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**Feasibility of Implementation of an Evidence-Based Trained
Service Dog Provider Assessment Guide**

by

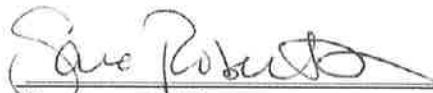
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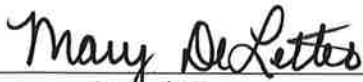
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Dedication

I dedicate this project to my service dog Gracie who allows me to be a complete person again.

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Abstract

American healthcare is costing more, and patients are living with more complex chronic conditions. For many, alternative therapies such as trained service dogs provide a valuable complement to standard treatments. Many providers are unaware of the role a service dog can play in healthcare outside of visual impairment, as well as contraindications and concerns their use may bring. The use of service dogs is still considered by some to be complementary and alternative medicine (CAM) since it is not a part of usual medical practice and is not commonly taught within conventional medical education. The purpose of this project was to test the feasibility of a newly designed provider-centric evidence-based guide to assist providers in determining which disabled patients would be appropriate candidates for service dog therapy in an outpatient setting. The Service Dog Assessment guide (SDAG) was found to be a quick assessment guide, able to be filled out in under 3 minutes. It gave providers helpful information for decision making and patient teaching regarding appropriateness for service dog therapy. Patients responded well to the assessment process.

Key words: service dogs; animal-assisted therapy; psychiatric service dogs; mobility assistance dogs; hearing service dogs

Feasibility of Implementation of an Evidence-Based Trained Service Dog Provider Assessment Guide

American healthcare is costing more, and patients are living with more complex chronic conditions. For many, alternative therapies such as trained service dogs provide a valuable complement to standard therapies. Many providers are unaware of the role a service dog can play in healthcare outside of visual impairment, as well as contraindications and concerns their use may bring.

Background

The 2018 Annual Report of People with Disabilities in America (Houtenville & Boege, 2019) showed that 13.2% of the American population is considered disabled. People with disabilities face many obstacles besides their physical or mental impairments. Unemployment rates are 41% higher in the disabled population and when employed full-time, people with disabilities earn \$5096 less per year for the same job than an able-bodied person (Houtenville & Boege, 2019). There is no comparison for people with disabilities who have service dogs since there is no required national registry or certification for service dogs (Civil Rights Division of the U.S. Department of Justice, 2015).

The use of service dogs is still considered by some to be complementary and alternative medicine (CAM) since it is not a part of usual medical practice and is not commonly taught within conventional medical education. Providers have differing attitudes toward CAM depending on several factors. In studies by Wahner-Roedler et al. (2014) and Maha and Shaw (2007), patients were interested in CAM but providers felt uneducated and unable to advise them on efficacy and safety. The lack of randomized controlled studies specific to CAM was a high concern for providers with both studies citing an inability to protect their patients from

potentially expensive and unsafe practices or therapies. In addition, Camp (2001) cites the lack of research on service dogs through rigorous methodology as a reason why physical and occupational therapists rarely recommend service dogs, despite studies showing documented psychosocial and occupational performance benefits. It is impossible to conduct a true randomized controlled trial with service dogs since the handler requires as much specialized training as does the service dog. This training and bond that develops between the handler and dog are one of the core components of a successful partnership (Vincent et al., 2017; Winkle, Crowe, & Hendrix, 2012).

Service Dog Background

Current Process

According to Maha and Shaw (2017), medical providers rarely initiate a conversation regarding service dog options leaving it to the patient to initiate the conversation. This is because there are no guidelines outside of the Americans with Disabilities Act (ADA) to assist in determining who makes a good candidate for service dog therapy. The patient attributes and environment need to be considered before making the recommendation and providers have no easy-to-use way to accomplish this (Vincent et al., 2016).

Definition. The ADA states a service dog is a canine individually trained to perform specific tasks to mitigate an individual's disability. The tasks must assist the individual with their activities of daily living (ADLs) (Civil Rights Division of the U.S. Department of Justice, 2015)

Training. The service dog is not required to be professionally trained, but individual-specific task training remains a requirement (Civil Rights Division of the U.S. Department of Justice, 2015). The service dog is expected to meet the standards of the Assistance Dogs International (ADI) Public Access Test to measure suitability as a service dog in the public

(Assistance Dogs International, 2019). ADI classifies service dogs into three main types: (1) guide dogs for the visually impaired; (2) service dogs for the hearing impaired; and (3) service dogs for people with other disabilities (Assistance Dogs International, 2019). This third category can be further categorized into mobility assistance, medical alert, and psychiatric service dogs (Glenn, 2013).

Guide dogs are the most recognized form of service dog. They are trained to assist visually impaired individuals for safe ambulation and functioning in the visual world. The process of getting a guide dog for visual impairments is detailed, formalized, and managed by several guide dog organizations certified by ADI and coordinated through the American Foundation for the Blind and regional schools for the blind (Assistance Dogs International, 2019; International Guide Dog Federation, 2019).

Hearing service dogs (HSD) alert the individual to sounds, such as alarms, doorbells, or telephone calls. The alert is generally physical, as the dog directly gives the alert by pawing or laying on the individual (Guest et al., 2006). Mobility assistance dogs (MAD) are used by ambulatory individuals with stability issues (Fjeldstad & Pardo, 2017) or people who use wheelchairs and use the MAD to preserve shoulder function and improve endurance (Champagne et al., 2016). Medical alert service dogs detect changes in their handler's medical condition, alert them to take medication, lie down, check blood sugar levels, or get assistance in a medical crisis (Winkle et al., 2012). Psychiatric service dogs (PSD) are used primarily for post-traumatic stress disorder (PTSD) to respond to panic attacks, turn on lights, and help with nightmares (Glenn, 2013; Winkle et al., 2012)

Literature Review

Medical Conditions Helped with Trained Service Dogs

Seizures

In a study by Dalziel et al. (2003), individuals with a seizure disorder who also owned dogs were surveyed. Participants reported that their untrained dogs responded to seizure activity and a small number alerted prior to seizures occurring. In interviewing seizure assist/alert service dog trainers, the results of the survey were confirmed that some types of dogs have a natural ability to alert while others do not. While alert dogs need natural instincts, most dogs can be trained to assist. Assisting takes many forms such as retrieving medication, cellphones, or caregivers; sometimes comforting the person during a seizure is all that is needed. There are different theories as to how seizure alert dogs are able to sense an impending seizure. One theory is they smell changes in the body; another is they pick up on small gestures and facial expressions that they have learned indicate an oncoming seizure.

In another study, the researchers found that participants with complex partial seizures and those who have auras including dizziness, nausea, lip-smacking or mouth movements, and increased breathing patterns are better picked up by a service dog (Dalziel et al., 2003). Aside from the safety aspects, handlers report increased feelings of safety and decreased caregiver burden with a service dog who can get emergency help in the event of a seizure. Also noted was that people were more likely to notice the service dog and be responsive to the problem (Winkle et al., 2012).

PTSD

PTSD is not exclusively a military-related condition, but it affects veterans at least 10%-30% more than the civilian population (Kloep et al., 2017). Many of the studies regarding PTSD and service dogs involve veteran subjects due to this high incidence. Although most studies regarding PTSD and service dogs are unable to determine if the dog interaction or the training

level of service dogs and their tasks are responsible for the benefits seen, studies have determined benefit.

Studies have shown that service dog usage, in conjunction with traditional PTSD treatments, reduces PTSD symptoms and depression at the time of treatment and beyond (Kloep et al., 2017). This is reinforced by observational studies of Yount et al. (2012) who report decreased PTSD responses and less reliance on pain and antipsychotic medication as well as increases in patience, impulse control, and emotional regulation. Since the Veterans Administration (VA) has funded PSD in the past, the U.S. Congress mandated a study in 2016 that is currently ongoing. In this study design, equally high levels of training are given to both service dogs and emotional support dogs in an attempt to determine which variable, training level or dog interaction, provides the effect to veterans (Saunders et al., 2017).

Hearing Impairment

In a longitudinal study by Guest et al. (2006) the placement of an HSD resulted in higher levels of well-being as measured by the General Health Questionnaire (GHQ-30) and these improvements continued well past one year post-placement when the novelty of the HSD would have worn off. Similarly, scores for depression and anxiety improved well after the one year mark. The participants noted that the HSD was a constant companion who did not require words and was fairly predictable; they provided a refuge from the strain of the hearing world. In social interactions, the HSD encouraged the participant to interact more with people and activities they previously might have avoided, with less reported loneliness. Dependence on other people was lessened and a new sense of independence emerged with the use of an HSD.

Mobility Impairment: Ambulatory, Non-Ambulatory

Ambulatory. Service dogs assist people who are ambulatory but have conditions that affect their balance, endurance, speed, or gait. In a study of patients with multiple sclerosis (MS), the use of a trained mobility service dog increased walking time by over two seconds compared to unassisted walking time. Participants also reported feeling more secure with the service dog's assistance (Fjeldstad & Pardo, 2017). People with physical, mobility, and high fall risk reported a decrease in paid assistance monies needed once a service dog was in place. Feelings of safety increased, while falls reduced as the dog opened doors and retrieved items. Another benefit was the enjoyment of the dog as well as getting out of the house and into the community (Winkle et al., 2012). Those with vertigo or other balance issues are getting dogs trained to assist them and the result is they are able to return to the workplace and have the opportunity for increased independence (Glenn, 2013).

Non-Ambulatory. People who rely on manual wheelchairs often face shoulder injuries from repetitive overuse and increased cardiovascular demands from the propulsion of their wheelchair. Studies by Champagne et al. (2016) and Hubert et al. (2013) show significant reductions in cardiovascular measures, perceived effort, time, shoulder pain, and intensity of effort with the use of a trained mobility service dog either on a course with obstacles faced in real life or while using a mobility service dog over one year.

Diabetes

Diabetes alert service dogs studied by Rooney et al. (2019) are accredited to achieve a level of 75% sensitivity to hypoglycemic samples with less than 15% false alerts over a period of three months, as well as pass the ADI public access test. A cohort study followed diabetic patients via their records of alerts with glucose testing which showed the diabetic alert service

dogs varied in their performance from 50% - 70% sensitivity to hypoglycemic events, with a median sensitivity of 83%. The time of partnership ranged from 1-32 months, with newly accredited dogs scoring higher. This suggests that most of the dogs maintained their sensitivity and were reliable in providing hypoglycemic alerts (Dalziel et al., 2003). It is important to note that alerting abilities are innate and enhanced with teaching, similarly to seizure alert dogs, but assistance skills can be taught to a majority of dogs regardless of innate abilities.

Migraines

Similar to diabetic and seizure alert dogs, migraine alert dogs have an innate ability that does not appear to be distinctly taught, only enhanced through training. In a study by Marcus and Bhowmick (2013), a cohort of 1,144 people was asked to respond to an online survey regarding migraines; of the respondents, 552 (48%) noticed migraine alerting behavior in their pet dogs. Of those who owned a dog but did not notice alerting behaviors, 369 (32%) reported unusual behavior during the migraine such as being excessively attentive and staying extremely close to them (Dalziel et al., 2003). Service dogs trained to assist during a migraine can assist with balance issues, bring medication, and get help in the case of an emergency.

Service dogs for people with disabilities that are not readily apparent, like migraines, are covered by the ADA but employers have been hesitant to allow service dogs for those conditions in the workplace (Glenn, 2013). These types of service dogs provide opportunities for increased independence in the community. The Department of Justice has made requirements for equal coverage of invisible disabilities that affect activities of daily living (Glenn, 2013).

Two or More Medical Conditions

As of 2019, four in 10 adults in America have more than one chronic condition, contributing to the \$3.3 trillion annual health care costs (Centers for Disease Control and

Prevention, 2020). One way to help reduce health care costs and improve the lives of those with multiple chronic conditions is through the use of trained service dogs. For those with balance issues or are at high fall risk, the use of a trained service dog to assist with mobility and retrieving dropped items can significantly reduce falls and hospital stays. Retrieving items from other rooms further decreases fall risk, especially at night or in an urgent situation (Camp, 2001). Care must be taken when suggesting the use of a trained service dog for someone with multiple conditions. Research by Gravrok et al. (2019) showed that handlers who had rapidly changing conditions or were in the hospital for extended stays experienced more difficulties in bonding with their service dog and had a long time adjusting and working together as a team.

Characteristics of a Successful Working Partnership

Dog Characteristics. Many characteristics specific to the service dog have been explored as contributing to successful partnerships. The maturity of the dog to learn the complicated tasks and handle the stress of working in the public was found to be a key component for success by Gravrok et al. (2019). Certain breeds of dogs are more suited to be working dogs, as that is what their breed is designed to do. Careful selection of the breed is important as well since the average working life of a service dog is around seven years as some breeds have shorter life spans. Also, some dogs may be more prone to stress and stress-related illnesses, so screening dogs carefully can remove those dogs from consideration for training (Dalziel et al., 2003). In order to pass the Canine Good Citizen Test by the American Kennel Club and the ADI Public Access Test, dogs should be able to remain calm in crowded and hectic situations; allow strangers to touch it; move through crowded public areas; and not show any signs of aggression (Saunders et al., 2017). Other researchers have identified less discrete characteristics such as being a good companion,

not being overwhelming physically for the handler, personalities being well-matched, and having a good reputation in the community (Vincent et al., 2016).

Human Characteristics. The characteristics of the human partner are just as important as the characteristics of the service dog, are. The potential handler should like dogs and be able to care for the needs of a dog including on-going training. Assertiveness is needed to give commands and reprimand the dog when it is not performing correctly. All caregivers and family members should agree that a service dog is a welcome member of the home and family. The environment should be large and clean enough to house a dog of the size required for the handler. The handler should be realistic about the finances required for not only purchasing the service dog, which can run from \$5,000 - \$15,000 or more, but also the veterinary, grooming, food, and other associated costs with owning a service dog (Vincent et al., 2016). The potential owner should not have a history of abuse or violence towards animals or be actively suicidal (Saunders et al., 2017). The handler should be willing to take responsibility for any messes the service dog makes and address issues related to the dog with other people as they occur (Glenn, 2013). Due to potentially limited life spans of certain breeds, as well as the amount of bonding that occurs in a service dog partnership, handlers should have high resiliency skills and a strong support network (Dalziel et al., 2003). Finally, the potential handler must be able and willing to form a deep mutual bond with a dog who will require patience and understanding (Gravrok et al., 2019).

Undesirable Effects

Despite the ADA laws regarding allowing service dogs into public areas, being denied access to buildings, areas, and transportation is a major issue for service dog handlers (Dalziel et al., 2003; Winkle et al., 2012). Handlers with PTSD found an increase in stress and anger with

these kinds of confrontations (Vincent et al., 2017). In handlers with a traditionally “invisible” disability, the use of a service dog now makes the disability known to everyone, inviting questions and curiosity. For some, shame becomes a type of personal stigmatization while being denied access and having the service dog becomes outward stigmatization despite the help provided (Vincent et al., 2017). As discussed previously, most people love a dog and service dogs generate increased attention from the public. If a handler’s disability was not known to the public before, the use of a service dog invites questions and curiosity. People also pet the dog uninvited, increasing the chance for a missed alert or cue. Unfortunately, unscrupulous businesses are running scams selling untrained dogs as trained service dogs to the disabled (Dalziel et al., 2003). Veterinary and grooming bills can be a cost burden for service dog handlers, depending on the breed of the dog. Purebred dogs can be more straightforward in their needs if the breeder uses the American Kennel Club standards. If a mixed breed dog is used, there is less certainty as to health or grooming needs (Dalziel et al., 2003).

Cost-Effectiveness of Service Dog Usage

In a 10-year projected cost analysis study performed in Sweden, Lundqvist et al. (2019) found trained service dog handlers used fewer health resources, and had less loss of leisure time and productivity compared to companion dog owners. While the cost of a trained service dog was higher due to the training required, the gains received in overall health-care reductions more than paid for the overall capital expenditures. There was no difference in mortality between the service dog and companion dog groups, so the health care reductions were entirely explained by the increased quality of life measures the trained service dog provided. Furthermore, the analysis estimated a service dog that can assist in picking up things dropped, retrieve things, and get help in an emergency can result in a healthcare savings of \$23,000 annually. A diabetic alert dog can

result in an annual savings of \$24,000. The higher savings in the diabetic alert dog category was due to the health of the handlers with other types of service dogs tends to be worse, requiring more healthcare dollars. The intangible gains such as improved leisure time and increased quality of life are fairly equal between the two types measured in this study.

Conceptual Framework

The conceptual framework that guided this project is shown in Appendix A. It is a quality improvement project model by Vincent et al. (2017) and identifies a logic model for patients with PTSD who seek a psychiatric service dog (PSD) as part of a treatment modality. In the model, the idea of the service dog as a supplement to traditional therapies, not a replacement of, is key. Other considerations added to the model included the roles and tasks of the PSD; undesirable effects; the reported efficacies of the PSD; impacts to the family, finances, and environment; and criteria that determine success, such as the training of the dog, bonding with the dog, monitoring of the partnership, costs involved, and family support. While this model was designed for patients with PTSD, transferability to other medical conditions is possible. In a similar project by Vincent et al. (2016), the same ideas were discussed in regard to mobility assistance dogs (MADs).

Setting and Organizational Assessment

Site Description and Stakeholders

The project was implemented at two sites in Louisville, KY. The first site was a community internal medicine clinic in a suburban neighborhood serving adults with primary care needs. The clinic employs seven physicians and one physician's assistant. The other site was a neurology outpatient specialty clinic associated with the academic medical campus in downtown

Louisville. The clinic employs 21 physicians and 12 nurse practitioners. The patient population is adult and pediatric patients with neurological conditions.

Permissions

Letters of support were received from clinic managers and the project was approved at the institution level. In addition, this project was submitted to the University of Louisville IRB and was granted approval as a non-human subjects quality improvement project prior to implementation

Needs Assessment

In an informal needs assessment with 12 providers, 83% of providers received no education on service dogs in the course of their training (initial or CEUs) and 83% could not determine contraindications for service dog therapy. Of the 12 providers, 58% were not comfortable ordering service dog therapy. This is similar to the findings in the literature (Camp, 2001; Maha & Shaw, 2007; Wahner-Roedler et al., 2014).

Purpose of Project

The purpose of this project was to test the feasibility of a newly designed provider-centric guide to assist providers in determining which patients with disabilities would be appropriate candidates for service dog therapy in an outpatient setting.

Intervention

The Service Dog Assessment Guide (SDAG) was developed to help outpatient care providers determine which patients are good candidates for service dog placement. The flow for implementation (Appendix B – “Project Flow”) of the project included an education session on the guide for determining patient candidacy for a service dog. Following the education piece, participating providers were to screen 10 participants using the guide. Participants had full

autonomy in deciding which 10 patients to screen. The goal of the pilot was not to use the guide to determine candidacy for service dog therapy but to determine the feasibility of using the guide in an outpatient practice. During the education phase, providers voiced concerns about the need for a referral sheet for service dog organizations in case someone wished to pursue therapy. One was created and provided before the trial began. See Appendix C for a copy of the SDAG.

Feedback on the feasibility of the guide was then elicited from each provider. This evidence-based project was intended to help determine the feasibility of the new Service Dog Assessment Guide which should help providers determine patient candidacy for service dog therapy.

Participants

Participants were health care providers from both the outpatient primary care clinic and the outpatient neurology clinic. Physicians, nurse practitioners, and physician assistants were all invited to participate.

Data Collection

The assessment guide was not collected for the project. Providers could retain these for their own use if they wished. One potential use for the SDAG would be as a formal order for the patient to pursue obtaining a service dog. Other uses could be for the development of an organization based policy for screening patients for service dog therapy; to use in the future if the patient decides to pursue service dog therapy at a later time; or because organizational policy states that assessments of this type need to be kept on file. The post-trial survey was administered in person as a hard copy with a blank envelope. A drop-off location at the site was identified and used for providers to complete the survey, seal it in the envelope, and submit it at the drop off location ensuring anonymity. Surveys were collected from the drop off site by the DNP student and stored in a locked file cabinet in room 4031 at the school of nursing.

Measurement

Feasibility of the SDAG was determined by administering an adapted version of the RN Feasibility Health Literacy Assessment Scale (RFHLAS) (Sand-Jecklin et al., 2017) . The scale was adapted to be more specific to service dog assessment. This adapted scale titled, the Service Dog Assessment Guide Survey (SDAGS), examined the measures of the acceptability, use, and satisfaction of the Guide. Other additions to the scale included: length of time needed to complete the guide per patient and an open-ended question asking about suggestions for improvement. The outcome measures on the SDAGS mimicked the RFHLAS in areas of acceptability, use, and satisfaction in a 10-question, Likert agreement scale. Three questions are negatively coded and are answered from the providers' perspective regarding the feasibility of the use of the Service Dog Assessment Guide in their outpatient setting. The reliability of the original instrument ($\alpha = 0.89$) was determined by Sand-Jecklin et al. (2017). Higher summed scores indicate greater responsiveness to the implementation of the SDAG.

The survey consisted of the following questions:

1. Completing the assessment guide is easy.
2. I see no benefit in assessing patients for potential service dog suitability.
3. The length of the service dog assessment guide is appropriate.
4. I found the assessment too difficult.
5. I am satisfied with this way to assess for potential service dog suitability.
6. This service dog assessment takes too much time.
7. The information gained from the service dog assessment is helpful for decision making and teaching.
8. I would like to continue assessing patients for potential service dog therapy this way.

9. The patients are receptive to the service dog assessment.
10. The service dog assessment guide is helpful in identifying patients who could benefit from a service dog.

The demographic section included years of experience and current role. Space was available for providers to write in the amount of time required to fill out the assessment guide for each patient. There was also an open-ended question for suggestions and comments including likes and dislikes that was analyzed thematically. The remainder of the data were analyzed using descriptive statistics. See Appendix D for a copy of the SDAGS.

Results

Four providers at one site were able to complete the trial and SDAGS. Of those four providers, they agreed that the SDAG is easy to use (SDAGS #1 -score of 4.5 out of 5 and SDAGS # 4 - 1.5 out of 5). They agreed there was benefit in assessing patients (SDAGS #2 – score 2.5 out of 5) and the information gained from the SDAG was helpful for decision making and teaching (SDAGS # 7 – score 3.25 out of 5). There was a discrepancy in provider desirability to use the guide. Providers rated their overall satisfaction with using the SDAG to assess for service dog suitability as a 3.75 out of 5 (SDAGS # 5), but later in the survey indicated they did not want to continue using the SDAG to assess patients for service dog therapy (SDAGS #8 - score of 2.5 out of 5). Patients appeared to be receptive to the assessment guide (SDAGS #9 – score 3.25 out of 5). The time to complete the SDAG was rated as appropriate (SDAG #3 – 4.25 out of 5). The four providers were all nurse practitioners with years of experience ranging from 4 – 30 years. The average time to complete the SDAG was 2.75 minutes.

The comments received were categorized into two main topics: those pertaining to service dog therapy itself and those pertaining to the SDAG. Comments regarding the SDAG

included suggestions for re-ordering the questions so the more personal questions regarding finances and legal issues come at the end. Other suggestions were to make it a form the patient fills out instead of having the provider interview the patient. The comments regarding service dog therapy centered around the appropriateness to screen for service dog therapy in a lower income patient population when the cost of a service dog can be high and out of reach for patients.

Discussion

Interpretation

The world-wide COVID pandemic greatly affected the results of the project. Of the two sites selected, only four providers from one site were able to complete the trial and provide data. Despite the limited trial and sample size, the SDAG was able to be completed in the goal time of 3 minutes or less. This is an important measure since a longer assessment guide would be unrealistic for providers to use. The SDAG is easy to use in its current format and it provides usable information for the provider. Though further trials would need to be performed and inter-rater reliability would need to be established, it appears the guide also identifies patients who are good candidates for service dog therapy, though that was outside of the scope of this project.

The discrepancy in the desirability in using the guide appears to be due to the socio-economic mix of the site that performed the trial. The providers liked the material in the guide, as evidenced by the high satisfaction scores and comments but did not want to continue using the guide because their patients could not afford the up-front costs for a service dog. Other comments from the SDAGS, such as making the assessment guide patient directed instead of provider directed, were due to being uncomfortable discussing finances with patients from lower socio-economic backgrounds.

Provider verses patient led screening will continue to be a debate outside of the scope of this project. Provider led screening allows providers who will ultimately need to write a formal letter of support for a service dog to be involved in the screening process and understand the patient specific needs for a service dog. Also, providers can help patients complete the section on qualifying illnesses. However, providers have limited time, and some prefer the patient fill out screening forms ahead of time. Whether the form is initiated by the patient or provider, provider education is essential to the process.

The literature shows that providers are hesitant to order service dog therapy due to lack of education, making the education component surrounding the guide crucial (Maha & Shaw, 2007). The mere use of the guide may help providers feel more comfortable ordering this alternative therapy.

In this project, the education piece was well received and could be made into an online learning module for future dissemination. The participating providers reported no issues in the actual trial, filling out the SDAGS, or returning the data. The surveys were completed in full and all information was legible.

Limitations

The major limitation of this project was the limited sample size for the trial. Repeated trials, outside the onset of a world-wide pandemic, are needed. Another limitation related to service dog attainment and use is the high cost of a service dog with limited ways to finance the procurement of the service dog, outside of using personal funds. Providers wanted information on alternative financial pathways but at this time insurance coverage is extremely limited. There are creative ways to raise funds such as crowdsourcing or GoFundMe campaigns and non-profit organizations do provide assistance; however, demand exceeds funding availability. These

resources could be made available on a patient handout and providers given basic education on the availability.

Conclusion

The suggestions received, such as re-ordering the questions and using the SDAG as a patient guide, will be carefully discussed among the project team. Next steps for the project will include another trial of the SDAG in multiple locations with a variety of socio-economic levels and additional specialties in addition to primary care clinicians. These additional trials need to be performed without the enhanced safety measures of an active COVID pandemic. The literature shows that service dog therapy works well to help people with disabilities and saves money on hospitalizations. This study showed the SDAG is an easy-to use evidence-based guide that can be completed in three minutes or less to help a provider gather the information needed to determine which patients are appropriate candidates for service dog therapy.

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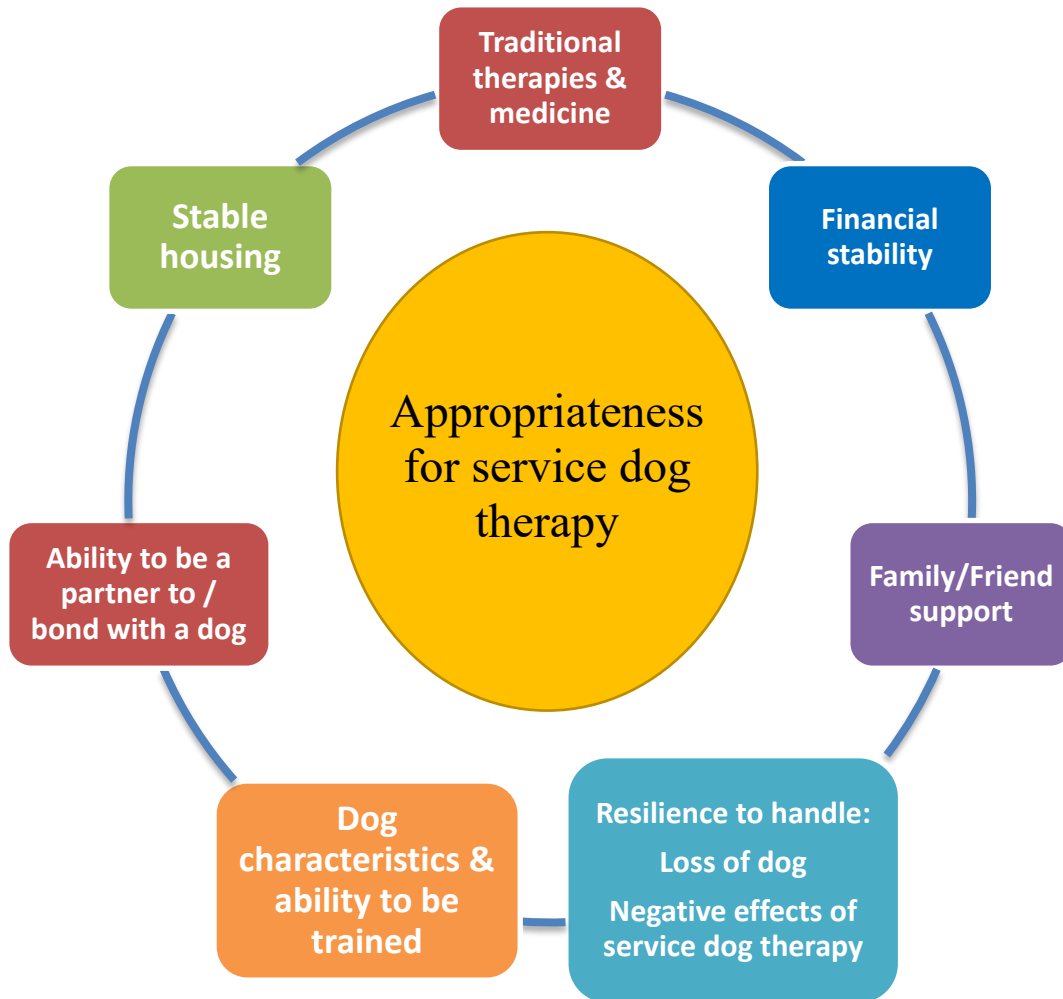
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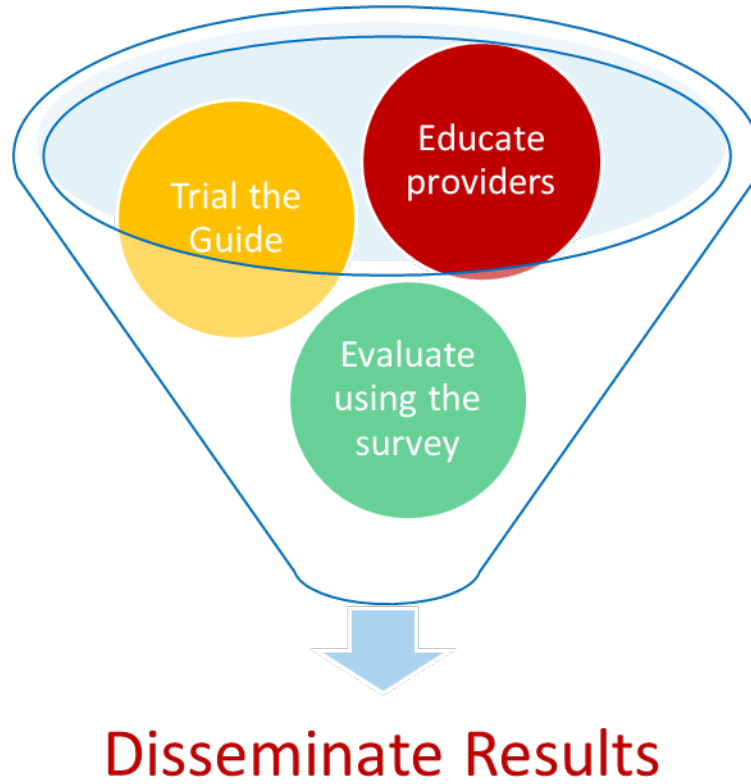
Appendix A

Conceptual Model



Appendix B

Project Flow



Appendix C

Service Dog Assessment Guide (SDAG)



Service Dog Assessment for Providers
Conditions Other than Visual Impairment

Patient's First Name: _____ Last Name: _____
Date of Assessment: (DD/MM/YY) _____

Pre-screening

1. Does this patient have a medical condition that can be helped by a trained service dog? (**not an exhaustive list**) If **YES**, continue with screening part 1. If **NO**, stop screening – not a candidate.

- | | |
|--|---|
| <input type="checkbox"/> MS, CVA, Muscular Dystrophy
<input type="checkbox"/> Seizures
<input type="checkbox"/> High risk for falls
<input type="checkbox"/> PTSD with frequent panic attacks and agoraphobia, other psychiatric issues
<input type="checkbox"/> Hearing impaired – moderate/severe
<input type="checkbox"/> 2 or more medical conditions | <input type="checkbox"/> Mobility impairment w/w/o manual wheelchair
<input type="checkbox"/> Diabetes with frequent hypoglycemia
<input type="checkbox"/> Complicated migraines with other neurological effects
<input type="checkbox"/> Other: |
|--|---|

2. I would like to evaluate you to determine if a trained service dog would be helpful as a part of your treatment plan; however, they cost approximately \$3000 - \$7000+ and insurance does not cover them at this time. Flexible spending accounts do cover the costs associated with the purchase. Would you like me to screen you at this time? If **YES**, continue with pre-screening. If **NO**, stop screening – not a candidate.

Screening – Part 1

1. Do you like animals? If **YES**, continue to Part 2. If **NO**, not a candidate at this time.
YES NO
2. Have you ever been convicted for crimes/abuse against animals? If **YES**, refer to a psychiatric provider for further evaluation and rescreen at a later time. If **NO**, continue to Part 2.
YES NO

Screening – Part 2

1. Is the patient physically and mentally able to care for the service dog?
YES NO
2. Does the patient have the financial means care for the service dog? (e.g., food, medical care)
YES NO
3. Does the patient have a stable housing situation?
YES NO
4. Does the patient have family or a support system to help care for the service dog?
YES NO
5. Does the patient have the resilience to handle the death, illness, or replacement of the service dog?
YES NO

If any question in Part 2 is answered **NO** – not a good candidate for a trained service dog at this time; rescreen at a later time.

If all questions in Part 2 are answered **YES** – good candidate for trained service dog therapy.

Appendix D

Service Dog Assessment Guide Survey (SDAGS)

Service Dog Assessment Guide Survey

Item	1 Strongly Disagree	2 Disagree	3 Neither Disagree or Agree	4 Agree	5 Strongly Agree	Comments
1. Completing the assessment guide is easy.						
2. I see no benefit in assessing patients for potential service dog suitability.						
3. The length of the service dog assessment guide is appropriate.						
4. I found the assessment too difficult.						
5. I am satisfied with this way to assess for potential service dog suitability.						
6. This service dog assessment takes too much time.						
7. The information gained from the service dog assessment is helpful for decision making and teaching						
8. I would like to continue assessing patients for potential service dog therapy this way						
9. The patients are receptive to the service dog assessment.						
10. The service dog assessment guide is helpful in identifying patients who could benefit from a service dog.						

Average time to complete each service dog assessment guide: _____

Do you have comments about the service dog assessment guide? Things you liked/disliked? Suggestions?:

Demographic Information

- Years of experience in clinical setting: _____
- Current role: ____APRN ____PA ____MD

Thank You!

Table 1

Descriptive Statistics Data Table

<i>SDAGS#1</i>		<i>SDAGS#2</i>		<i>SDGAS#3</i>	
Mean	4.5	Mean	2.5	Mean	4.25
Standard Error	0.288	Standard Error	0.645	Standard Error	0.25
Median	4.5	Median	2.5	Median	4
Mode	5	Mode	#N/A	Mode	4
Standard Deviation	0.577	Standard Deviation	1.290	Standard Deviation	0.5
Confidence Level (95.0%)	0.918	Confidence Level (95.0%)	2.05426	Confidence Level (95.0%)	0.795
<i>SDAGS#4</i>		<i>SDAGS#5</i>		<i>SDAGS#6</i>	
Mean	1.5	Mean	3.75	Mean	1.25
Standard Error	0.288	Standard Error	0.25	Standard Error	0.25
Median	1.5	Median	4	Median	1
Mode	1	Mode	4	Mode	1
Standard Deviation	0.577	Standard Deviation	0.5	Standard Deviation	0.5
Confidence Level (95.0%)	0.918	Confidence Level (95.0%)	0.795	Confidence Level (95.0%)	0.795

<i>SDAGS#7</i>		<i>SDAGS#8</i>		<i>SDAGS#9</i>	
Mean	3.25	Mean	2.5	Mean	3.25
Standard Error	0.75	Standard Error	0.645	Standard Error	0.25
Median	3	Median	2.5	Median	3
Mode	2	Mode	#N/A	Mode	3
Standard Deviation	1.5	Standard Deviation	1.29	Standard Deviation	0.5
Confidence Level (95.0%)	2.38	Confidence Level (95.0%)	2.054	Confidence Level (95.0%)	0.795
<i>SDAGS#10</i>		<i>TIME in min</i>		<i>YRSEXPER</i>	
Mean	3	Mean	2.75	Mean	14.75
Standard Error	0.577	Standard Error	0.853	Standard Error	6.263
Median	3	Median	2.5	Median	12.5
Mode	4	Mode	#N/A	Mode	#N/A
Standard Deviation	1.154	Standard Deviation	1.707	Standard Deviation	12.52
Confidence Level (95.0%)	1.837386	Confidence Level (95.0%)	2.717	Confidence Level (95.0%)	19.936