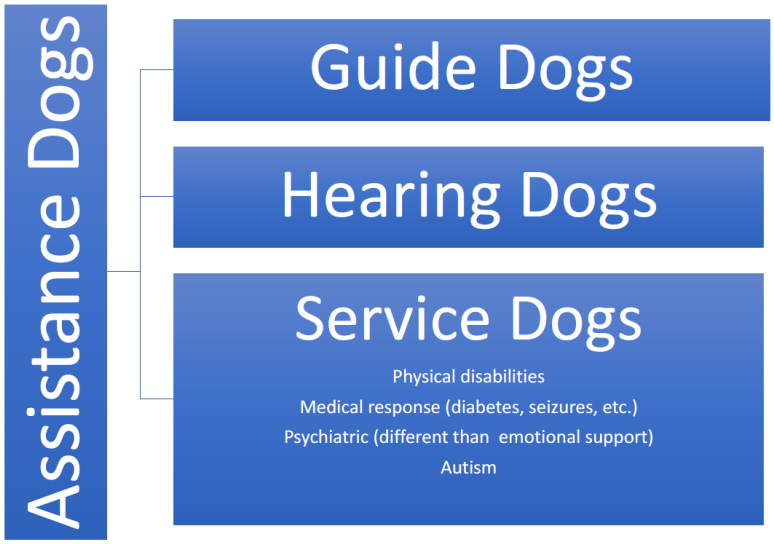
Assistance Dogs Taxonomy

Animals that work in AAIs typically have separate work and home lives. However, some animals take on a different work capacity as they are formally trained and permanently placed with a person with a disability, full-time. Dogs working in this capacity are called Assistance Dogs.

According to the Americans with Disabilities Act (ADA), service dogs or miniature horses may be individually trained to work or perform tasks for individuals with physical, sensory, psychiatric, intellectual or other mental disabilities (ADA, 1990). Titles II and III of the ADA clarify that people with disabilities may take their individually trained animals into public facilities even if there is a no pets policy, and with no requirement for documentation or proof of training, certification, or licensing (ADA, 1990). To complicate matters, different agencies within the AD industry also suffer from a lack of uniform terminology that accurately describes what these animals do (in this case, dogs), who they do it for, and where they are afforded protection by various laws. The ADA refers to all dogs that assist people with disabilities as Service Dogs, which is progress as they formerly only recognized guide dogs. The Fair Housing Act ensures people with disabilities have equal opportunity and reasonable accommodations, including having a service [guide, hearing or service] or emotional support dog, and waiving any 'no pet' policies, so long as the dog assists with the person's disability. The Air Carrier Access Act allows for both service [guide, hearing, and service] and emotional support dogs to fly with their person in the cabin of airplanes (ADA National Network, 2014). However, Emotional Support Animals (ESA) may not have the appropriate training for the sensory input to fly on a plane, the proxemics of other travelers, and obedience skills that it will be required to know. In addition, ESA are not granted public access for other modes of transportation (shuttles, taxis), or for the public spaces that they must pass through on either side of the travel.

Assistance Dogs International (ADI) is a non-profit organization that has been

Figure 2. Examples of Assistance Dogs



setting standards for assistance dog training organizations, dogs in training, and recipients of assistance dogs since 1987. Members (assistance dog training organizations) are required to complete an accreditation process to improve standardization across the assistance dog training industry. ADI has set international terminology, standards, and credentialing in Europe, North America, Asia, Australia, and New Zealand. According to ADI's internationally accepted taxonomy, there are three types of assistance dogs 1) guide, 2) hearing, and 3) service (Figure 2). The dogs have very different jobs, for very different handlers.

Guide Dogs assist individuals with visual impairment or individuals who are blind. They are trained to respond to directional cues, to avoid obstacles such as low tree branches, navigate changes in terrain such as curbs and stairs, to negotiate traffic, and similar tasks (ADI, 2017).

Hearing Dogs assist individuals with hearing impairment or individuals who are deaf. They are trained to alert to the source of sounds by moving between the person and the source of the sound, such as a crying baby, a doorbell, or smoke alarm amongst other sounds (ADI, 2017).

Service Dogs assist people who have disabilities other than visual or hearing disabilities. Dogs may work for people with physical disabilities to retrieve unreachable items, to open and close doors and drawers, and provide mild physical support. The may also assist an individual with medical conditions by alerting or responding to medical crisis such as seizures, or changes in blood glucose such as diabetes. Service dogs also mitigate a variety physical, cognitive, and psychiatric symptoms and outcomes due to psychiatric disabilities, autism, and the medications that treat them (ADI, 2017). Psychiatric assistance dogs may provide reminders to take medications, perform environmental safety checks, keeping disoriented individuals safe, and an array of related tasks (Brennan & Nguyen, 2014). An additional source of confusion in the psychiatric realm is the term *emotional support animal (ESA) or comfort animal*. People report anecdotal evidence that their pets' companionship naturally relieves real or perceived anxiety, phobias, and the like. For this, they seek out AS 'certifications' with the

end goal of public access, travel exceptions, and being able to keep their pets in housing that has 'no pet policies.' The difficulty lies in the fact that the animals and handlers may not have appropriate education, training, and evaluation to be in these environments. The animal may not be suitable for the job or the environment, the handler or trainer may not account for animal welfare. Further, the process for ESA only verifies that an individual has a condition that could potentially be alleviated by an animal. These animals therefore may not have any task training nor evaluation performed on them and are not recognized as service dogs under the ADA. There are real concerns in the AD industry about the difference between what an animal does naturally (comfort and support) versus being individually task trained (specific task work) for an individual with disabilities, as the former is not a 'trained task' as required in the wording of the laws surrounding people with disabilities and AD partnership with public access. Additional concerns arise in relation to ESA being allowed access on airplanes and in housing with no pet policies (ADA National Network, 2014), even though they are not recognized as service animals according to the ADA and have had no formal training, which can easily become an animal welfare issue. Use of uniform terminology can better describe expectations and training of animals such that their role is better defined and allows us to improve our expectations and development of best practices for the range of differences within the scopes of AAI. AAIs, Assistance Dogs, and Emotional Support Dogs are not the same thing, and the terminology should reflect the differences as these impact perceived public access afforded by law, the significance of the tasks that dogs perform, and the sociability with the greater community.

Best Practices for Paraprofessionals and Professionals in Animal-Assisted Interventions

AAI are not new, nor are professional codes of conduct; however, the development of AAI competencies and standards of practice are just recently beginning to emerge (Animal-Assisted Intervention International, 2014; Stewart, Chang, Parker, & Grubbs, 2016). AAI that do not involve a professional (AAA) should have registration and training/evaluation of the handler as well as the animal with a reputable AAA organization that requires ongoing evaluation of teams. There is a wide discrepancy of organizations that provide this registration (Linder et al., 2017) and facilities, handlers, etc., should review the rigor of each organization. Most members of the AAI interdisciplinary team, whether a veterinarian, a healthcare or human service professional, animal trainer, or handler have professional membership to some sort of governing body. With this membership comes core values, principles, ethics, and standards of conduct. In the practice of AAIs, professionals and paraprofessionals have a bidirectional responsibility both to the humans served and the animals working alongside them (American Veterinary Medical Association, 2017). Many disciplines, whether serving man or beast, have agreed to prevent and remove conditions that may cause harm (beneficence). This requires continuous review of professional standing, to achieve a certain level of education and competencies, and to obtain continuing education to ensure individuals are qualified to deliver services. Professionals must refrain from actions that cause harm that may compromise the safety of others (non-maleficence). Most professionals share core values of altruism (concern of the welfare for others), truth (utilizing accurate information), and must

demonstrate prudence (sound reasoning, judgement, and reflection) (American Occupational Therapy Association, 2012; American Veterinary Medical Association, 2017; International Association of Animal Behavior Consultants, 2014). In addition to primary disciplinary governance, there is a dual responsibility to care for and care about the animals that make AAIs possible (Mills, 2016).

Over the past decade, there has been significant development of similar positions and standards among AAI based organizations and veterinarians, to ensure that animal counterparts are advocated for and have some choice in the career path or lifestyle that fits them (American Veterinary Medical Association, 2017; International Association of Human Animal Interaction Organizations, 2014; Animal-Assisted Intervention International, 2013; Pet Partners, 2014). The International Association of Human Animal Interaction Organizations (IAHAIO) published the IAHAIO White Paper that included guidelines for human and animal wellbeing in AAI with the goal to ensure that safety measures are in place for zoonotic risk factors, physical and emotional health of animals, and education of handlers about the animals they work with (2014). AAII provides standards of practice, and an accreditation process for the membership fields of AAA, AAE, AAT and developed the category AS to ensure that trainers and handlers, whether volunteer or professionals are developing and maintaining professional practices. These standards cover basic needs and rights of the animals, humane training and handling, health and welfare, in work and rest roles (Animal-Assisted Intervention International, 2013, 2015). The American Veterinary Medical Association (AVMA) provides guidelines for the role of veterinarians as part of the interdisciplinary AAI team. They include behavioral problems, zoonotic risk factors, and protection from harm in AAIs. The AVMA offers a detailed explanation of wellness programs, and preventative medical and behavioral strategies. Basic guidelines for AAI were originally created by a working group from the AVMA in 1999 and were revised several times since, most recently in 2015 to reflect updated knowledge of AAI. In 2008, a working group of veterinary and public health stakeholders produced additional guidelines for AAI (LeFebvre et al., 2008), but it was not until 2015 that the Society for Healthcare Epidemiology (SHEA) created comprehensive guidelines in which veterinary, medical, epidemiologic, infection control, and public health professionals collaborated (Murthy et al., 2015). There are concerns, however, that these guidelines may not be widely practiced in AAI settings or by the various AAI organizations (Linder et al., 2017).

Animal Considerations for Best Practices

Providing safe and effective AAI includes careful consideration and planning before interaction with animals occurs to ensure health and well-being for both the people and the animals involved. With growing enthusiasm for AAI, it is common to see a variety of ‘friendly animals’ working in situations intended to provide comfort or to support therapeutic activity. Without proper training and selection, this approach may prove harmful for both the animals and the recipients of AAIs if suitability is not assessed. Many individuals without education or training in AAI may not be aware of the right questions to ask or protocols to seek out to ensure this safe interaction. This enthusiasm should be harnessed and paired with proper protocols as incidents where animals are scared or stressed may initiate harmful situations that can set back the entire movement of AAI as

too risky of a situation to engage in. All those involved in HAI and AAI have a responsibility to seek out information to ensure the well-being of all.

Consideration for animals involved begins with selection and evaluation of potential animals that work in this context. The animal should be healthy and free of any communicable disease. Many groups have guidelines and recommendations for ensuring animal health (American Veterinary Medical Association, 2017; International Association of Human Animal Interaction Organizations, 2014; Animal-Assisted Intervention International, 2013; Pet Partners, 2014; Murthy et al., 2015). This includes, but is not limited to, vaccinations (including rabies), negative fecal testing, physical examinations, and approval from a veterinarian. Animals should receive a health screening on an annual basis by their veterinarian which provides a professional opinion that the animal is up to the work of AAI. It is critical that the veterinarian have an accurate description of the environment, population, and activities so they may evaluate accordingly. Working with a veterinarian to determine suitability of an animal for AAI also proves useful as some disabilities or health history may not be as obvious to discern. For example, a dog with a previous leg amputation could be a great therapy animal and allow for a closer bond with similarly-abled clients; however, a dog with a seizure disorder may not be suitable given the unpredictability of disease. A veterinarian can help decipher each animal's limitations and their suitability health-wise for this work. While dogs are the most common animal used in AAI, many other species such as horses, cats, small animals, and some farm animals can be registered with adjusted evaluations and provide varying opportunities in AAI. These species may require additional health testing based on the naturally occurring and common health manifestations for each species. As a general guideline, animals should have vaccinations for any communicable disease, particularly zoonotic, negative fecal testing, and animals that are natural carriers of diseases that affect humans (i.e., turtles, which naturally carry Salmonella) should not be used for AAI due to potential transmission to people, even if the disease is not harmful to the animal.

Aside from physical health, aptitude and temperament of the animal should also be assessed and evaluated. Animals should enjoy involvement in AAI, and handlers should be aware of how their animal expresses enjoyment or stress signals, to properly assess their well-being. Not only is this an animal welfare issue for the animal, but animals that are placed in situations that cause stress or anxiety put them at higher risk for acting out behaviorally and having a negative interaction, whether that be a sign of aggression or a bite to an individual. Many organizations provide training and evaluation for animals for work in AAI but have varying degrees of rigor in their testing and standards for AAI (Linder et al., 2017). The goals and nature of AAI is important to consider given the varying demands of each type of work for animals. Those working as AD should have targeted training as they will need to perform specialized tasks daily. Animals working in AAT and AAE also have targeted training for their scope of work, and should be evaluated yearly, or when there is a change in work environment, population, or tasks to ensure their preferences or health has not changed. Animals providing AAA may have less task-oriented training requirements but should have a temperament that is conducive to the work (interaction-seeking, enjoyment of interaction with various individuals) and still should undergo a rigorous evaluation process that is performed every year or every two years to ensure AAI is appropriate for that animal. Basic obedience skills such as walking on a leash without pulling, not

jumping up on people, no face-licking, etc., are all important attributes for animals to have. However, animals should also welcome touching from a variety of people in a variety of ways, including people with poor motor control, varied tones of voice, or unpredictable behavior and moods.

Organizations that register animals for AAI have varying standards (Linder et al., 2017), and as such, it is the onus of the animal handler to seek out appropriate organizations to work with that have the highest standards of efficacy. In a recent national study of AAI organizations, many only used Canine Good Citizen testing or basic obedience tests, which does not cover all the requirements and expectations of AAI. Rigorous training and evaluation of the handler and the animal as a team is critical and includes basic animal health requirements, obedience, ability of the animal to not react to stressful situations, and most importantly, the education and ability of the animal handler responsible for the animal to be in sync with the animal's stress signals, needs, and behaviors, such that incidents can be avoided when unexpected circumstances arise (e.g., encountering an untrained and aggressive animal in a facility that was not scheduled to be present). This rigorous evaluation will also allow for proper mentoring and appropriate placement of an animal-handler team in various types of AAI. For example, an elderly quiet dog with years of experience may be wonderfully suited for a canine-assisted reading program; while a younger playful dog with an attentive owner may be best suited for larger stress relief or public events with high energy and high volume.

Once an animal has been selected, undergone appropriate training, and placed into an appropriate AAI setting, ongoing consideration of animal health and welfare is required to ensure safe and optimal interaction for humans and animals involved. Re-evaluation of the animal-handler team on a regular basis provides additional assurance that teams have not had major changes in their skill and aptitude set as the animal ages. This ongoing evaluation can also serve as an opportunity for experienced evaluators to provide mentorship to teams about appropriate placement for animal handler teams in differing environments that may require different skill sets. For example, as a newly trained team, a predictable environment may be appropriate, but as teams grow in their experience, complex and unpredictable environments may be considered by these teams, particularly those working with professionals and paraprofessionals in therapeutic settings.

While each individual handler takes on primary advocacy for their animal in AAI settings, staff of facilities and professionals working with AAI should be knowledgeable about stress signals in visiting animals and be aware of a contact person to direct questions or concerns to. Best practices for animal welfare include ongoing monitoring of potential stress for each animal. This includes consideration for scheduling, providing frequent bathroom breaks and rest time, availability of water, and adjusting situations and expectations based on intensity of the situation, depending upon the animal's job, and the chosen AAI organizational requirements. The health of the animal must also be monitored, and this may occur before, during, and after active visitation and interaction. Handlers should anticipate their animal's needs and require flexibility to remove their animal from AAI if that animal has an illness during which their ability to provide AAI may be limited. This includes situations such as temporary injuries (e.g., broken leg), or illnesses that also put human health at risk (e.g., gastrointestinal illness or skin infections that may be passable to humans visited). Guidelines from SHEA and the American Veterinary Medical Association provide animal health guidance

on proper screening and ongoing techniques to ensure animal health and human health is preserved (Murthy et al., 2015; American Veterinary Medical Association, 2017).

Special considerations should be taken for animals of non-traditional species and all animals as they age. While dogs are the most common animal involved in AAI, any species can participate in which health standards have been identified and stress signals and behaviors are well known to ensure appropriate partnership with animals in a safe manner. Larger animals, such as mini horses or llamas, require additional health considerations specific to bathroom training, infectious disease, and pathogen transmission. For example, a mini horse may require specific hoof coverings that can be used in foot baths to reduce transmission of pathogens in a hospital. Many organizations also provide specific behavioral guidelines to ensure handlers and animals of varying species are aptly suited through training and evaluation specific to their species. Differing species can be of benefit as individuals can have relationships or bonds with a variety of animals. The human-animal bond can differ significantly based on the objectives of the AAI program and could range from a cat resting in a nursing home bed for comfort in palliative care (AAA) to a horse in a therapeutic riding program for targeted improvement in post-traumatic stress disorder or postural stability (AAT). However, appropriate knowledge of the species health concerns and normal as well as stress behaviors is key to successful AAI.

As animals age, their physical and emotional abilities may change. In many respects, older animals may have experience that newer animal handler teams do not possess. Experienced handlers may be able to navigate complex and unpredictable environments due to their learned ability to read and trust one another in a variety of situations. On the other hand, as animals age, certain physical limitations may also become apparent. Regular re-evaluation allows for trained evaluators to assess changes in aptitude – for example, older animals with arthritis may not be able to navigate slippery floors of hospitals or may be more sensitive to unpredictable and sometimes rougher handling that children may have of sensitive joints. Animal handler teams may want to adjust the environments in which they provide AAI to best suit their animal's abilities (e.g., a reading assistance program for an older dog with a quiet disposition may be a great match while that dog when he was younger would not have the patience and aptitude for laying still for extended periods of time).

Best Practices for Facilities

In a recent national survey of hospitals, nursing homes, and AAI organizations (i.e., groups that provided animal handler teams for AAI), health and safety policies varied widely and potentially compromised human and animal safety (Linder et al., 2017). In this study of 108 facilities, of those allowing animal inside the facility, 100% of facilities fell short of recently published SHEA Guidelines for animals in healthcare facilities (Murthy et al., 2015). Even more concerning, 4% of hospitals and 22% of elder care facilities had no policy whatsoever for visiting animals (Linder et al., 2017). Beyond suggested guidelines from working groups such as the SHEA guidelines, no human or animal health regulatory agencies are currently responsible for monitoring AAI programs. In a small-scale AAT study by Shue and Winkle, 66% of respondents identified no formal training in AAT and that 81% of the animals were registered under the auspices of volunteer visiting organizations (2017). Furthermore, many organizations that provide AAI have no mandated behavior training or health

requirements prior to beginning AAI programs. Personnel in facilities allowing AAI to take place can take an active role in ensuring health and safety for the animals and people involved in AAI. Few guidelines exist that are developed with the perspective of the facility in mind. The Tufts Institute for Human-Animal Interaction has developed a manual for facilities with minimum health, safety, and training requirements for handlers and animals visiting all types of facilities (Linder et al., 2016).

While not all-inclusive, there are helpful minimum basic steps that facilities can take to ensure efficacy and safety in AAI at their facilities. Before an AAI program begins, everyone in the facility should have input on whether an AAI program is appropriate and feasible for the facility. This is best achieved by preparing informational sessions and providing education for anyone unfamiliar with AAI. Effective communication at facilities includes determining the facility's primary objective for implementing an AAI program and confirming that everyone in the facility has the same objective (i.e., is the program meant to improve morale, provide targeted therapeutic benefit, or facilitate interaction between staff and those being served at the facility). A contact person at the facility should be assigned who takes ownership of the AAI program, maintains appropriate records, coordinates visits or intervention schedules, and is available for any questions or concerns that arise. Appropriate selection of animal and handler teams according to guidelines mentioned previously allows for optimal health and safety of all those involved, including ensuring liability insurance that covers the handlers and the facility in case of incident. Each facility should develop policies and procedures that are specific for their facility's needs. These protocols should include all aspects of a visit, starting with preparatory work before the visit (e.g., proper animal grooming), check in and documentation, a list of those who should participate in AAIs, and exit or emergency procedures. This protocol should be considered a work in progress and each visit can be an opportunity to review the protocol and note potential revisions that could be made. Lastly, troubleshooting and brainstorming for challenges ahead of time can minimize concerns in AAI programs.

Application of Taxonomy and Best Practices

Until recently, AAT has lacked uniform terminology, standards, competencies, and governing bodies for healthcare professionals and animals in practice. Ultimately, this has led to difficulty establishing evidence-based practice because the literature does not clearly delineate between AAA and AAT. Thus, many are utilizing practices and literature in inappropriate contexts. Furthermore, new terms being created, though with best intentions, have added to this confusion and undermine the legitimacy of the important work being done in AAI in the different sectors. This is a current weakness in the field of HAI and having terminology agreement and best practice guidelines will better unify the field. Nowhere is this more critical than in academia and research, where outcomes are not uniformly reported, and vital information and breakthroughs are not making it to the hands of those who can utilize them simply due to variation in terms and a breakdown of what evidence-based best practices should be. This review is a call to action for those producing guidelines, research, and training to utilize the basic terms AAA and AAT such that best practices adequately describe the intent of the work and how it should be applied in different contexts.

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