Master of Public Health

Integrative Learning Experience Report

VETERINARY HOSPITAL EVALUATION AND SUGGESTIONS TO MAXIMIZE USABILITY FOR CLIENTS WITH MOBILITY DISABILITIES
&
PROMOTING PUBLIC HEALTH THROUGH PET THERAPY

by

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submitted in partial fulfillment of the requirements for the degree

MASTER OF PUBLIC HEALTH

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Usability/Accessibility Project Abstract

Accessible and usable environments allow people with mobility disabilities to fully participate in every-day activities such as purchasing groceries, eating out at a restaurant, and going to the doctor's office. When business owners and local community leaders are unaware of potential accessibility barriers, it becomes easy to inadvertently exclude persons with disabilities from being able to fully engage in their community. Many veterinary hospitals have structural limitations which can cause accessibility challenges for pet owners with mobility disabilities, including elderly clients. This project had three major aims. The first aim focused on determining the current level of usability amongst veterinary hospitals in Kansas for clients with mobility-related disabilities by visiting and evaluating 10 veterinary hospitals in Northeast Kansas. The second aim focused on establishing baseline data on veterinarian's current knowledge of the Americans with Disabilities Act (ADA) and awareness of potential physical barriers within their hospitals by distributing a survey online and at a local conference. The third aim concentrated on improving awareness and providing suggestions for usability improvement to veterinary hospitals. By increasing cognizance of potential access concerns and providing suggestions for improvement, this research study can be a catalyst for positive change within the veterinary community by improving usability of hospitals for clients with mobility-related disabilities.

Therapy Animal Project Abstract

This portion of my field experience was accomplished through an internship with the Riley County Health Department (RCHD) during the summer of 2018 under the guidance of Jan Scheideman, Child Care Facilitator/Supervisor. The purpose of this internship was to identify ways to increase the use of therapy animals within the Manhattan community, and teach the public about the important differences between service, therapy, and emotional support animals. As a result, a new service organization called Paws for People (P4P) was created consisting of primarily students and community members who have a passion for therapy animals and the human-animal bond. The mission of Paws for People is to promote public health through pet therapy. P4P volunteers partnered with the RCHD in the fall of 2018 to coordinate a booth at the RCHD influenza vaccine clinic event called Okt-FLU-ber Fest. An educational flyer was created to inform the public about the differences between service, therapy, and emotional support animals and an interactive game was made to teach kids how to approach dogs and recognize safe and concerning canine body language. Therapy dogs and their handlers were present

throughout this event for kids to practice safely approaching dogs. The addition of the P4P booth at Okt-FLU-ber Fest was well received by the community.

Subject Keywords: Veterinary, Usability, Disability, Pet, Therapy, Animal

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Acronyms

Riley County Health Department (RCHD)
Kansas Disability and Health Program (DHP)
Americans with Disabilities Act (ADA)
Community Health Environment Checklist (CHEC)

Part One:

Usability Project

Chapter 1 - Usability Project Introduction

Literature Review:

Timeline and Models of Disability:

The definition and perception of disability has been evolving since the medieval ages when disability was considered a punishment from God or work of the devil. In the late 1800s, disability began to be viewed as a public health issue, and people believed that disability could be improved through training and institutionalization (Drum, 2009). Toward the end of the 1900s, there were three primary models of disability: medical, functional, and social (Drum, 2009).

The medical model views disability as a condition that can be treated or improved with medical intervention. This model focuses solely on changing the person with the disability through treatment strategies. According to the functional model, the disability still originates from an individual's impairment(s) or deficit(s), but "the expression of the disability is the inability to perform a number of functional activities," such as moving, working, or living independently (Drum, 2009). The functional model is used in the Social Security Act as it defines disability as the "inability to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment…" and thereby categorizes people into two groups: "those with functional limitations (the "disabled") and those without functional limitations (the "able-bodied")" (Drum, 2009). The social model of disability embodies the social ecological framework as it focuses on barriers that people with disabilities face when interacting with their environment. It acknowledges that there are both environmental (i.e. social, physical, economic, political, etc.) and individual factors that contribute to disability. An architect designing a commercial building without considering how someone with a mobility disability that requires the use of a wheelchair will access the building is an example of neglect, which is a specific type of a social environmental barrier (Drum, 2009). Believers of the social approach to disability argue that "the limitations people with disabilities face in education, employment, housing, and transportation are not the products of their medical conditions, but of social attitudes of neglect and stereotypical images about their capacities and needs" (Drum, 2009).

By embracing the social model of disability, public health officials can identify environmental, social, political, and individual factors that impede persons with disabilities' ability to fully engage in their community and then work to create awareness of, and find solutions to, those potential barriers. Slowly, over time, there have been progressive shifts in the public's definition and viewpoint on disability. For example, there has been a recent change from thinking

of people with disabilities as “cripple” to the use of person-first language. This language places the individual first rather than the disability (e.g., “a person with a disability” rather than “a disabled person”). Even though much progress has been made to create equality for people with disabilities, evidenced by the creation of the Americans with Disabilities Act (ADA) in 1990 and other laws to protect the rights of people with disabilities, barriers to accessible environments still exist for people with disabilities. See Figure 1.1 below for a visual comparison of the medical and social models of disability.

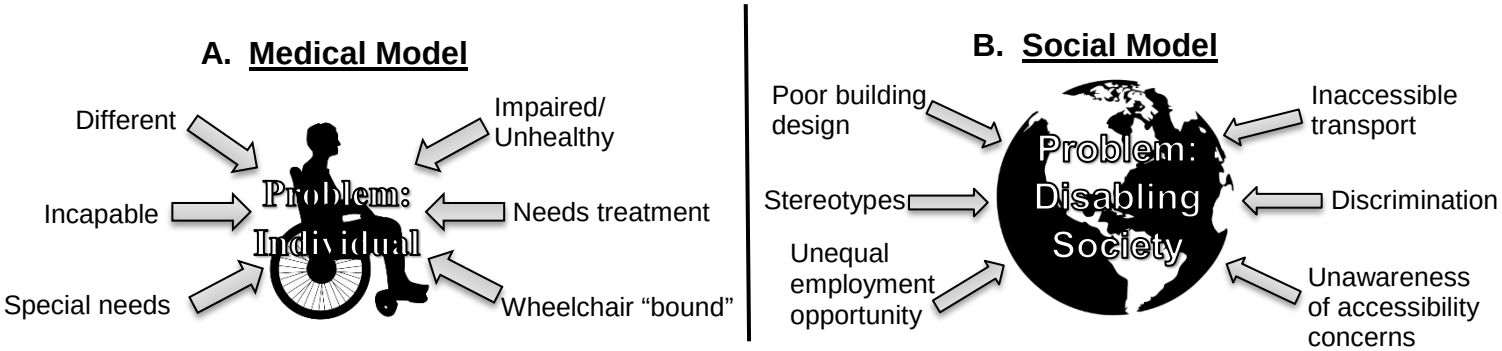

Figure 1.1 Viewing disability through the social model reveals multiple avenues for effective usability improvement. A) The medical model defines disability as an impairment with intervention strategies targeted toward “fixing” the impairment at the individual level. B) The social model views disability as a multifactorial construct that exists at the level of society due to many environmental factors including physical barriers to access, social attitudes, and political influences.

The Americans with Disabilities Act:

The ADA is a law that promotes equality for people with disabilities by setting regulations to create accessible and usable public environments. The ADA protects people with many different types of disabilities including hearing, vision, speech, mobility, etc. The comprehensive law is broken down into five titles, each focusing on a specific area of potential concern: 1. Employment, 2. State and Local Government Services, 3. Public Accommodations and Commercial Facilities, 4. Telecommunications, 5. Miscellaneous Provisions. When discussing the accessibility and usability of public and private businesses, such as veterinary hospitals, it is important to focus in on Titles 2 and 3. For example, Title 2 is important for university-based veterinary hospitals to have a thorough understanding of as they fall under the category of state and local government services, while Title 3 regulations are relevant for private veterinary hospital owners and employees to understand. Titles 2 and 3 prohibit entities under their umbrellas of regulation from discriminating against people with disabilities by setting minimum standards for

accessibility. These titles require the removal of architectural and structural barriers in existing facilities, with understanding that specific barriers may not be readily removable in the short-term. In situations such as these in which long-term planning and budgeting will be necessary to make accessibility improvements, Titles 2 and 3 require that alternative methods of service provision be made available (Heaphy, 2014). The U.S. Department of Justice is the primary entity responsible for regulation and enforcement of Titles 2 and 3 of the ADA (What is the ADA, 2019). Although the ADA has been a cornerstone in making strives to create equal access to public services for people with disabilities, enforcement of this law has proven itself to be a challenge. Enforcement laxity could be one of many factors contributing to the remainder of environmental and social accessibility barriers that still exist within many public places.

According to a U.S. Department of Justice article written to highlight common difficulties with ADA compliance, a lack of public and private businesses conducting self-evaluations and establishing transition plans for future accessibility improvements can lead to lingering hindrances to access (The ADA and City Governments, 2008). Another reason for protracted progress in creating equal opportunities for people with disabilities is that city governments may believe their existing programs and facilities are protected by a "grandfather" clause from having to comply with requirements of Title 2 of the ADA. In addition, public and private establishments may believe they are exempt from complying with ADA standards due to their small size or older age (The ADA and City Governments, 2008). An Americans with Disabilities (ADA) Myths and Facts sheet published on the Paralyzed Veterans of America website addresses the common myth that older and historic buildings are exempt from the ADA requirements by explaining that "there is no 'grandfathered in' concept under the ADA…the law does hold facilities built or renovated after 1990 or 2010 to a more stringent standard of accessible design, but all publicly accessible places must take reasonable steps to improve access to patrons" (ADA Myths and Facts). Furthermore, an ADA fact sheet produced by the University of Kansas Research and Training Center on Independent Living addressed the point that due to limited funds at the Civil Rights Division of the U.S. Department of Justice, which handles many ADA complaints, and the high number of complaints filed each year, many of the ADA complaints filed will not be investigated by the federal government (The Americans with Disabilities Act of 1990 Fact Sheet, 2018). All of these factors, and more, contribute to the difficulties of ADA compliance and express the need for public health advocates to create ADA and accessibility awareness amongst business owners and community leaders within their area of influence as a crucial step in continuing to make strides toward ameliorating access for all.

Public Health and Mobility Disabilities:

According to Centers for Disease Control (CDC) analysis of 2016 Behavioral Risk Factor Surveillance System (BRFSS) data examining prevalence of disabilities, one in four non-institutionalized U.S. adults (25.7%, representing an estimated 61.4 million persons) reported having a disability (Okoro et. al., 2018). The results of the data collected from their survey study revealed that mobility was the most prevalent disability type (13.7%), followed by cognition (10.8%), independent living (6.8%), hearing (5.9%), vision (4.6%), and self-care (3.7%) (Okoro et. al., 2018). The prevalence of mobility disabilities was highest among older adults compared to the younger population (Okoro et. al., 2018). A significant ongoing challenge for public health is to develop effective and efficient strategies to promote health and well-being in a growing and increasingly diverse aging population (Satariano, 2012). One factor public health officials must concentrate on in order to meet this challenge are physical features within public environments that exacerbate mobility difficulties for the growing elderly population and people with mobility-related disabilities.

People with mobility disabilities face a variety of environmental and social barriers. As people enter into their elderly years, many experience a realization of their diminishing ease of access to goods and services due to their declining mobility capabilities, or, looked at from a different perspective, due to a society that is not adequately accommodating the accessibility requirements of persons with mobility disabilities, including the elderly. Universal Design, also known as “barrier-free design,” is a concept “rooted in the commonsense philosophy that to the greatest extent possible, an organization’s physical environment and policies, practices, and procedures should conform to the needs of people, rather than people conforming to the restrictions of the environment” (Heaphy, 2014). The universal design concept follows the guiding principles of the social ecological model.

In order to recognize potential physical barriers amongst private business buildings and other public spaces, people must become aware of what the potential barriers to persons with mobility disabilities are. Examples of exclusive barriers for people with mobility disabilities include a building without an accessible parking space and step-free entrance route, unwelcoming high reception counter for individuals using wheelchairs, heavy doors that are challenging to open, and narrow doorways and walkways that are difficult to maneuver through by those using a wheelchair or walker. Chapter 11 of a book titled “Disabilities and Public Health” addresses the role of public health professionals as change agents in regards to disability and accessibility. They reason that people with disabilities could expect to lead both healthy and productive lives given an

environment that is accessible and conducive to their well-being (Krahn and Ritacco, 2009). There is an opportunity to create positive change for people with mobility-related disabilities through education of potential accessibility barriers and advocacy for accessibility and inclusion. Public health officials and leaders in communities, including veterinarians, can be change agents by ensuring businesses and public spaces are built and re-modeled with accessibility in mind and remain user-friendly to persons with mobility disabilities.

While focusing on physical barriers to access is critical, it is not the only piece of the disability and accessibility issue that needs to be addressed. Accessibility laws such as the ADA go beyond ensuring access for people who use wheelchairs by requiring large enough parking spaces and elevators in multi-level buildings. Stereotypes and prejudices must also be focused on in order to create welcoming public spaces for people with disabilities. This study focused on identifying physical usability barriers for people with mobility disabilities. We recognize however, the issue of accessibility is multifaceted, and must be addressed from different angles to achieve maximum positive progress.

Accessibility of Veterinary Practices for People with Mobility Disabilities:

According to the Census Bureau approximately 21 million Americans had a mobility-related disability in 2017. The 2017-2018 National Pet Owners Survey conducted by the American Pet Product Association found that 68 percent of U.S. households, or 85 million families, own a pet. So, assuming pet ownership rates are similar between people with mobility disabilities and people without mobility disabilities, if approximately 68 percent of the 21 million Americans with mobility-related disabilities own a pet that equates to about 14 million potential pet owners and veterinary clients who have a mobility-related disability. In addition, rates of disability increase with age, from about 10% disability rate for ages 18-64 to over 35% disability rate for people older than age 65, and therefore, with the forecasted growth in the aging population, the percentage of people with a mobility disability will likely increase (Kraus, 2018). According to a U.S. Census Bureau report, in 2015, among the 7.3 billion people estimated worldwide, 617.1 million (9 percent) were aged 65 and older. By 2030, the older population will be about 1 billion (12 percent of the projected total world population), and by 2050, 1.6 billion (17 percent) (Roberts, 2018). By 2030, all baby boomers will be older than age 65, expanding the size of the older population so that 1 in every 5 residents will be retirement age (US Census Bureau, 2018).

This projected forecast should encourage many businesses, including doctors' offices, restaurants, grocery stores, veterinary hospitals, etc., to more carefully consider how their services can best be provided to people with mobility disabilities, including elderly clientele.

Awareness of accessibility concerns amongst public spaces can protect people with disabilities from being unintentionally excluded from every-day activities, such as picking up groceries or taking their pet(s) to the vet. The veterinary community can play a role in promoting inclusion through creating veterinary hospitals that are usable and accessible, which might increase people with disabilities' independence and connectedness to their community. Knowing they are able to visit their vet's office whenever they need might also increase persons with disabilities' likelihood to adopt a pet and confidence in their ability to provide proper care for that pet. Human animal interactions and oxytocin release were both found to promote social interaction, reduce stress and anxiety, and enhance human health (Beetz, 2012). Several well-documented health benefits can be reaped from human animal interactions including increased interpersonal interactions, improved mood, decreased stress-related parameters such as cortisol, heart rate, and blood pressure, and enhanced physical health, especially cardiovascular health (Beetz, 2012). It has been shown that participation in society is an important component to health; therefore, our Kansas Disability and Health Program aims to encourage inclusion through accessibility mindfulness to enhance mental, social, and physical well-being for all persons.

Applied Practice Experience (APE) Background:

I had the opportunity to work with the Kansas Disability and Health Program (DHP) for this part of my APE. The DHP is an organization funded by the CDC that collaborates with many partners to promote health for people with disabilities. One of their primary goals is to incorporate disability awareness into state and local public health agendas. This veterinary usability study was a joint collaborative effort with Kansas State University, University of Kansas, the DHP, and Kansas veterinarians, exemplifying efforts to improve accessibility to veterinary healthcare and impacting the lives of people with disabilities throughout our state. Through education and awareness, the veterinary community can become more cognizant of potential environmental barriers to people with mobility-related disabilities and can make action plans for short and long-term modifications to their hospitals to remove barriers and improve access for all.

Dr. Dot Nary (Ph.D.), my preceptor for this portion of my APE, is an Assistant Research Professor at the Research and Training Center on Independent Living and the Kansas DHP at the University of Kansas. Dr. Nary's public health experience focuses on eliminating health disparities, increasing independent living opportunities for persons with disabilities, teaching advocacy skills, and transforming communities to promote participation for all. Some of her research experience includes assessing accessibility of community fitness centers and devising and testing a home fitness routine for persons with mobility-related disabilities. Dr. Nary and her

colleagues at the Kansas DHP have produced many helpful products available online to assist the public in learning about topics such as the Americans with Disabilities Act and public policy, pointers on providing services to people with disabilities, and the importance of accessibility and community participation.

Chapter 2 - Learning Objectives and Methods/Activities Performed

I. Learning Objectives

This project focused on three primary objectives. The first focused on evaluating the current level of usability amongst veterinary hospitals and determining how veterinary hospitals can be constructed or structurally modified to increase accessibility and usability for clients with mobility disabilities. By having an understanding of the current usability status of veterinary hospitals, meaningful and accurate recommendations can be brought to the attention of veterinarians which can prompt them to consider making plans for reasonable structural improvements to their hospitals in the future. The second objective concentrated on establishing baseline data on veterinarians' current knowledge of and comfort with the Americans with Disabilities Act (ADA) and awareness of potential physical barriers within their hospitals. Knowing the regulation standards and what the potential barriers might be to clients with mobility disabilities will allow veterinarians to identify usability and accessibility barriers which is the first step in working toward a solution to accessibility issues. The third goal was to improve awareness and provide usability improvement suggestions to veterinary hospitals. As a progressively growing number of veterinarians become more cognizant of potential accessibility barriers, the greater the impact can be. In order to address these aims the research team set out to gather information on usability of veterinary hospitals in Kansas as well as gain insight about veterinarians' current knowledge of potential barriers to usability and Americans with Disabilities Act (ADA) regulations.

An additional learning objective was to expand my knowledge of the history of disability and become more familiar with the ADA. It was important to educate myself so that I could broaden my viewpoint and perspective and therefore better understand the objectives and goals of this project.

II. Methods/Activities Performed

In order to gain understanding about the subject of disability and the ADA, I read and studied specific chapters of books recommended by my preceptor, Dr. Dorothy Nary. Chapter 3 from a book titled "Disability and Public Health" gave me a better understanding of the evolution of different approaches and perspectives on disability throughout history. Chapter 11, titled "Public Health as a Change Agent for Disability", from the same book, discussed the roles and responsibilities of public health professionals in combating discrimination against people with disabilities. Dr. Nary also had me read a chapter of a book titled "Public Health Perspectives on

Disability" summarizing how Section 504 of the Rehabilitation Act and the ADA affect public health education, giving me better appreciation for the intricacies and importance of these laws. In addition to these readings, I read many of the online resources produced by the Kansas Disability and Health Program including fact sheets on the ADA and a guide for wheelchair users and hosts highlighting ways to make homes more visit-friendly for persons with mobility disabilities. Researching this subject gave me a new perspective and understanding of the importance of creating accessible and user-friendly environments for persons with disabilities.

Our team developed a survey (Appendix 1) to be distributed to Kansas veterinarians online and at a local conference. The purpose of this survey was to gain data on topics including demographics of the veterinarians, their experience serving clients with disabilities, and their ability to self-assess their veterinary hospitals for accessibility and usability barriers. Writing and piloting this survey improved my writing skills and prompted me to think more like a researcher when strategically writing and ordering the survey questions. This survey received IRB approval and required completion of compliance training. Working through the IRB application and approval process was a great learning opportunity during my APE, giving me a greater appreciation for the research process as a whole. Veterinarians attending the KSU CVM Annual Conference for Veterinarians were given the opportunity to participate in the survey. In attempt to reach veterinarians in Kansas the survey was also disseminated via email through the Kansas Veterinary Medical Association listserv. Survey results were analyzed using descriptive statistics, keeping veterinarian and clinic names anonymous.

My major professor, Dr. Kate KuKanich, and I received online training from the Community Health Environment Checklist (CHEC), which is a program created by the Occupational Therapy Program at Washington University in St. Louis that functions as a tool to measure how usable public spaces are for people with disabilities. Researchers, or other individuals in a community, can be trained to become CHEC assessors by completing one or multiple CHEC training courses. We completed the CHEC-Mobility course which consisted of a series of training modules and assessments to ensure our understanding of the material on usability concerns for people with mobility disabilities. Upon completion of the course, we became certified to perform a standardized evaluation of measurable usability features in public sites, which in our study were veterinary hospitals. Traditionally, the CHEC evaluations had been performed at sites such as doctors' offices, grocery stores, and restaurants. We were the first CHEC assessors to evaluate the usability of veterinary hospitals. The CHEC evaluation is not a comprehensive ADA assessment, but rather a usability tool focusing on key concerns identified by people with mobility

disabilities. The CHEC-M evaluation form, used to assess 10 veterinary hospitals in Northeast Kansas in our study, consisted of a series of 46 features to evaluate that were categorized into three sections: entrance, using the building, and restrooms. Together, the 46 evaluated features produced hospital scores based on 100 as optimum. These evaluation forms were translated into a score by a blinded CHEC personnel at Washington University. Each hospital received 3 section scores (entrance, using the building, and restroom) in addition to an overall score.

In addition to the CHEC evaluation scores, an individualized report was created by our research team for each hospital visited describing strengths as well as short- and long-term suggestions for areas of improvement (Appendix 2). Keeping in mind our audience of busy veterinarians, the reports were organized to be quick easy reads with bulleted lists and pictures to highlight the main points. The goal of the reports was to provide participating veterinary hospitals with a comprehensive usability "self"-evaluation and to increase accessibility awareness amongst each of these veterinary hospitals. The reports began with a brief explanation of what the CHEC (Community Health Environment Checklist) is as well as additional details about the CHEC assessor training. The reports then dove straight into giving the veterinarians feedback on the current usability status of their respective hospital. This feedback was broken down into 3 major sections, corresponding to the 3 categories of the CHEC evaluation: entrance, using the building, and restrooms. Within each section we organized our recommendations and thoughts into sub-sections titled strengths observed, areas for improvement, and suggestions for improvement. The suggestions for improvement were separated into short- and long-term recommendations. The reports detailed ways to maximize the usability of their veterinary hospital for clients with mobility disabilities. Illustrations were included throughout the reports to visually clarify any usability concepts we attempted to clearly articulate in text that may be confusing to the reader. The reports concluded with a summary of the hospital's CHEC-Mobility scores and two pages of additional resources regarding topics such as the ADA, van-accessible parking spaces, and people-first language. One of the resources included was a link to a *Top 10 Ways to Maximize the Usability of your Veterinary Hospital for Clients with Mobility Disabilities* fact sheet, which was developed by our research team, highlighting some of the common usability barriers we observed amongst the veterinary hospitals we visited. We hope to share this fact sheet with many more veterinarians through a peer-reviewed veterinary manuscript and additional presentations in the future.

Throughout our time visiting veterinary hospitals we noticed specific features such as tall reception counters, small restrooms, and heavy front doors were present in several of the

hospitals. We turned these usability barrier commonalities amongst the veterinary hospitals into a Top 10 list that we can share with many veterinarians as a way to spread accessibility awareness amongst the profession. While the Top 10 list does not touch on every potential usability challenge that a person with a mobility disability may face when bringing their pet to the vet, it can give veterinarians a quick overview of potential barriers within veterinary hospitals. This list is structured sequentially to flow through the common barriers clients with mobility disabilities may encounter during their trip to the vet starting from the moment they drive onto the hospital's lot to the moment they depart. The Top 10 list was developed with input from Dr. Kate KuKanich, Dr. Dot Nary, and Dr. Joe Fakler, and myself.

To share our research results and spread awareness on accessibility concerns, I created a research poster to present at the annual Kansas State University Research and the State poster session (Nov 2018) and at the KSU College of Veterinary Medicine Phi Zeta Research Day (Mar 2019) (Appendix 3). This poster summarized our team's work assessing the usability of veterinary hospitals in Kansas for clients with mobility disabilities and data collected from the usability survey. The activities I performed throughout part one of my APE helped me to attain improved written and oral communication skills and gave me new experience and exposure in this field of public health.

Chapter 3 - Results

Veterinarians serve clients with disabilities yet might not be fully aware of potential usability concerns for people with mobility disabilities. Ninety-three percent (55/59) of surveyed veterinarians reported serving clients with mobility disabilities. Although private and public veterinary hospitals fall under the regulations of Titles 2 and 3 of the ADA, only thirty-eight percent (22/58) of surveyed veterinarians reported being comfortable with their knowledge of current ADA requirements for accessibility. This discrepancy reveals a need for increased understanding of the current ADA regulations that impact veterinary hospitals amongst the veterinary community. It seems that veterinarians could also benefit from further education on specific examples of potential barriers within veterinary hospitals for people with mobility disabilities. Only fifty-one percent (30/59) of surveyed veterinarians reported being aware of any specific areas or features within their hospital that clients may have difficulty using throughout their visit, yet every veterinary hospital visited in the study had at least one feature identified on the CHEC evaluation form which could be addressed to improve accessibility for clients with mobility-related disabilities.

While most veterinary hospitals are likely to have at least one potential barrier to accessibility and/or usability for people with mobility disabilities, many of the ten veterinary hospitals evaluated had numerous accessible and usable features resulting in many receiving high overall CHEC scores. The averages of the 3 section scores and overall scores can be seen in Table 3.1 below. The overall CHEC scores ranged from 68.77 to 96.83, with 100 as optimum. A summary of the common strengths and areas for improvement for the entrance, using the building, and restroom sections can be seen in tables 3.2-3.4 below.

Table 3.1 Mean (range) and median score of 10 Kansas veterinary hospitals evaluated by the Community Health Environment Checklist for usability for people with mobility disabilities. One hundred points considered ideal usability.

CHEC Category	Mean Score (range)	Median Score
Entrance	**89.18 (68.64-100)**	**87.65**
Using the Building	**91.46 (74.32-100)**	**85.13**
Restrooms	**53.60 (22.19-100)**	**51.8**
Overall	**83.71 (68.77-96.83)**	**77.9**

Overall, the veterinary hospitals assessed were found to be quite usable for clients with mobility disabilities. As many hospitals are located in older buildings with structural limitations, several common challenges were recognized. Strengths and areas for improvement amongst each of the three CHEC categories are displayed in tables 3.2-3.4 below.

Entrances:

An ideal accessible entrance is made up of several key features that make entering a building possible and easy for people using wheelchairs, crutches, scooters, walkers or simply people who may be less steady on their feet. The first key feature of an accessible entrance is a van-accessible parking space designated by a sign with an adjacent access aisle that together measure a minimum of 16 feet wide (see Figure 3.1 below). The second key feature is a step-free entrance route that is at least 36 inches wide and free of obstacles or barriers such as parked cars, gravel, or large cracks. If the entrance pathway has a level-change (i.e. curb/step), it can be accommodated through the addition of a curb cut or sloped route. Suggested CHEC criteria for accessible sloped routes and ramps is shown in Figure 3.2. The final key feature of an accessible entrance is the doorway. The threshold of the doorway should ideally be no higher than ¼ inch and the width of the doorway no less than 32 inches wide. In addition, there should be at least 18 inches of clear space adjacent to the handle side of the door, to ensure that individuals who use wheelchairs can comfortably reach the door handle and swing the door open easily (see Figure 3.3). Ideally the door would be automatic, but if not, it should be light enough to swing open with the strength of just 2 fingers. Heavy entrance doors were a common concern noted throughout the veterinary hospital evaluations. If renovations to make a heavy door lighter are not immediately possible, heavy doors can be accommodated for by encouraging staff to be very aware and diligent about holding doors open for clients as they enter and exit. Table 3.2 highlights the key results from the evaluations of veterinary hospital entrances by providing common strengths and areas for improvement.

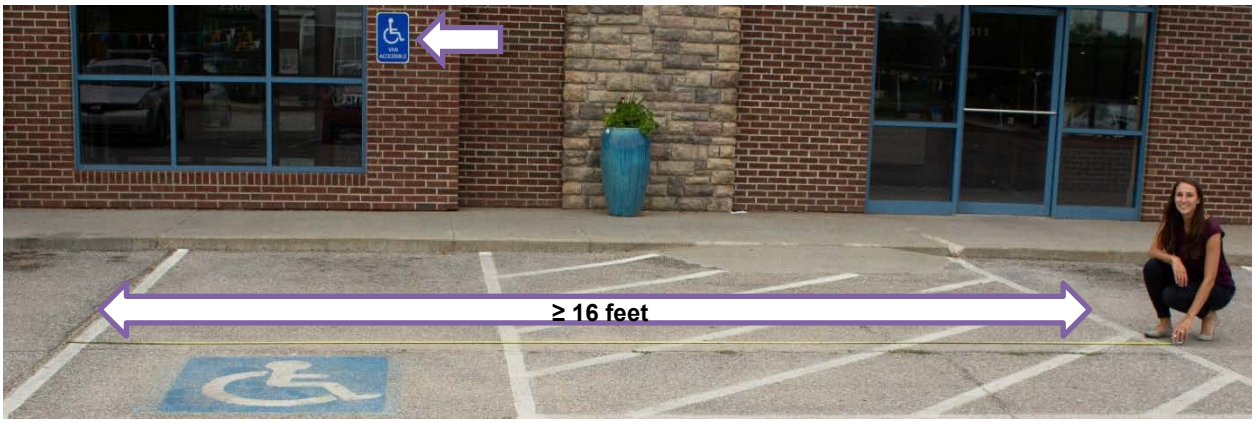

Figure 3.1 Van-accessible parking spaces allow people who use wheelchairs and travel in ramp- or lift-equipped vans to safely park and exit their vehicle. Having one or more van-accessible parking spaces close to the most accessible entrance route is a great way to improve the accessibility of a building entrance. In order to be considered van-accessible, the parking space and adjacent access aisle must together measure at least 16 feet wide and the space must be designated by a sign.

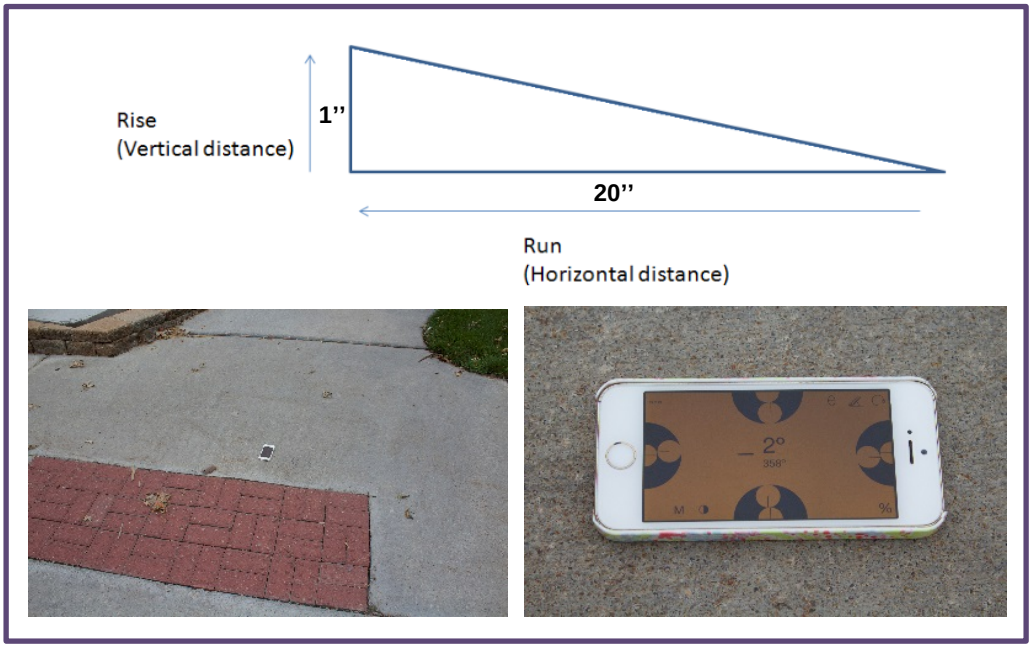

Figure 3.2 The Angle Pro application was used to determine the slope of any inclined surfaces along veterinary hospital entrance routes to ensure they met the sloped routes and ramps criteria. All sloped components of an accessible entrance route should be no steeper than 1:20 (<3 degrees) (I.e. for every one inch of height change (rise), the sloped route must provide 20 inches of distance (run)). A slope measurement phone application was utilized in this study to determine the steepness of sloped portions of entrance routes to ensure they were less than 1:20 or 3 degrees as shown in the images above. A ramp should be no steeper than 1:12 (<5 degrees) (I.e. one inch of rise for every 12 inches of length). It is also helpful for ramps to be at least 3 feet wide and have a sturdy railing on at least one side of the ramp.

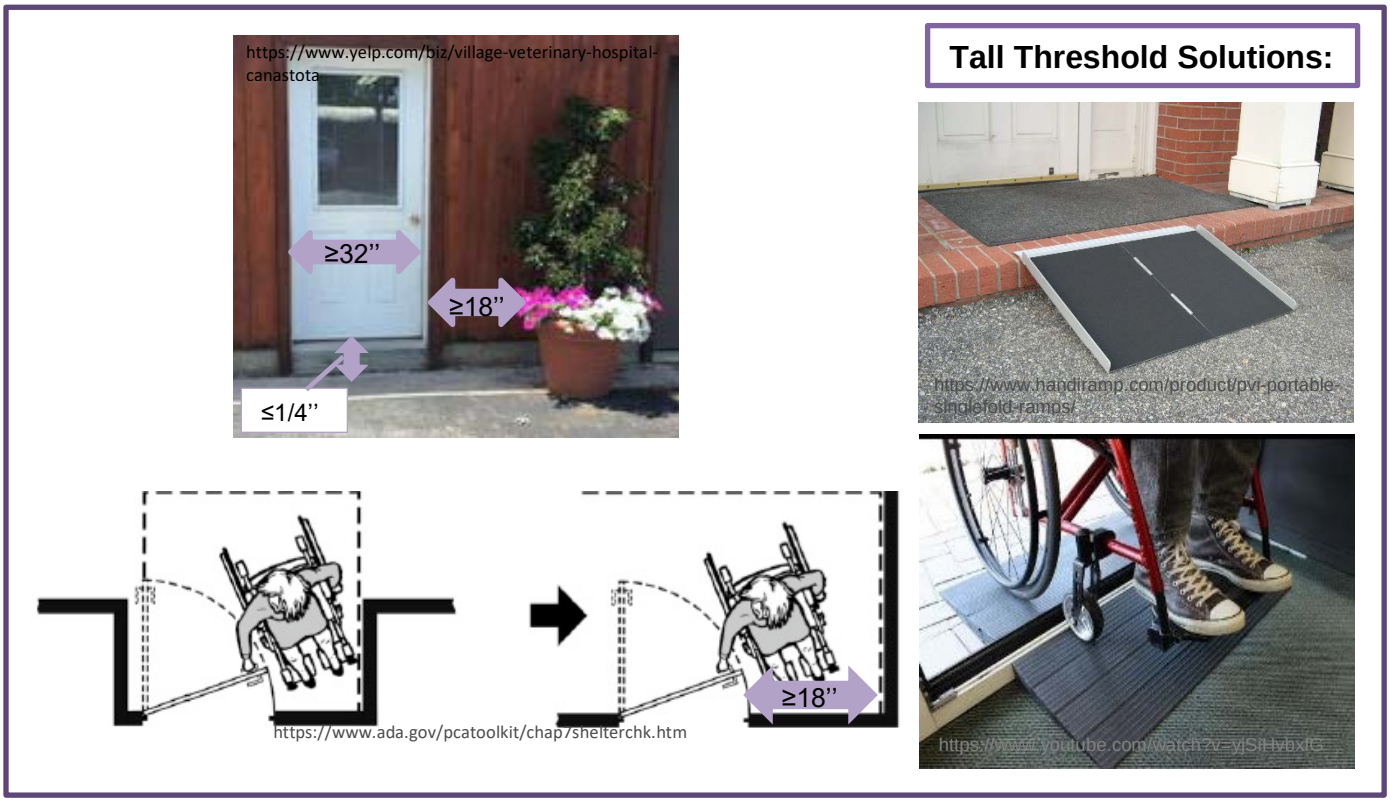

Figure 3.3 Accessible doorways have clear space next to door handle, low thresholds, and adequately wide doors. An accessible doorway has a width of no less than 32 inches wide, a flat threshold of ideally less than ¼ inch high, an automated or light-weight door, and a minimum of 18 inches of clear space next to the handle side of the door. The image in the upper left shows a veterinary hospital entrance door with a very tall threshold and a nice flower pot on the handle side of the door that may be within 18 inches of the handle. These potential barriers to access could be improved with two simple solutions. The flower pot could be moved to the non-handle side of the door or the space between it and the door handle side of the door could be measured to ensure 18'' of clear space. The two images on the right demonstrate the use of threshold ramps as a solution for tall thresholds.

Table 3.2 – Strengths and areas for improvement of <u>hospital entrances</u>.

Strengths	Areas for Improvement
7/10 hospitals had signs designating adequately wide van-accessible parking spaces closest to the entrance (Figure 3.1).	6/10 hospitals had heavy entrance doors. Aim for automatic or lighter user-friendly doors.
9/10 hospitals had clear entrance routes free of level changes.	3/10 hospitals had gravel parking lots which can cause wear and tear on wheelchair tires.
9/10 hospitals had adequately wide doorways (≥32 inches wide).	4/10 hospitals had entrance thresholds that are too high (>1/4'' high).

Using the Building:

A number of features need to be taken into account when designing and maintaining the usability of spaces within a building for people with mobility disabilities. Clients' first action upon entering a veterinary hospital is to check-in for their appointment with the receptionist at the front desk; therefore the reception desk should be user-friendly to all clients, including those who use wheelchairs or electric scooters. Having at least a 36'' long portion of the front desk surface ≤36'' from the floor can make interactions between staff and a client using a wheelchair more comfortable and may make the client feel more welcomed (see Figure 3.4). After checking-in, most clients will then make their way to the lobby with their pet to wait for their appointment. The arrangement of furniture in the waiting area should allow a person with a mobility device to remain in line with other seats (i.e. not sticking out in the aisle or blocking passageways) (see Figure 3.5). This type of arrangement can make clients who use wheelchairs feel more comfortable. Lastly, the client and patient will enter an exam room for their appointment. The exam room doors should again be a minimum of 32'' wide, which was a strength amongst 9/10 of the hospitals. One of the hospitals visited had an exam room that was potentially inaccessible for some wheelchair users due to a step/level change from the lobby to the exam room. This barrier could be accommodated for with the addition of a temporary or permanent wheelchair ramp (see example in Figure 3.3 above). The heavy weight of exam room doors was a common observation amongst the hospitals, although the staff at most veterinary hospitals open the door for their clients. A light-weight door with a usable handle is ideal. Lever style handles can be utilized with a closed fist making them superior in terms of usability compared to round door knobs (see Figure 3.6 below). The public spaces and pathways within the majority of the veterinary hospitals visited were adequately wide (≥36'') and clear. Table 3.3 below highlights the key results from the "Using the Building" section of the hospital evaluations by providing common strengths and areas for improvement.

Figure 3.4 Accessible reception counters allow clients who use wheelchairs or scooters to check in/out and make transactions with hospital staff. High reception counters were a common concern observed throughout the veterinary hospital visits. Tall reception counters are also commonly seen in human hospitals and dentist offices. Aiming to have at least a 36'' long portion of the counter ≤36'' from the floor would maximize the usability of the space and can improve client-staff interactions.

Figure 3.5 Accessible lobbies can be attained through certain furniture arrangements. Providing space(s) for a client using a wheelchair to remain in line with other chairs in the lobby is a very welcoming accessibility gesture. This type of layout will prevent people who use a wheelchair from having to stick out into the open area of the lobby.

Figure 3.6 Accessible door handle promote accessibility. A lever style handle can be opened with a closed fist and therefore is more usable for people with limited hand dexterity who may not be able to tightly grip and turn a circular door knob. The bottom picture displays several options for accessible door handles.

Table 3.3 – Strengths and areas for improvement for <u>using the veterinary hospital</u>.

Strengths	Areas for Improvement
8/10 had inviting lobbies with furniture arrangements that allow for space for a wheelchair to fit amongst a row of chairs.	9/10 hospitals lacked having at least a portion of their reception counter of an accessible height (≤36'' from the floor).
9/10 had unobstructed and wide pathways (at least 36'' wide) and doorways (at least 32'' wide).	4/10 of the hospitals had interior doors (i.e. exam room doors) that were quite heavy and/or had non-usable door handles (i.e. round knobs instead of bar handle style).

Restrooms:

Out of the three CHEC evaluation sections, the restroom section received the lowest average score across all of the veterinary hospitals. All but one of the ten hospitals visited in this study had a restroom available for client use, which is a great amenity, yet only two of the hospitals had a restroom that scored perfectly on the CHEC evaluation. Several features must be present and positioned a specific way within a restroom in order to maximize its usability and accessibility. The entrance/stall door to the restroom should be ≥32'' wide, which was surprisingly not the case in many of the hospitals visited. Narrow restroom doors have the potential to make a restroom completely inaccessible to clients or staff using a wheelchair or other mobility device. Similar to the hospital entrance and exam room doors, the restroom door should ideally be light enough to open with the strength of just two fingers and there should be at least 18'' of clear space next to the handle side of the door. The handles/latches on the restroom doors should be positioned no higher than 48 inches from the floor, which was a strength of all the hospitals restrooms. A restroom stall should ideally measure at least 36'' wide and 69'' deep according to CHEC standards, but additional width would be even more accommodating. If there are no stalls (i.e. a single restroom), the whole restroom area is most useable when it provides at least a 5-foot circular space. To ensure safe transfers, two sturdily mounted grab bars should be installed on at least two sidewalls of the restroom near the toilet. The restroom sink has certain requirements to be considered usable and accessible. There should be clear space under the sink to provide knee clearance for clients using wheelchairs. This is a usability feature that many hospitals could improve on. More specifically, the sink rim should be no more than 34'' above the floor (see Figure 3.7). Finally, restroom amenities such as faucets, hand dryers, and dispensers should be no higher than 48'' from the floor and should be able to be operated with a closed fist (see Figure 3.7 and 3.8). Table 3.4 highlights the key results from the evaluations of veterinary hospital restrooms by providing common strengths and areas for improvement.

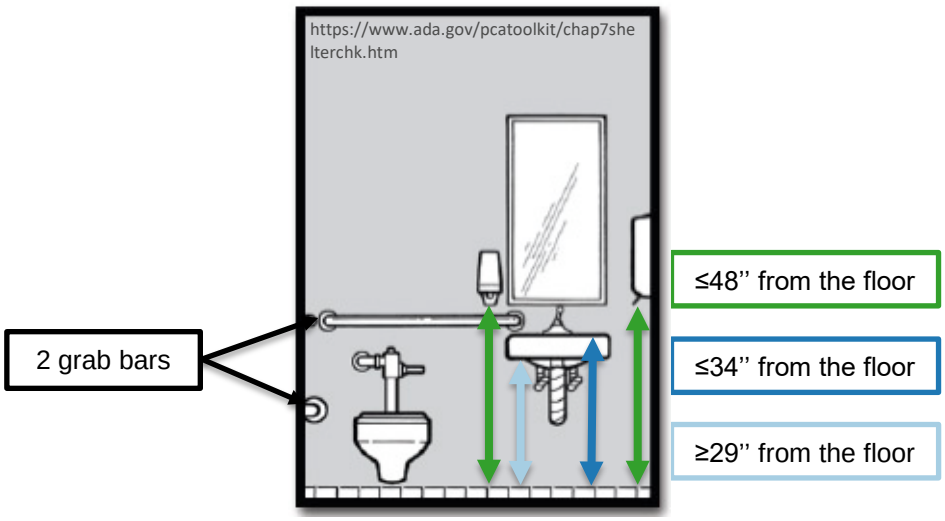

Figure 3.7 Accessible restrooms consist of a variety features placed at a reachable height. This illustration highlights many of the important criteria that make a restroom usable for clients with mobility-related disabilities.

Figure 3.8 Sinks with accessible faucets promote hand hygiene. Faucets should be able to be operated with a closed fist.

Table 3.4 – Strengths and areas for improvement of restrooms.

Strengths	Areas for Improvement
7/9 hospitals had two sturdily mounted grab bars to allow for safe transfers.	5/9 hospitals did not have wide enough restroom/stall doors (≥32 inches wide).
9/9 hospitals had handles/latches on bathroom doors located no higher than 48 inches from the floor.	4/9 hospitals did not have restroom features such as soap dispensers and hand dryers at an accessible height (≤48 inches from the floor).
6/9 hospitals had sink faucets that are able to be operated with a closed fist.	4/9 hospitals did not have an accessible (non-vanity style) restroom sink.

With awareness and creativity, temporary or permanent accommodations can often be made to eliminate accessibility barriers in the short-term. While some accessibility improvements may be as simple as shuffling around furniture, it is understandable that some accessibility projects may require longer-term financial and logistical planning to implement due to larger-scale renovations. When surveyed veterinarians (n=59) were asked about barriers or setbacks they have experienced in improving accessibility, 36% (21/59) reported expense as a barrier, 25% (15/59) reported lack of space as a barrier, 20% (12/59) reported lack of knowledge about what is required, recommended, or helpful as a barrier. By increasing awareness of accessibility concerns and ADA regulations amongst the veterinary profession we hope to reduce the number of veterinarians reporting lack of knowledge as a hindrance to improving accessibility.

Our survey verified that veterinarians (54/59, 93%) are receptive to receiving further education and suggestions on ways to improve their service to individuals with disabilities. In addition, 85% (48/55) of veterinarians reported that they feel the veterinary community as a whole (i.e. veterinarians, technicians, receptionists, etc.) would benefit from further education on accessibility and serving individuals with different types of disabilities.

Chapter 4 - Discussion/Conclusions

Veterinarians serve clients with mobility-related disabilities; therefore, it is critical that veterinarians are aware of the accessibility and usability of their veterinary hospitals, to provide optimal service for clients with mobility disabilities. Improving awareness of client needs and providing practice-specific suggestions for improving and maintaining accessible veterinary hospitals is a positive step towards allowing clients to fully participate in their pet's veterinary care. Through education, the veterinary community can become more cognizant of potential physical barriers for people with mobility-related disabilities, including our increasing elderly population, and can make action plans for short and long-term modifications to their hospitals to remove barriers and improve access.

The results of this research study provided a foundation of baseline knowledge on the current usability status of veterinary hospitals for people with mobility-related disabilities. While many veterinary hospitals have created and maintained very user-friendly spaces for their clients with mobility disabilities, there is room for accessibility improvement. Veterinary hospital evaluations paralleled self-identified barriers in accessibility from the survey, including challenges with entranceways (heavy doors, parking spaces), high reception desks, and small restrooms. Veterinarians whose hospitals were evaluated found the reports helpful and implemented some short-term suggestions right away. The data collected from this project can be used moving forward to increase accessibility and usability awareness amongst the veterinary profession.

In the future, similar projects can be carried out to identify potential barriers in veterinary hospitals for people with other disability types (i.e. low vision, hearing, cognitive, etc.). Continued work could lead to the development of a comprehensive veterinary hospital usability assessment as well as educational resources to encourage improvement of accessibility for all people with disabilities. Future collaborative work with ADA experts could result in increased educational materials to help veterinarians become more comfortable with their knowledge of ADA regulations and accessibility concerns. Veterinarians play multiple major roles in public health. One role that might not be obvious is being advocates for usability and accessibility in the communities in which they serve. By removing potential usability and accessibility barriers within veterinary hospitals veterinarians are improving service to clients with mobility disabilities and putting the social model of disability into action by recognizing that many factors contribute to disability.

Part Two:

Therapy Animal Project

Chapter 5 - Therapy Animal Project

Introduction:

History of Therapy Animal Work

Therapy animal work is not a new concept. Its roots can be traced back to as early as the 1600's when physicians reported using horses to improve the physical and mental health of their patients ("Animal Therapy"). In the late eighteenth century, theories concerning the socializing influence of companionship began to be applied to the treatment of the mentally ill (Serpell, 2011). Use of animals in this way increased during the nineteenth century as pet animals became common features of mental health institutions (Serpell, 2011). In the 1940's farm animals were used by the American Red Cross when serving veterans on a farm suffering from injury or illness as a way take the veterans' minds off their injuries and the war and further their recovery by giving them the job of caring for the animals ("Animal Therapy"). More recently, people have taken interest in the scientific explanations for the apparent therapeutic benefits of animal companionship (Serpell, 2011). The study that prompted much of the health-related research was a study of 92 outpatients from a cardiac care unit who, statistically speaking, were found to live longer if they were pet owners (Serpell, 2011). Therapy animal use has been steadily increasing and is utilized extensively today in a variety of capacities.

Therapy Animal Benefits

Therapy animals have both mental and physical health benefits. Simply petting an animal stimulates the release of serotonin, prolactin, and oxytocin, which are all hormones that play a role in improving mood. Interaction between humans and dogs also decreases cortisol levels and blood pressure (Handlin, 2012). Lowering blood pressure can improve cardiovascular health. Animal assisted therapy has shown to lower anxiety, provide comfort, and reduce loneliness. Another mental health benefit is increasing mental stimulation to assist in recall of memories. Many counselors utilize therapy animals in their work to help their clients feel safe, comfortable and willing to communicate. Therapy animals can be used to encourage patients recovering from an injury to perform certain movements to regain mobility, such as by brushing or petting the dog. Therapy animals have also been used in school and library settings to help children with their reading skills. Therapy animal work is implemented through a wide variety of avenues today and can be utilized to promote public health.

Applied Practice Experience

This portion of my APE, focused on therapy animal work, was carried out through an internship at the Riley County Health Department under the guidance of my preceptor, Jan Scheideman, who is the Child Care Supervisor for the Raising Riley Program at the RCHD. The project focused on determining how the use of the powerful human animal bond can be used within the community of Manhattan, KS.

Learning Objectives:

For this portion of my APE my goal was to use pet therapy to promote public health through increasing the utilization of therapy animals within the Manhattan community, educating the public on topics pertaining to the use of therapy animals, and connecting therapy animal handlers to places in the community seeking the benefits of therapy animal work. In these efforts one of my goals was to establish a sustainable organization to carry on my vision of using the human animal bond to make an impact on the community. In order to carry out these goals I needed to identify where human animal interactive activities were already being utilized within Manhattan, and also determine places in the community that were currently not using, but could benefit from pet therapy. I also needed to research already established and successful therapy animal programs to learn the process of certifying an animal. Another objective was to collaborate with people who were passionate about therapy and service animal work, and who were more knowledgeable in the subject than I, in order to gain knowledge and guidance from them. Lastly, I needed to locate and connect with therapy animal handlers within the community.

In addition to learning about and expanding the use of therapy animals, I also wanted to use my time at the RCHD to expand my knowledge of how local health departments operate and what services they provide.

Activities Performed/Results:

Results of the therapy animal project include the creation of a new service organization called Paws for People, an assistance animal flyer, and an interactive children's animal behavior teaching model/game. The assistance animal flyer and children's game were utilized at the Paws for People booth at Riley County Health Department's annual flu vaccine event called Okt-FLU-ber Fest. The assistance animal flyer was designed to educate the public about the key differences between service, therapy, and emotional support animals (see Appendix 4). It also included information on the basics of service animal etiquette, such as not approaching and

petting a service animal in public because they are working. Lastly, the flyer outlined three important steps to safely approaching an animal in public.

The interactive children's game to teach kids ways to recognize canine body language and to learn about safe interactions with dogs was very well received by parents and their children. It consisted of pictures of dogs either showing signs of "I'm happy and I am okay with you petting me right now" or signs of "I'm scared and nervous right now and I do not want to be touched." I, along with several Paws for People volunteers, asked the kids to first pick out three dogs that would be okay to pet and then three dogs that are showing signs that they do not want to be pet. As the kids guessed they could lift up the picture and either see a green checkmark or red "X" to tell them whether or not it would be okay to approach that dog (Appendix 5). We were able to use this simple game to talk with kids about the body language signs dogs display to tell people they are uncomfortable with being touched such as tail tucked between their hind legs, ears pinned back, and lips pulled back. More than 4.5 million people are bitten by dogs each year in the United States, and more than 800,000 receive medical attention for dog bites, according to the U.S. Centers for Disease Control ("Dog Bite Prevention"). Between 2010 and 2012 359,223 children ages 1-14 were bitten by dogs ("Dog Bite Prevention"). A compromised ability of victims to interact appropriately with dogs (e.g. children <5 years of age or people with limited mental or physical capacity that increased their vulnerability) was found to be an important risk factor for human dog bite-related fatalities (Patronek, 2013). This was a co-factor in 77.4% of 256 dog bite-related fatalities, which is why public health officials should be educating the public, particularly young children, about canine behavior and the importance of never approaching a dog that is unaccompanied by an attentive owner (Patronek, 2013). Providing booths with education about safely interacting with dogs and interpreting canine body language in dogs should be encouraged by veterinarians and public health officials in every community. The Paws for People booth was a valuable addition to the Okt-FLU-ber Fest event.

In addition to coordinating this booth to engage and educate the public, I also organized a team of people to serve as Paws for People officers so that the organization can continue educating and helping people through the human animal bond after my graduation. I worked to create an organization logo with the help of Mal Hoover, Medical Illustrator at Kansas State University College of Veterinary Medicine (KSU CVM). With assistance from Cindy Mott, Office Specialist at KSU CVM, I gathered student interest in the organization by attending the KSU Activities Carnival in the fall of 2018. I ran both officer and club meetings which helped me to gather input and ideas to expand upon my original vision for the club. In addition to participating

in the Okt-FLU-ber Fest event, I planned volunteering opportunities for club members to assist the Manhattan Kansas Kennel Club (MKKC) in their Therapy Dog Test event. This was a good opportunity for myself and others to see what one of the therapy dog organization's testing process is like and the training that goes into these animals. For our second club meeting I contacted Dr. Patricia Payne (BS, DVM, PhD) to speak to us about her experience being involved with the KSDS Service Dogs, Inc. Two KSDS trained facility dogs and their handlers were also present at the meeting and shared the impact these dogs have on many of their client's lives as they are counselors.

During my time spent at the Riley County Health Department (RCHD) working on the therapy animal project, I took advantage of many opportunities to gain knowledge about how a local health department operates and the services they provide to the community. I attended two of the monthly all-staff meetings led by RCHD director, Dr. Jennifer Green, who addressed topics such as employee satisfaction survey results, the RCHD worksite wellness team, accreditation updates, and foundational public health services. The six foundational public health services include communicable disease control, chronic disease and injury prevention, environmental public health, access to and linkage with clinical care, and maternal, child, and family health. I learned about how the RCHD is providing these foundational services through many of their programs by scheduling meetings with the individual department supervisors. Breva Spencer, former Child Care Licensing Supervisor, told me about their work with child care providers in Riley and Clay County to ensure children receive safe high quality care. Daniel Perez, formal Maternal and Child Health Supervisor, and Jane Freyenberger, Women, Infants, and Children (WIC) Nutrition Services, informed me of the multitude of services their programs provide to pregnant women, families, and babies through prenatal education courses, home visits, nutrition programs, etc. I learned from a meeting with Dr. Green about some of the challenges the health department faces such as selling the importance of prevention to the public, such as receiving immunizations, and creating awareness of their services. I also had the opportunity to observe the grant writing process during a meeting with Jennifer and Jan, my preceptor, as they worked on writing a grant proposal for the Raising Riley program. I remember Dr. Green telling me that "every season is grant writing season". My internship with the RCHD provided me with experiences that encouraged me to grow in my leadership and communication skills and helped me to advance my knowledge of the role of local public health departments.

Part Three:

Integrated Learning

Chapter 6 - Competencies

Student Attainment of MPH Foundational Competencies

Table 5.1 Summary of MPH Foundational Competencies

Number and Competency		Description
4	Interpret results of data analysis for public health research, policy, or practice	Through analysis of the data collected from the usability survey and hospital evaluations, patterns and trends were recognized and used to identify common areas for potential improvement of usability in veterinary hospitals. This information from data analysis was used to create the "Top 10" flyer, hospital reports, and research poster.
16	Apply principles of leadership, governance, and management, which include creating a vision, empowering others, fostering collaboration, and guided decision making	Through the creation of a service organization, Paws for People, I was able to apply many principles of leadership and management as I began with a vision and then worked to gather a team and foster collaboration to turn my vision into reality. Through this organization I feel that I have empowered other students and community members by providing opportunities to increase their knowledge about therapy animals and to give back to their community through service. I also applied this competency when working on the individualized hospital reports as I worked to gain feedback and collaborate with others on our research team. Our hope is that these reports empowered other veterinarians to become more attentive to usability concerns within the profession and potentially make changes to their own hospitals to increase usability for clients with mobility disabilities.
18	Select communication strategies for different audiences and sectors	When producing the hospital reports, Top 10 flyer, animal assistance flyer, and animal behavior game it was important to take into consideration what audience I was trying to reach and how I could best communicate with that audience. By taking into account the target audience, communication of public health topics can become more effective.

19	Communicate audience-appropriate public health content, both in writing and through oral presentation	This competency was applied when writing many of my APE products and when presenting my research poster at KSU Research and the State and at Phi Zeta Research Day. I also utilized this competency when making the children's interactive animal behavior game.
21	Perform effectively on interprofessional teams	Working on interprofessional teams was a rewarding and major part of my MPH APE. I had the privilege of working closely with Dr. Dot Nary who works for the Kansas Disability and Health Program. I also collaborated with many therapy animal handlers who work outside of veterinary medicine, one a piano teacher and another a librarian. Additionally, I was welcomed onto the Raising Riley team this past summer at the RCHD. I also collaborated with many veterinarians across northeast Kansas during hospital visits.

The work I completed and products produced from my Applied Practice Experience helped me exercise many MPH Foundational Competencies. I will focus on the five that I feel applied most directly to my work which include numbers 4, 16, 18, 19, and 21.

By analyzing data from both the usability survey and veterinary hospital visits I fulfilled MPH foundational competency #4 which is "interpret results of data analysis for public health research, policy, or practice." Through analysis of these data I was able to understand more clearly the current awareness of usability and accessibility concerns amongst veterinarians as well as begin to see trends in areas for potential improvement, such as lowering reception counters and increasing the size of restrooms. This part of my MPH APE allowed me to practice taking data and turning it into a meaningful story to convey to different audiences in order to promote positive change in the veterinary community by increasing awareness of usability for clients with mobility disabilities.

Foundational competency #16 states "apply principles of leadership, governance, and management, which include creating a vision, empowering others, fostering collaboration, and guided decision making". This competency was addressed in both my usability project and my therapy animal project. Creating a new service organization, Paws for People, required many principles of leadership including organizational skills, creating vision, gathering and managing a team, and fostering interdisciplinary collaboration. It also took a collaborative effort to complete the veterinary hospital evaluations and scoring as well as writing the individualized reports for

each of the ten hospitals visited. Having the opportunity to practice leadership and management skills through my MPH experiences will be a benefit to my future career.

Selecting communication strategies for specific audiences is critical to conveying information effectively. I believe one of the biggest pieces to the success of my MPH APE was communication. I communicated with many veterinarians and other veterinary staff during hospital evaluations and then our team worked to develop organized reports of each hospital's strengths and areas for improvement. I exercised interdisciplinary communication when exchanging ideas and edits with Dr. Dot Nary from the Kansas Disability and Health Program. I also worked alongside the Raising Riley Program staff at the Riley County Health Department. For the Okt-FLU-ber Fest event I had to determine who my audience would be and how to best engage them. This is why I chose a fun game for engaging the children in how to read safe and concerning canine body language and the steps to approaching a dog in public. A simple easy-to-read flyer was distributed for older children and adults explaining the differences and similarities between therapy, service, and emotional support animals. I fulfilled foundational competency #18 through the many opportunities I had to practice communication skills and determine how to communicate most effectively with specific audiences.

Another foundational competency that I utilized during my APE was #19 which entails communicating audience-appropriate public health content, both in writing and through oral presentation. I had two opportunities to formally present my veterinary hospital usability research. I created a research poster which I presented at the KSU Research and the State poster competition as well as at Phi Zeta Research Day at the Kansas State University College of Veterinary Medicine (Appendix 3). These events gave me the opportunity to greatly improve upon my communication skills both orally and in writing. I also communicated audience-appropriate public health content through designing an age-appropriate interactive children's game to help them learn about concerning canine body language. When presenting research or public health content, it is vital to tailor communication strategies to the target audience.

I attained foundational competency #21, which is to perform effectively on interprofessional teams, by collaborating with Dr. Dot Nary (PhD) at the Kansas Disability and Health Program as well as Megen Devine (Editorial Professional) at the occupational training program at Washington University in St. Louis who provided the CHEC-M training and completed the scoring for each veterinary hospital evaluation. Through the therapy animal project I had the opportunity to meet and work with several individuals who work in areas other than veterinary medicine and public health, including a piano teacher, preschool teacher, and librarian. I also

worked with Early Childhood Facilitators on the Raising Riley team during my time at the Riley County Health Department (RCHD). By doing an internship with the RCHD I was able to learn more about the breadth of important work that goes on within our local health department and how it is structured as well as gain additional knowledge about our U.S health care system.

In addition to the five competencies discussed above, I also was able to integrate and apply models I learned about through my MPH coursework and apply them to my usability project. When reading several books about public health and disability, I observed that the medical model of disability mirrors the Health Belief Model introduced in the Social and Behavioral Bases of Public Health course (MPH 818) as it is an individual-level behavior change theory. The medical model of disability is the opposite of the social ecological framework, also discussed in MPH 818, which considers factors beyond the individual, such as environmental and social influences that impact one's health. The social model of disability aligns with the social ecological framework. By evaluating the usability of veterinary hospitals and identifying potential physical environmental barriers to usability for clients with mobility-related disabilities, such as tall reception counters and heavy doors, our research team worked within the social ecological framework and the social model of disability.

My APE prompted me to exercise many of the MPH foundational competencies and refine skills such as leadership, written and oral communication, and interdisciplinary teamwork.

Student Attainment of MPH Emphasis Area Competencies

Table 5.2 Summary of MPH Emphasis Area Competencies

MPH Emphasis Area: Infectious Diseases/Zoonoses		
Number and Competency		**Description**
1	Pathogens/Pathogenic Mechanisms	Evaluate modes of disease causation of infectious agents.
2	Host Response to Pathogens/Immunology	Investigate the host immune response to infection.
3	Environmental/Ecological Influences	Examine the influence of environmental and ecological forces on infectious diseases.
4	Disease Surveillance	Analyze disease risk factors and select appropriate surveillance.
5	Disease Vectors	Investigate the role of vectors, toxic plants and other toxins in infectious diseases.

My coursework for my Master of Public Health and Doctor of Veterinary Medicine degrees have exposed me to a plethora of infectious and zoonotic disease knowledge, allowing me to attain the five MPH Infectious Diseases/Zoonoses competencies.

The first emphasis area competency is to become familiar with a variety of pathogens and their pathogenic mechanisms. Understanding the various modes of disease causation that infectious agents have in order to gain entry, survive, and multiply within their host helps researchers understand how to develop vaccines and medications to assist the host in preventing and/or fighting off an infection. Different pathogens are armored with an assortment of pathogenic mechanisms to make them well suited for invading and thriving inside of a host. I learned about many of these virulence factors in the Veterinary Bacteriology and Mycology course (DMP 812), including lipopolysaccharide (LPS), capsules, biofilms, pili, and flagella. For example, *Campylobacter* is a gram-negative bacterium that causes diarrhea in dogs and has zoonotic potential. The virulence factors that *Campylobacter* possesses include flagella, adhesin protein, enterotoxin, and cytotoxin. Therapy animal handlers should be educated about *Campylobacter* and other zoonotic pathogens (i.e. salmonella, ringworm, etc.) that their animals could potentially transfer to humans during therapy animal visits so that they can identify clinical signs of disease in their animal(s) and be familiar with strategies to minimize the risk of disease transfer from their pet to humans, such as thorough handwashing after handling an infected animal, frequently laundering their pet's bedding, bathing, and avoiding raw diets. Knowing how pathogens cause disease within hosts is the foundation to determining the optimum way to prevent and control them.

Emphasis area competency number two is the investigation into the host immune response to infection. I studied how hosts respond to pathogens in many of my courses, but most memorably in the Principles of Veterinary Immunology course. I learned about the components of the innate and adaptive immune response and the specific role certain cells in the body have when fighting off invading pathogens. The innate immune system is composed of many physical and chemical barriers to reduce chances of infection. The adaptive immune system is composed of humoral and cell-mediated immune responses. B-lymphocytes, specifically plasma cells, are the primary cell in the humoral response that detect antigens and produce antibodies in response to them. T-lymphocytes are the main mediators of cell-mediated immunity and their job broadly exists of either activating macrophages to kill phagocytosed microorganisms (helper T-cells) or killing infected cells directly (cytotoxic T-cells). In the immunology course, along with many other classes, I learned about the vital role of vaccines in priming host's adaptive immune responses

and their efficacy in eliminating tragic diseases such as small pox and rinderpest. By taking this course, I acquired a solid platform of knowledge on how different hosts recognize and respond to infectious challenges.

The third competency focuses on examining the influences that environmental and ecological factors have on infectious diseases. When I reflect on this competency I think of the disease/epidemiologic triad and how host, agent, and environmental factors all come together to influence the characteristics of infectious diseases, such as transmission, virulence, and ultimately the public health impact. Similar to the social ecological model, the disease triad provides a way of looking at infectious disease situations from different angles and understanding that there are multiple factors playing a role. Zooming in on only the host being affected by the infectious agent may cause an investigator to miss a huge environmental factor such as nutrition, animal husbandry, or weather. The Environmental Health course (MPH 802) discussed many ways in which the environment influences population health. For example, the weather can have enormous impacts on infectious disease vectors such as mosquitoes. Environments with heavy rainfall, or even just standing water inside a bucket or empty tire, can increase the number of mosquitoes within that environment, and therefore increase the number of vectors available to transmit diseases such as Zika and West Nile virus. Other environmental factors, such as clean water and clean air have critical impacts on a population's overall health.

Disease surveillance and analyzing disease risk factors (competency number four) was addressed throughout many of my core and elective courses. This skill was practiced and improved during a Foot and Mouth Disease (FMD) outbreak simulation in one of my courses, in which we split up into teams and were given a case scenario and required to coordinate an action plan in the event of a hypothetical FMD outbreak. This simulation highlighted the importance of disease surveillance, disease transmission, and biosecurity and biocontainment measures. FMD is a highly contagious disease that has high global impact; therefore, maintaining adequate surveillance of this disease is crucial as well as identifying and mitigating disease risk factors in order to prevent the fatal animal disease from entering U.S. borders and causing an outbreak. Public health officials must be prepared with detailed plans regarding how to handle a potential outbreak of FMD, as well as many other diseases, using strategies such as quarantine and movement restrictions in attempt to minimize the spread of the disease to other animals.

The fifth and final emphasis area competency is focused on investigating the role of disease vectors and identifying toxins. This competency was addressed in the Environmental Health (MPH 802) and Toxicology (DMP 801) courses. According to the World Health

Organization, vector-borne diseases account for more than 17% of all infectious diseases, causing more than 700,000 human deaths worldwide annually ("Vectorborne Diseases"). These statistics affirm the enormous impact that disease vectors have on public health. The distribution of disease vectors throughout the world is dependent on environmental factors such as temperature and humidity, but also on social factors. Global transportation and travel has opened the gateway for disease vectors to enter new parts of the world in very short amounts of time. Public health professionals must take biological and mechanical vectors into account when studying infectious disease transmission, outbreaks, and susceptibility. Becoming familiar with toxic agents is another important task for public health professionals. The main routes of toxin exposure are inhalation, ingestion, or dermal contact. We discussed toxicokinetics (i.e. movement of the toxicants in the body via absorption, distribution, metabolism, storage, and excretion) and toxicodynamics (i.e. effects of the toxins on the body). I studied many individual plant, insecticide, fungal, bacterial, and animal toxins. One specific toxin that I enjoyed learning about was blue-green algae, which can be fatal to both people and animals who ingest water polluted by the organism. Despite the deceptive name, blue-green algae is a term used to describe >30 different species of cyanobacteria that are capable of producing different toxins that are collectively called cyanotoxins, which have neurotoxic and hepatotoxic properties. Veterinarians and public health officials have a responsibility to educate the public about the high risks of toxins, like blue-green algal blooms, in order to protect both animals and people.

As a Master of Public Health and Doctor of Veterinary Medicine candidate I have gained an immense amount of knowledge regarding a vast amount of infectious and zoonotic diseases. I will use this information daily in my professional career as a veterinarian and public health advocate. It will be my job to be familiar with and be able to identify many pathogens that can cause disease in both animals and people. Veterinarians must be prepared to not only protect their animal patients but also their clients who may not be aware of the zoonotic risk associated with their pet. At least one, but often multiple, of the 5 MPH emphasis area competencies for infectious diseases/zoonoses were addressed in each of my MPH courses.

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Appendix 1: Usability Survey

Survey Investigation into Awareness and Accessibility for Clients with Disabilities at Veterinary Practices in Kansas

1. How many years have you been working in the veterinary profession?
    a. Less than 1 year
    b. 1 - 5 years
    c. 5 - 10 years
    d. Greater than 10 years

2. How many veterinarians are at your current practice?
    a. 1
    b. 2
    c. 3
    d. 4
    e. 5+

3. Choose the answer that best describes the geographic location of your practice.
    a. Northeast Kansas
    b. Southeast Kansas
    c. Northwest Kansas
    d. Southwest Kansas
    e. Central Kansas
    f. I do not practice in Kansas

4. Choose the answer that best describes the general location of your veterinary practice.
    a. Rural (less than 10,000 people)
    b. Suburban (10,000 to 100,000 people)
    c. Urban (Greater than 100,000 people)

5. Choose the answer that best describes the patients of your veterinary practice.
    a. Small animal predominant (greater than 75% dogs, cats, pet birds and/or pocket pets)
    b. Large animal predominant (greater than 75% food animal and/or equine)
    c. Mixed animal (varied species with at least 25% from companion animal and 25% from either food animal or equine)

6. In your time of working in the veterinary community, have you ever served clients with disabilities? (circle one)

    Yes No

7. In your current place of work do you serve any clients with disabilities? (circle one)

    Yes No

8. If you answered yes to question #7, please check any disabilities you have recognized in your clientele, including elderly clients.
    a. Mobility ____
    b. Cognitive ____
    c. Sight ____
    d. Hearing ____
    e. Other: _____

9. Are you aware of any specific areas in your veterinary practice that clients have difficulty using? (circle one)

    Yes No

If yes, please share details of concern or suggestions for change:

_____
_____
_____
_____
_____

10. Are you comfortable with your knowledge of the current ADA (Americans with Disabilities Act) requirements for accessibility? (circle one) (https://www.ada.gov/2010_regs.htm)

    Yes No

11. Does your practice have one or more designated parking spaces with adjacent access aisles (at least 16 feet wide) for clients with disabilities?

    ____ Yes (I measured, and at least 1 parking space & aisle together measure 16 feet wide)
    ____ Yes (I did not measure, but think 1 parking space & aisle together measure 16 feet wide)
    ____ No (I measured, and we don't have a parking space & aisle together measuring 16 feet wide)
    ____ No (I did not measure, and I don't think we have a parking space & aisle together measuring 16 feet across)

12. Does your practice have a step-free entrance for people who use a wheelchair or walker? (circle one)

    Yes No

13. Does your practice have any reception counter low enough so that a person using a wheelchair could comfortably interact with your staff? The goal is to have a portion of the reception counter 36 inches from the floor or lower.

    ____ Yes (I measured, and at least part of our counter is 36 inches from the floor or lower)
    ____ Yes (I did not measure, but I think our counter is low enough)
    ____ No (I measured, and all of our counter is 36 inches from the floor or higher)
    ____ No (I did not measure, but I do NOT think our counter is low enough)

14. Have you ever made or considered making accessibility improvements to your practice to better accommodate your clients? (circle one)

    Yes No

    If yes, please provide a short description of the changes that were made or considered (i.e. van-accessible parking spaces, etc.)

    _____
    _____
    _____
    _____
    _____
    _____
    _____
    _____

15. Have you encountered barriers in improving accessibility? Please check all that apply.

    ____ No, I have not encountered barriers
    ____ Lack of knowledge about what is required, recommended, and helpful
    ____ Expense
    ____ Lack of space
    ____ Lack of support or agreement among colleagues
    ____Other: (comment below)

_____
_____
_____

16. How confident are you in meeting the specific needs of your clients with disabilities? (circle one)
    a. Not confident
    b. Somewhat confident
    c. Very confident

17. How confident are you in your ability to correctly and respectfully speak to or refer to clients with disabilities? (circle one)
    a. Not at all confident
    b. Somewhat confident
    c. Very confident

18. Do you feel that the veterinary community as a whole (veterinarians, veterinary technicians, receptionists, etc.) would benefit from further education regarding ways to improve their service to individuals with disabilities? (circle one)

    Yes No

19. How receptive are you to further education on ways to best serve clients with disabilities? (circle one)
    a. Not at all receptive
    b. Somewhat receptive
    c. Very receptive

20. Additional Comments?

_____
_____
_____
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Thank you for your participation in this survey. Your contribution to our research project is very much appreciated

Appendix 2: Veterinary Hospital Evaluation Report

VETERINARY PRACTICE ASSESSMENT AND SUGGESTIONS TO MAXIMIZE USABILITY FOR CLIENTS WITH DISABILITIES

ANIMAL HOSPITAL

(IDENTIFYING INFORMATION REMOVED TO MAINTAIN ANONYMITY)

Kansas State University | Emma Winkley | September 11, 2018

CHEC EVALUATORS:

Dr. Kate KuKanich (DVM, PhD, Dip ACVIM (SAIM), Kansas State University)

Ms. Emma Winkley (DVM/MPH student, Class of 2020, Kansas State University)

PROJECT COLLABORATOR:

Dr. Dot Nary (PhD, University of Kansas, the Kansas Disability and Health Program)

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COVER LETTER

Dear Doctor:

Thank you for participating in the One Health collaborative study "Investigation into the Awareness and Accessibility for Clients with Disabilities at Veterinary Practices in Kansas." This study was a joint effort between Dr. Kate KuKanich, Ms. Emma Winkley, and Dr. Dot Nary. The goal of this study was to evaluate veterinary practices in Kansas for usability for clients with mobility-related disabilities, and to provide practical suggestions for improvement if indicated. The investigators had formal training using a standardized Community Health Environment Checklist for people with mobility limitations (CHEC-M), an online tool that can help people in the community determine if a facility such as a veterinary hospital will be accessible for their needs. The following report summarizes an evaluation of your hospital, providing strengths and suggestions for ways to improve usability in both the short and long-term as well as the CHEC score. Additional resources have been included at the conclusion of the document. We thank you again for your participation in this study and your continued efforts in providing excellent service to the veterinary clients and pets in our Kansas community. We would be happy to further discuss any aspects of this report with you at your convenience.

Sincerely,

Kate KuKanich

Kate KuKanich, DVM, PhD, ACVIM (SAIM)

Emma Winkley, DVM/MPH student, Class of 2020

Dot Nary, PhD

TABLE OF CONTENTS

UNDERSTANDING AND INTERPRETING THE CHEC (COMMUNITY HEALTH ENVIRONMENT CHECKLIST)

WHAT IS THE CHEC?

The CHEC is a tool to measure how usable public spaces are for people with disabilities. It is **not** a comprehensive ADA assessment, but rather is a usability tool focusing on key concerns identified by people with disabilities.

The CHEC was developed by researchers at the Washington University School of Medicine in St. Louis. This tool is used to assess public spaces like restaurants, stores, doctor's offices, and now, veterinary practices. CHEC assessors are trained to complete a standardized evaluation of measurable features in a site, which produces a score based on 100 as the optimum.

Please consider watching this brief 2 minute video produced by the University of Kansas Research and Training Center on Independent Living to learn about the CHEC program: https://www.youtube.com/watch?v=2vJHjBIxS2s.

CHEC ASSESOR TRAINING:

The goal of this project was to assess the usability of veterinary practices for people with mobility disabilities. To reach this goal, Dr. KuKanich and Ms. Winkley received formal training and were certified through the CHEC program to perform a standardized usability evaluation of community sites.

CHEC SCORING:

After completing veterinary practice evaluations, results were provided anonymously (not labeled as to which practice they are linked to) to the CHEC developers at Washington University who then converted the evaluation results into 3 section scores (Entrance, Using the Building, and Restroom) and determined an overall score with 100 as optimum. These scores have been included in this confidential report.

DETAILED TOUR OF THE CHEC WEBSITE:

The CHEC website is a unique and helpful tool for people with disabilities to "check-out" how usable a specific site is, such as a store, restaurant, or medical facility, before they travel. For a specific example of how the CHECpoints interactive website can be used, please click on the following link: http://checpoints.com/. Once there, please click on the dropdown menu that reads "State" and select KS, then click the dropdown menu that reads "Select a category" and

select “Restaurants.” Then click “search.” The google map will highlight any restaurants in KS that have been evaluated through the CHEC program and have had their evaluations uploaded onto the CHECpoints map. Next, click the red marker pointing to Wamego, KS and you will find that the famous Toto’s Tacos restaurant in Wamego has received a CHEC evaluation. Next, click on “Open Page.” This will take you to details of the CHEC evaluation for Toto’s Tacos restaurant. If you scroll down the page slightly you will see the overall evaluation scores, but if you click on the tab “CHEC-M”, which stands for CHEC mobility, you will be able to see a detailed breakdown of the evaluation. Feel free to play around with this site. Make sure to check-out how many doctor’s offices have been evaluated in Missouri using the dropdown menu options! The CHEC program was initiated in Missouri and is just starting to include Kansas locations; at this point, no veterinary practices have been included on the CHEC website.

The CHEC scores and report for the veterinary practices included in this study are strictly confidential. Information collected during visits and submitted to obtain scores was anonymous, without including practice or veterinarians’ names. You may give consent to have your practice’s scores and evaluation included on the CHECpoints interactive map to benefit clients with disabilities. This would make your results available online so clients could find your veterinary practice on the website. If you would like to discuss the possibility of having your practice’s results included on the CHEC website, please contact Dr. KuKanich to discuss this option; this would require an additional consent form to be signed and will not happen without your written consent.

CHEC-MOBILITY EVALUATION FORM:

Appendix A (pages 17-21) shows an example of the CHEC form used to evaluate each veterinary practice.

ENTRANCE

STRENGTHS OBSERVED:

- **Multiple van-accessible parking spaces and access aisles are present and are sufficiently wide (greater than 16 feet), giving clients using a wheelchair the ability to park and exit their vehicle safely and comfortably.** It is ideal that these parking spaces and access aisles together measure at least 16 feet wide to allow plenty of room for a van's side door, lift, and/or ramp (see images below). (For further information, please visit the link in #9 of the additional resources on page 16)

- **The accessible parking spaces are marked with an accessible sign and are adjacent to the most accessible entrance.** Signs that are easily recognizable allow clients with disabilities to effortlessly find and use the most accessible entrance.
- **The pathway to enter the building is clear, wide, and has a gently sloped sidewalk.** There is a curb ramp directly beside each of the accessible parking spaces, and the sidewalk would be easy for a person with a mobility disability to maneuver.
- **The first entrance door was propped open.** Although this first entrance door to enter the strip mall walkway will likely not always be able to be propped open due to weather, it is helpful and welcoming for clients with disabilities, especially mobility disabilities, to not have to maneuver through two entrance doors.
- **The entrance doors are both sufficiently wide (38 inches).** This is a valuable feature for your clients who use wheelchairs or walkers.

AREAS FOR IMPROVEMENT:

- **The entrance to your building is very accessible. One minor area for improvement is maintenance of the cracks at the top of the curb ramps.** At the top of one of the curb ramps near the entrance of your hospital there are pretty significant cracks. Over time these could become problematic to people using mobility devices. Clients using wheelchairs can use the other curb ramps to avoid these cracks, but it would not be obvious to them from the parking lot which route is the smoothest.

- **The entrance doors are heavy and may be difficult for some clients to open.**

SUGGESTIONS FOR IMPROVEMENT:

SHORT-TERM SUGGESSTIONS

- **Even with an accessible parking lot and entrance it can be challenging for a client with a disability or an elderly client to maneuver with a pet into the hospital.** It can be very helpful if the front desk staff is aware when clients who might benefit from extra assistance arrive and have a staff member assist them in entering the building with their pet when possible. Consider having an alert on the schedule when such clients are known to be coming in and watching for them to arrive. Alternatively, if permitted by the other stores in the area, you could post a sign directly beneath the accessible parking signs that states something along the lines of "For assistance into the building call 785-537-8482. We are happy to help".
- **Consider filling in the cracks at the top of the curb ramps near the entrance to your hospital.** Keeping the route to the accessible entrance free of loose gravel, large cracks, debris, and uneven pavement can make the path much safer and welcoming.

LONG-TERM SUGGESTIONS

- **If front entrance doors are to be replaced it is recommended that either automatic (ideally) or lightweight entrance doors be installed.** Automatic doors are an added bonus to help all of your clients easily enter the building. They are especially helpful to have at the entrance to veterinary practices because the client does not have to worry about opening a door while also bringing in their pet(s). As this may not be feasible right away, encouraging staff to help clients from the car into the hospital when needed, including opening doors for them, might be greatly appreciated and would remove the potential challenge of opening a heavy door for some clients. Visit the link in #12 of the Additional Resources on page 16 to learn about ways to make a door automatic.

USING THE BUILDING

STRENGTHS OBSERVED:

- **The friendly staff are always available to help their clients.** Having staff who are cognizant of specific clients who may need extra assistance and being eager to provide this assistance to these clients is important for optimal client service and satisfaction.
- **Although the entire reception counter is higher than 36 inches from the floor (42 inches), there is open space beside the counter allowing for comfortable interaction between front desk staff and clients using a wheelchair.** Your hospital's design of open space beside the high counter is a valuable feature for clients who use wheelchairs.
- **The small animal lobby has an open layout.** This allows clients using a wheelchair or other mobility device to easily make their way to the front desk.
- **The seating arrangement in the lobby allows a person with a mobility device to remain in line with other seats (i.e. not sticking out in the aisle or blocking passageways).** This type of arrangement can make clients who use wheelchairs feel more welcomed and comfortable. Training front desk staff to regularly check to make sure there is at least one open space in line with the other chairs for a client using a wheelchair would be very helpful in order to maintain this strength.
- **All doorways and public pathways are wide, open, and clear, creating a comfortable environment in which clients and their pets can move**.
- **The exam room on the right (nearest to the restroom) is large, providing an uncrowded setting for clients.** There is plenty of space within this exam room for clients with mobility devices to move about with their pet(s). Large exam rooms are a great accommodation that your hospital provides.
- **Interior doors (exam room doors) are light enough to be opened with the strength of only two fingers and are sufficiently wide (35.5 inches).** Light and wide doors like the ones within your practice are a valuable feature.
- **While visiting front desk staff were observed offering water and coffee to their clients.** This is a very nice service to all your clients.

AREAS FOR IMPROVEMENT:

- **The entire reception counter is higher than 36 inches from the floor.** The current height of the reception counter can make the interactions between staff and a client using a wheelchair challenging and may make the client feel uncomfortable or less welcomed. Again, the open space beside the counter is helpful, but having at least a portion of the counter lowered would be ideal.

SUGGESTIONS FOR IMPROVEMENT:

LONG-TERM SUGGESTIONS

- **If the reception counter at your hospital is renovated or replaced, explore the possibility of lowering at least a portion (ideally at least 36 inches wide) to be no higher than 36 inches from the floor**. In the meantime, continue to encourage reception staff to use the open spaces beside the reception counter to interact with clients using wheelchairs more directly, rather than over the tall counter itself.

RESTROOM

STRENGTHS OBSERVED:

- **The location of the restroom**. The restroom is directly next to the lobby making it easy to find and access.
- **The restroom door can be opened in both directions using the strength of only 2 fingers and is sufficiently wide.**
- **Grab bars are available and are sturdily mounted close to the toilet**. These allow for safe transfers.
- **The sink, soap, paper towel dispenser, and light switch are all no more than 48 inches from the floor**. The height of these important restroom features allows clients who use wheelchairs to reach them.

AREAS FOR IMPROVEMENT:

- **The current handle on the restroom door is a round knob.** This circular type of handle can be challenging for some people who have limited hand dexterity.
- **The restroom does not have a 5 foot circular open space to access the sink/soap/paper towel features.** This is a helpful design element for people who use wheelchairs or walkers. Although the restroom does not have this 5 foot open space around these restroom features, it is a fairly spacious restroom, measuring 53 inches x 98 inches.
- **There is a vanity style sink in the restroom (i.e. there is not clear space under the sink for knee clearance).** Without space underneath the sink clients using wheelchairs may not be able to comfortably reach the faucet and soap to wash their hands.

SUGGESTIONS FOR IMPROVEMENT:

SHORT-TERM SUGGESTIONS

- **Consider changing round door knobs to more of a lever style handle so that they could be opened with a closed fist.** This style of door opener is considered more usable for people who may not be able to grip and turn a circular knob.

LONG-TERM SUGGESTIONS

- **Consider installing a new sink in the restroom that has open space beneath it for knee clearance for those using wheelchairs.** It is recommended that the bottom of the sink measures at least 29 inches from the floor and that the sink rim is no higher than 34 inches from the floor.

CHEC-MOBILITY SCORES

These scores are based off a 100 point system, with 100 as optimal. Rather than focusing solely on the score, we encourage you to focus on your hospital's strengths, areas for improvement, and suggestions for improvement in the short and long-term described above. These scores are confidential and will only be included on the CHEC website should you choose and with your signed consent.

ENTRANCE: 91.23
USING THE BUILDING: 100.00
RESTROOM: 75.90
TOTAL: 91.82

REASONS FOR REDUCTIONS (DETAILED EXPLANATIONS ABOVE)

- Heavy entrance door
- Restroom does not have at least a 5' diameter space to access sink/soap/dryer features
- Restroom does not have clear space under sink for knee clearance

CONCLUSION

Overall, the veterinary practices assessed in this study were found to be quite usable for clients with mobility disabilities. As many veterinary practices are located in older buildings with structural limitations, several common challenges were recognized among these practices. While structural changes may be challenging to implement, additional short-term suggestions included in this report may also be quite helpful to advance usability, and ultimately, improve service to clients with disabilities. Creating and maintaining accessible and usable veterinary hospitals is inviting to people with disabilities and allows them the ability to participate fully in their pet's veterinary care. To view a summary of the areas consistently observed for improvement after visiting all participating veterinary practice's click on the link in #10 of Additional Resources below on page 16 or view Appendix C on page 23.

If you would like to discuss having your hospital's scores be uploaded to the CHECpoints.com website for the benefit of people with disabilities, elderly home care takers, etc. please email Dr. Kate KuKanich at kstenske@ksu.edu and she will call you to discuss this further and have you sign the consent form seen in Appendix B (page 22). Again, your scores are currently confidential and will remain so unless further consent is granted by you to add them to the CHEC interactive map. Should your hospital undergo renovations or changes where accessibility/usability improvements are made, an optional follow-up visit and re-evaluation/rescoring opportunity can be scheduled if you are interested; please contact Dr. Kate KuKanich to schedule a time at your convenience.

Thank you again for participating in this important study. If you would like to discuss anything further or have any additional questions or concerns please contact Dr. Kate KuKanich at 785-532-4282 or kstenske@ksu.edu. Please use the additional resources below if needed to further increase your knowledge and awareness of the ADA and usability.

ADDITIONAL RESOURCES

INFORMATION FROM THE AMERICANS WITH DISABILITIES ACT (ADA):

1. The U.S. Department of Justice provides a document to help small business owners understand the 2010 ADA accessibility standards. Although this document is not directed to veterinary practices specifically, it is a helpful resource to increase veterinarian's awareness of ADA requirements for businesses. To view this helpful document, **click here**.
2. To read a more comprehensive version of ADA standards, **click here**. The section of the ADA most applicable to state and local government facilities (including public universities) is Title IIa. The section of the ADA most applicable to public accommodations and commercial facilities (small businesses) is Title III.
3. ADA Quick Tips – Customer Service for Front Line Staff: https://adata.org/factsheet/quicktips-customer-service
4. To contact your regional ADA center, **click here** or contact Ray Petty at raypetty@aol.com or 785-842-4317. Ray Petty is a Community Integration Specialist who has been with the Great Plains ADA Center (https://www.gpadacenter.org/) since 1995. He is currently responsible for the delivery of ADA Network services throughout the State of Kansas. In addition to provided training, technical assistance and consultation to individuals and entities in the state of Kansas, he conducts outreach and capacity building activities.
5. The local ADA Coordinator for the Manhattan area is Charlotte Self (charlotte@ksu.edu; 785-532-1868).
6. There are tax incentives for increasing accessibility. **Click here** to see what the ADA website says about tax credits. **Click here** to view the K-37 Disabled Access Credit document. For more information on this, email Ray Petty (info above).

THE UNIVERSITY OF KANSAS RESEARCH AND TRAINING CENTER ON INDEPENDENT LIVING PRODUCED THE FOLLOWING DOCUMENTS TO PROVIDE EDUCATION TO THE PUBLIC:

7. A fact sheet summarizing the Americans with Disabilities Act of 1990. To view this ADA fact sheet, **click here**.
8. A brochure titled "Guidelines: How to Write and Report About People with Disabilities" was designed for people studying and writing reports about people with disabilities. It is a great read for anyone interested in learning more about the power their words have on shaping the public's view of people with disabilities. To view the brochure, **click here**! For a quicker overview on how to speak to or refer to people with disabilities, **click here**!
9. KU Graduate Research Assistant Alice Zhang conducted a study titled "Analyzing the Effects of Different Signs to Increase the Opportunity of Designated Van Accessible

Parking Spaces". As part of her project she designed a Fact Sheet on Parking Equity that can help people better understand the importance of Van Accessible Parking Spaces for people with disabilities and reserving them for lift- or ramp-equipped van users. To view the helpful fact sheet, **click here**.

MORE HELPFUL DOCUMENTS AND SITES

10. **Click here** to read about the "Top 10 Ways to Maximize the Usability of your Veterinary Practice for Clients with Mobility Disabilities".
11. **Click here** to find purchasable accessible entrance signs.
12. **Click here** to find purchasable automatic door openers.
13. **Click here** to find purchasable threshold and wheelchair ramps.
14. **Click here** to view a brief video explaining how offset hinges can be used to extend the width (1-2") of a doorway if needed.

= highly recommended resource

Appendix 3: Research Poster

VETERINARY HOSPITAL EVALUATION AND SUGGESTIONS TO MAXIMIZE USABILITY FOR CLIENTS WITH MOBILITY DISABILITIES

Emma Winkley[1], Kate KuKanich[1], Dot Nary[2], Joe Fakler[3]

[1]Master of Public Health Program and Department of Clinical Sciences, College of Veterinary Medicine; [2]Department of Research and Training Center on Independent Living, University of Kansas; [3]Concordia Small Animal Clinic

Kansas State University | Master of Public Health Interdisciplinary Program

Disability and Health Program
Someone with disabilities can be healthy

INTRODUCTION

According to the Census Bureau about 21 million Americans had a mobility-related disability in 2017. Rates of disability increase with age and therefore, with the forecasted growth in the aging population in the coming years the percentage of people with a mobility disability will likely increase. All these individuals are potential pet owners and veterinary clients. Therefore, two concepts need to be addressed by the veterinary community. First, how hospitals can be constructed or structurally modified to increase accessibility and usability. Second, awareness of the overall veterinary visit experience for clients with mobility disabilities. In order to begin to address these concepts we set out to gather baseline data on usability of veterinary hospitals in Kansas as well as gain insight about veterinarians' current knowledge of potential barriers to usability and Americans with Disabilities Act (ADA) regulations.

METHODS

A survey (n=59) was distributed to Kansas veterinarians online and at a local conference. Topics covered in the survey included demographics of the veterinarians, their experience with serving clients with disabilities, and their ability to self-assess their veterinary hospitals for accessibility and usability barriers. Two researchers (EW, KK) were certified by Community Health Environment Checklist for Mobility (CHEC-M) and used the CHEC standardized forms to evaluate 10 veterinary hospitals in Kansas. These forms were then scored by a blinded CHEC personnel. Each hospital received 3 section scores (entrance, using the building, and restroom) and an overall score. In addition to the CHEC report, an individualized report was created by our research team for each hospital describing strengths as well as short- and long-term suggestions for areas of improvement.

WHAT IS THE CHEC?

The Community Health Environment Checklist (CHEC) is a tool to measure how usable public spaces are for people with disabilities. It is not a comprehensive ADA assessment, but rather it is a usability tool focusing on key concerns identified by people with disabilities. The CHEC was developed by researchers at the Washington University School of Medicine in St. Louis. This tool is used to assess public spaces like restaurants, stores, doctor's offices, and now, veterinary practices. CHEC assessors are trained to complete a standardized evaluation of measurable features in a site, which produces a score based on 100 as the optimum. CHEC evaluations can be posted online (checpoints.com) for public viewing as a tool when deciding which public places will be most usable for their needs.

RESULTS

Key Findings:

1) **Veterinarians serve clients with disabilities, yet might not be fully aware of potential usability concerns for people with mobility disabilities.**
   - 93% (55/59) of surveyed veterinarians reported serving clients with mobility disabilities.
   - Every veterinary hospital visited had a least 1 area identified on the CHEC form which could be addressed to improve accessibility for their clients with mobility disabilities, yet only 51% (30/59) of surveyed veterinarians reported being aware of any specific areas within their veterinary hospital that clients may have difficulty using.
   - Only 38% (22/58) of surveyed veterinarians reported being comfortable with their knowledge of current ADA requirements for accessibility.
2) **Most veterinary hospitals have potential barriers to people with mobility disabilities.**
   - Tables 2-4 list the most common areas identified for improvement in visited Kansas veterinary hospitals.
3) **Problem areas identified in visited hospitals were self reported with similar frequency via survey.**

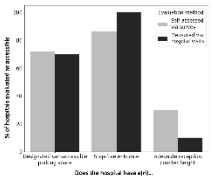

Figure 1. These three criteria (parking spaces, step-free entrance, and counter height) were assessed via hospital visits and survey self-assessment. The results suggest that if veterinarians are given specific accessibility requirements most can accurately self-assess their hospitals and become aware of potential areas for improvement.

4) **Veterinarians may encounter barriers in improving accessibility.**
   - 36% (21/59) of veterinarians reported expense as a barrier
   - 25% (15/59) of veterinarians reported lack of space as a barrier
   - 20% (12/59) of veterinarians reported lack of knowledge about what is required, recommended, or helpful as a barrier
5) **Veterinarians were receptive to receiving further education and suggestions on ways to improve their service to individuals with disabilities.**
   - 87% (48/55) of veterinarians reported that they feel the veterinary community as a whole (veterinarians, technicians, receptionists, etc.) would benefit from further education regarding ways to improve their service to individuals with disabilities.
   - 93% (54/58) of veterinarians were receptive to receiving further education on ways to best serve clients with disabilities.

Hospital Visit Results:

CHEC Category	Average Score (100 pt. scale)
Entrance	89.18
Using the Building	91.46
Restrooms	93.60
Overall	88.71

Table 1. Overall, the veterinary hospitals assessed were found to be quite usable for clients with mobility disabilities. As many veterinary hospitals are located in older buildings with structural limitations, several common challenges were recognized. Strengths and areas for improvement amongst each of the three CHEC categories are displayed in the tables below.

Entrance:

Table 2. Strengths and areas for improvement in hospital entrances.

Strengths	Areas for Improvement
• 7/10 hospitals had sites designating adequately wide van accessible parking spaces closest to the entrance (Figure 2).	• 6/10 hospitals had heavy entrance doors. Aim for automatic or lighter user friendly entrance doors
• 9/10 had clear entrance routes free of level changes.	• 3/10 hospitals had gravel parking lots which can cause wear and tear on wheelchair tires.
• 9/10 had adequately wide doorways (>32 inches wide)	• 4/10 hospitals had too high of entrance thresholds (>0.25").

Figure 2. To maximize usability veterinary hospitals should provide at least 1 paved van accessible parking space designated by a sign near the entrance on an accessible route. (Parking space + access aisle at least 16' wide)

Using the building:

Table 3. Strengths and areas for improvement for using the veterinary hospitals.

Strengths	Areas for Improvement
• 8/10 had inviting lobbies with arrangements that allow for space for a wheelchair to fit amongst a row of chairs (Figure 3).	• Only 3/10 of the hospitals had at least a portion of their reception counter of an accessible height (<36" from the floor).
• 9/10 had unobstructed and wide pathways (36" wide) and doorways (32" wide)	

Figure 3. Quick fix to creating a wheelchair-friendly lobby:

Restrooms:

Table 4. Strengths and areas for improvement for restrooms.

Strengths	Areas for Improvement
• 7/9 had two sturdily mounted grab bars to allow for safe transfers.	• 4/9 hospitals had wide enough restroom/stall doors (>32")
	• Only 3/9 hospitals had accessible paper towel/dryer height (<48" from floor).
	• Only 3/9 hospitals had an accessible (non-vanity style) sink.

Additional ways to make veterinary visits positive for all:

- Have proactive and helpful staff available to assist clients who may need extra assistance into the building with their pet and throughout their visit.
- Consider the needs of a person who may benefit from a larger room to interact more easily.
- Talk directly to clients with disabilities. Do not avoid eye contact or speak only to a client's companions.
- Use people first language (i.e. "person with a disability" instead of "disabled person" or "person who uses a wheelchair" rather than "wheelchair bound".

CONCLUSIONS

Veterinarians serve clients with mobility-related disabilities; therefore it is critical that veterinarians are aware of the accessibility and usability of their veterinary hospitals, to provide optimal service. Improving awareness of client needs in addition to providing practice-specific suggestions for improving and maintaining accessible veterinary hospitals is a positive step towards allowing clients to fully participate in their pet's veterinary care. Through education, the Kansas veterinary community can become more cognizant of potential physical barriers to people with mobility-related disabilities, including our increasing elderly population, and can make action plans for short and long term modifications to their hospitals to remove barriers and improve access for all.

Moving toward a comprehensive assessment of accessibility and development of educational resources:

In the future, similar projects can be carried out to identify potential barriers in veterinary hospitals for people with other disabilities (i.e. low vision, hearing, cognitive, etc.). Continued work could lead to the development of a comprehensive veterinary hospital usability assessment as well as educational materials to encourage improvement of accessibility for all people with disabilities. Future collaborative work with ADA experts could result in increased educational materials to help veterinarians become more comfortable with their knowledge of ADA requirements.

Any sites that receive CHEC assessments are invited and encouraged to have their scores and forms posted online to the CHEC website for the benefit of people with disabilities.

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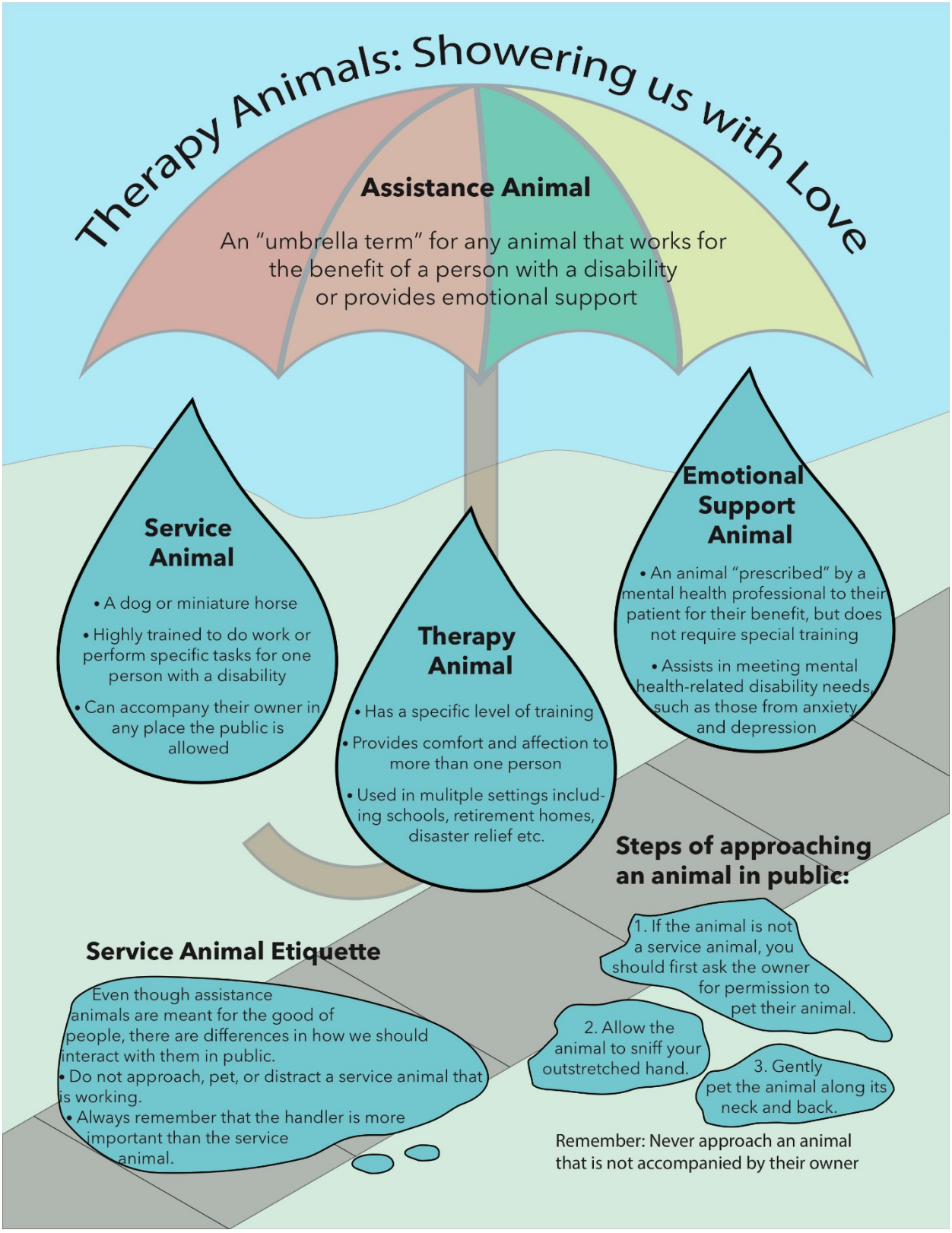
Appendix 4: Assistance Animal Flyer



Appendix 5: Children's Animal Behavior Game