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Durable Medical Equipment, Adaptive Equipment, and Home Modifications: Decreasing Barriers in in the Home Health Setting

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A Capstone Project Entitled

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Abstract

The purpose of this project was to create a resource for home health occupational and physical therapists with information on durable medical equipment (DME), adaptive equipment (AE), and home modification vendors in Indiana. A self-developed needs assessment survey was used to determine current practices and barriers therapists were encountering. The Doctoral Capstone Experience (DCE) student met with vendors, observed home health therapists and DME evaluations, and then created an online resource to provide information on vendors in their area, including what equipment they provide, payment sources, and the process of acquiring the equipment or services. The resource was presented to therapists and the interdisciplinary team with the goal of enabling therapists to lessen their workload while increasing the safety and independence of clients. A self-developed post-presentation survey was completed by those in attendance to determine effectiveness of the resource and highlight areas of possible improvement. Four themes emerged from the data: (a) therapists' self-reported rating on a scale of 1-10 on knowledge of vendors in the community increased following the presentation of the online resource, as did satisfaction with that knowledge; (b) therapists overwhelmingly reported being "very satisfied" with the resource in terms of vendors included and types of equipment and modifications included; (c) therapists identified the potential positive impact this resource could have on streamlining the process of obtaining DME, AE, and home modifications; (d) additional barriers therapists commonly mentioned included a lack of information on insurance requirements as well as issues with their in-house DME provider.

Keywords: durable medical equipment, adaptive equipment, home modifications, home health, occupational therapy, physical therapy, community resources

Literature Review

Recently, the American Occupational Therapy Association (AOTA) called home modifications and aging in place an "emerging niche" for occupational therapy (OT) (AOTA, n.d.). The emergence of this area of practice is not surprising considering the recent statistics from the American Association of Retired Persons (2014), which states by the year 2030, one in five Americans will be aged 65 or older, with 87% of those individuals wanting to remain in their homes as they age.

As practice in this setting has grown, research on OT's role in the home health setting has greatly increased as well. In a 2017 study conducted by McGregor et al., 84% of participants reported difficulty with one or more instrumental activities of daily living (IADL), while greater than 50% of participants reported requiring assistance with self-care tasks. These findings emphasize the need for skilled professionals to focus interventions on improving independence in occupational performance. Other disciplines within the home health care team also identify occupational performance deficits as having a major impact on their ability to care for clients. One certified nursing assistant in a 2014 study by Beer, McBride, Mitzner, and Rogers stated bathing to be the most time-consuming part of patient care due to not just bathing, but transfers involved as well. She further stated bathing a client could take up to two of her three-hour shifts (Beer et al., 2014). This further emphasizes the opportunity for OT to positively impact not only client functioning, but also effectiveness and efficiency within interdisciplinary care.

Occupational therapists in the home health setting often utilize durable medical equipment (DME) and home modifications to prevent falls and increase safety and independence in occupational participation (Somerville, Smallfield, Stark, Seibert, Arbesman, and Lieberman 2016; Stark et al., 2018). Skilled therapists must consider a wide variety of factors to determine

which home modifications and DME to implement to best aid clients in improving occupational performance (Stark, Somerville, Keglovits Smason, & Bighman, 2015). Six experienced OT clinicians were interviewed regarding the clinical reasoning process of recommending and implementing DME and home modifications, and there were 16 intrinsic and extrinsic client factors and conditions therapists frequently considered (Stark et al., 2015). These 16 factors and conditions included: clinical course of the disease, personal assistance preferences, ability to maintain home modifications, readiness for change, compliance, concern for aesthetics, financial resources, physical assistance available, support system, lives with others, structural condition of the home, housing type, weather conditions, available space and layout, portability, and literacy level (Stark et al., 2015). In addition, Stark, Keglovits, Arbesman, and Lieberman (2017) suggested there are five aspects to successful and inclusive home modification intervention, including: assessment of the client's abilities, assessment of the client's home environment and goals, an intervention plan to eliminate or reduce barriers to occupational performance, implementation of the plan, and client/caregiver training.

Researchers have found evidence supporting the use of home modifications and DME as interventions, due to their effectiveness in reducing falls in the home. Somerville et al. (2016) found home modification and DME interventions decreased the risk of falling in a single case study. Interventions included implementation of a shower chair, stair railing, increased lighting during the night, and removing clutter from pathways. Keall et al. (2014) studied the impact home modifications had on community dwellers compared to a control group in the Taranaki region of New Zealand over a four-year period. Researchers found injuries from of falls in the home reduced by 26% each year when exposed introduced to home modifications including but not limited to: hand rails for stairs, grab bars around the toilets, and non-slip bath mats (Keall et

al., 2014). In contrast to these findings, Stark, Keglovitis, and Somerville (2016) found implementation of customized home modifications decreased the risk of falls among high risk individuals for the first 260 days. However, after 260 days, the impact of home modifications on both falls prevention and performance in activities of daily living (ADLs) was not significant compared to the control group that did not receive home modification interventions (Stark, et al., 2016).

Similarly, research has shown the effectiveness of DME and home modifications in increasing ADL and IADL participation within the home. Stark et al. (2018) sought to compare changes in occupational performance in ADLs by comparing 84 participants, half of which received home modification interventions and half which were in the control group. Results from the study showed significant positive changes in self-rated occupational performance and satisfaction with performance in ADLs after 12 months following home modification (Stark et al. 2018).

Despite the evidence showing the effectiveness of DME and home modifications in improving safety and occupational performance, barriers prevented successful intervention from occurring. Factors influencing adherence to DME and home modification recommendations included responsibility of the client, type of DME and home modification, perception of effectiveness, as well as age and gender of the client (Cumming, Thomas, Szonyi, Frampton, Salkeld, & Clemson, 2001; Currin, Comans, Heathcote, & Haines, 2012; Russell, Taing, & Roy, 2017). According to the 2012 study by Currin et al., adherence to recommendations is less likely to occur when the individual is responsible for acquiring the equipment. Researchers found approximately 41% of home modification and DME recommendations were carried out when the

individual receiving services was responsible; however, 71% were carried out when the responsibility shifted to an outside agency (Currin et al., 2012).

There was also an understanding of the positive impact of home modifications and DME in preventing falls among the population of community dwellers themselves, as seen by the 2017 research conducted by Russell et al. They found 90% of respondents during a phone questionnaire in the Ottawa, Canada area reported understanding that use of safety devices in the home could prevent falls. This understanding was lower among those who did not graduate high school or were age 85 and older (Russell et al., 2017). Cumming et al. (2001) found the perception of the effectiveness of DME and home modification intervention to have a significant impact on adherence to recommendations. During their randomized trial of falls prevention interventions in the homes of 178 participants, 21% of participants did not adhere to any recommendations (Cumming et al., 2001). Results from this study showed individuals who perceived DME and home modification to be effective in preventing falls were twice as likely to follow recommendations compared to those who did not perceive changes as being effective (Cumming et al, 2001).

Findings from Currin et al. (2012) proved type of home modification or DME factored into adherence to recommendations. Results showed that after 6 months, at least 50% of grab bars at the shower and toilet, bed rails, stair rails, and bath mats were installed. However, toilet frames, shower chairs, changing floor surfaces, and removing clutter were the least likely recommendations to be followed (Currin et al., 2012). Researchers hypothesize this difference is to be due to the perception of disability associated with shower chairs and toilet frames, while rails are not perceived as making in individual appear to be disabled (Currin et al., 2012).

Age and gender were also found to influence adherence to DME and home modification recommendations (Russell et al., 2017). Individuals age 65-74 proved to be the least likely age group to implement DME and home modifications such as railings at staircases and rubber bath mats or non-slip surfaces in the bathtub (Russell et al., 2017). Researchers also found females to be more likely to use DME such as raised toilet seats and grab bars in the tub or shower (Russell et al., 2017).

Purpose and Occupation-Based Model

The purpose of this doctoral capstone experience (DCE), was to create a centralized resource for Community Home Health so all OT and physical therapy (PT) therapists have easy to use, readily available information on DME and home modification vendors within their area. This resource helped streamline DME, adaptive equipment (AE), and home modification interventions, by ensuring all therapists have one resource where they know they can find the necessary information to best aid their clients. The Person-Environment-Occupation-Performance (PEOP) model was the occupation-based model utilized to guide the project.

There are four components of the PEOP: the person, which includes physiological, spiritual, psychological, neurobehavioral, and cognitive intrinsic factors of an individual; the environment, which is made of physical, societal or cultural extrinsic factors; occupations, which are the tasks and activities one does in their day; and performance, which involves actually doing the occupation (Christiansen, Baum, and Bass, 2011). For this DCE project, the person was the group of OTs or PTs working for Community Home Health; the environment was the home health setting; the occupation was work participation; the performance was actually carrying out OT services involving DME and home modifications. Since the resource was used to help therapists increase their efficiency and effectiveness in their job to improve the safety and

independence of their clients at home, all four of the PEOP components were impacted (Cole & Tufano, 2008).

According to Cole and Tufano, the PEOP is "suited for a variety of individual, group, and institutional needs across the lifespan…The domain of practice is predominately selected by the client, who is asked to identify the most important occupational performance issue" (p. 127, 2008). This focus of the PEOP fits perfectly with the goal of this DCE project, as Community Home Health is an institution which has identified a problem within therapy performance regarding home modifications and DME. Within the PEOP model, dysfunction is defined as "when a person cannot perform roles to a level of personal or social satisfaction," which is caused by "deficits in abilities and skills due to a health condition, restrictive barriers, or lack of resources within the environment" (Cole and Tufano, 2008, p. 130). Community Home Health administration has already identified a lack of resources of DME, AE, and home modifications prevents effective interventions from therapists, and based on initial reactions at meetings, therapists agree. Acknowledgement of barriers and lack of resources further supports why the PEOP model should continue to be the theory from which to view and plan the DCE project.

The intervention process described through the PEOP model lens then guided how to decrease the barriers therapists expressed concern about in the needs assessment (Cole and Tufano, 2008). According to Cole and Tufano (2008), two of the intervention guidelines of the PEOP model include "employing occupation-enabling resources that include assistive technology devices (built environment) that can modify one's physical environment," and "promoting availability of economic supports, access to health care, and client rights" (p. 131). These two guidelines aided in resource development, as information such as what equipment

vendors provide, payment sources, and the process of acquiring the equipment or services, was included to ensure therapists face less barriers in providing care.

Screening and Evaluation

Needs Assessment

A needs assessment was completed to ensure the resource developed regarding DME, AE, and home modification vendors and resources throughout the community would be beneficial for therapists. With the PEOP as a theoretical guide for the project beginning, a top-down approach was used when therapists were asked to identify problems or barriers they are currently experiencing when recommending and implementing home modifications or DME (Christiansen, Baum, and Bass, 2011). This was done through a survey for OT and PT clinicians, given and returned during weekly regional team meetings. According to Stein, Rice, and Cutler, "the main purpose of survey research is to obtain accurate objective descriptions about a specific universe of people or entities" (2013, p. 130). The needs assessment for this project aligned with the purpose of survey research for examining needs and attitudes for planning services (Stein, Rice, & Cutler, 2013), as the goal of the needs assessment survey was to gather information from the therapists regarding their experiences in the home health setting. This was done to better understand the barriers and current practices regarding home modifications and DME and how to decrease those barriers through resource development.

The survey was completed in the form of a self-developed 10 question questionnaire, which was returned by 22 therapists, a sample size of approximately 20% of all Community Home Health occupational and physical therapists (See Appendix A). The questionnaire is a commonly used instrument, often with the goal to generalize gathered information to larger populations (Stein et al., 2013). With 20% of therapists being available during meetings and

returning the questionnaires, the sample size was large enough for the site and researcher to feel the results could be generalized for the OT and PT population at Community Home Health. The population sampled was a purposive sample in that the questionnaire was given to Community Home Health Services OT and PT clinicians at the regional meetings (Stein et al., 2013). Questions were developed using the PEOP model as a guide to ensure aspects of the person, environment, occupation, and performance were included. The cognitive intrinsic factor of the person was included through self-rating questions regarding knowledge and satisfaction of knowledge on DME and home modification resources in the community (Christiansen et al., 2015). The environment in which the therapists work was included through questions regarding barriers experienced, as well as what they felt would decrease these barriers. The occupation of work participation was included through a question about the role of OT and PT in DME, AE, and home modification implementation, while performance was included through questions asking more specifically about what vendors and equipment or modifications they often recommend. A similar survey was given at the regional meetings following presentation of the resource as an outcome measure. Scores and responses from before and after the resource presentation were compared to determine its impact and effectiveness.

Needs Assessment Results

The data from the needs assessment questionnaires were analyzed using open coding and organized into themes (Johnson & Christensen, 2014). Through the results of the needs assessment questionnaire regarding DME, AE, and home modifications, four major themes emerged from the answers provided by OT and PT clinicians: (a) The role of OT and PT in DME and home modification intervention is to identify need, educate the client and family, and initiate contact between the client, doctor, and vendor; (b) The knowledge and satisfaction with

knowledge of DME and home modification resources in the community are widely differing among therapists; (c) Certain DME and home modifications are more commonly recommended by therapists; (d) Client finances and vendor timeliness are the most common barriers to providing effective and efficient services.

To begin, the first theme identified through the needs assessment was the role of OT and PT in DME and home modification intervention is to identify need, educate the client and family on recommendations and use of DME, and initiate contact between the client, doctor, and vendor. One therapist responded that their role was "to make not only the recommendations, but also to help patients obtain them, provide resources, options, and also placement of the items in the home" (Lines 38-39). Another stated that she is the "first contact of information for most patients; [an] important first step in getting the ball rolling for their needs as well as for safety" (Lines 34-35). Consistent with these answers, Stark et al. (2018) described the role of OT in home modification intervention to consist of an assessment of clients' home and abilities, identification of occupational problems and environmental barriers, collaboration with client and family to determine goals and selection of equipment or modifications, and practice with the client on use of new equipment or modifications. While research shows the role of OT within identifying, recommending, educating, and training in the use of equipment and home modifications, there is a lack of research on the communication involved. The lack of research on the process of communication between the client, therapist, doctor, and vendor further demonstrates the need for education and resources to aid therapists in guiding this process and communication between all parties involved.

The second theme that emerged from the needs assessment was the knowledge and satisfaction with knowledge of DME, AE, and home modification resources within the

community are widely differing among therapists. When asked to self-rate their knowledge of DME, AE, and home modification resources in the community from one to 10, with one being the lowest and 10 the highest, responses ranged from two to nine. When asked to self-rate their satisfaction with their knowledge, responses ranged from one to 10. Varying competence is not limited to this home health agency, as research by DuBroc and Davel Pickens (2015) found therapists with at least two years of clinical experience ranged from advanced beginner to expert when recommending and implementing DME and home modifications. These responses show an inconsistency in knowledge and satisfaction regarding equipment and home modification resources among OT and PT clinicians in this home health setting, further demonstrating the need for additional available resources to decrease this difference.

Thirdly, certain DME and home modifications are more commonly recommended by therapists. The most commonly recommended equipment and home modifications by the therapists who participated in the survey were the use of grab bars, bathroom equipment including tub transfer benches and shower chairs, and use of mobility devices including walkers, rollators, manual wheelchairs, and power wheelchairs. Grab bars were mentioned in 15 surveys, bathroom equipment in 10, and mobility devices in 13 of the 22 surveys turned in by practicing OT and PT clinicians. The equipment and modifications recommended most are consistent with the 2012 study by Currin et al., who found grab bars, specifically in the shower, were the most commonly recommended modification, with shower chairs and tub transfer benches as the second most common. Both the results from the needs assessment and study by Currin et al. (2015) demonstrate the need for the resource being developed to include information of how to obtain certain DME, AE, and modification services, especially those involving grabs bars, the bathroom environment, and mobility devices.

The fourth theme that emerged from the needs assessment was that client finances and vendor timeliness are the most common barriers to providing effective and efficient services. When asked about barriers to providing effective treatment, one therapist wrote, “Cost of equipment or modifications as most patients I see are on fixed incomes” (Line 195). Another therapist commented that she struggles with “timely approval and delivery of equipment; I currently spend much time checking up on statuses and find many instances of lost paperwork or faxes not received” (Lines 202-204). These factors are directly and negatively impacting the therapists’ performance in work participation, as well as impacting the client's ability to be safe and independent in the home during desired occupations. This is consistent with the 2015 study by Stark et al., which found financial resources of the client to be an extrinsic factor therapists should always consider when recommending equipment and modifications. Stark et al. further stated that a therapist should always consider the client’s realistic ability to implement recommendations due to finances, as recommending equipment and modifications outside of the client’s means could damage any rapport previously built (2015). Considering this information, the resource developed for therapists had a variety of equipment and modifications with varying prices, and prices were listed within the resource when vendors were willing to provide that information.

Comparison to Additional Area of Practice

Therapists’ perception of the environment in which they work and its impact on intervention has been studied outside of the home health setting. In 2015, Skubik-Peplaski, Howell, Hunter, and Harrison studied occupational therapists in an inpatient stroke rehabilitation unit to determine their perceptions of the work environment and how that influences their practice. Focus groups and interviews were conducted with the therapists (Skubik-Peplaski et al,

2015). While the methodology was different than that used in the DCE project, the goal of better understanding the individual therapists' viewpoint and current practice habits in relation to their environment was similar (Skubik-Peplaski et al, 2015). Similar to the results of the needs assessment surveys, themes arose from the interviews and focus groups (Skubik-Peplaski et al, 2015). Skubik-Peplaski et al stated, "Three themes emerged that revealed therapists' habits influenced their clinical reasoning; the environment influenced intervention choices; and therapists felt safer treating in the gym environment" (2015 p. 250). The first two themes related to answers found in the needs assessment of the DCE, as home health therapists also wrote about how familiarity with vendors and resources available within their work environment influence their practice. Both the DCE project in the home health setting and the study conducted in the inpatient stroke rehabilitation unit sought to find how the environment, including resources available, in which therapists worked influenced their practice and interventions (Skubik-Peplaski et al, 2015). These findings could then be used to improve the work environment, allowing therapists in both settings to provide more efficient and effective care.

Implementation

Resource Development

Implementation of the DCE project following the needs assessment involved four main components: meeting with DME, AE, and home modification vendors, observing home health OT and PT clinicians during DME evaluation sessions, creating the centralized resource, and presenting the resource to Community Home Health staff. Beginning the second week of the capstone experience, meetings with vendors were scheduled by the DCE student through phone and email contact. Meetings with individual representatives from vendor companies were either conducted in-person or over the phone, depending on representative availability. Questions for

vendors (See Appendix B) were created after gaining an understanding of the needs assessment results, and were approved by the DCE site mentor. The questions were used to guide the meeting conversation and ensure relevant information was gathered regarding payment sources, order process and timeline, delivery methods, and communication methods for each vendor.

Throughout the first eight weeks of the capstone experience, the DCE student observed home health therapists during DME evaluation sessions to gain further insight into barriers home health therapists face regarding equipment and home modifications, the process of obtaining the services, as well as the documentation required to ensure insurance coverage. Six OT and PT clinicians provided the DCE student with the opportunity to observe a total of 16 sessions as well as review patients' charts to understand the necessary components of evaluation documentation. Observing these sessions also allowed the DCE student to network and build rapport with vendor representatives and discover additional community resources to include in the online, centralized DME, AE, and home modification resource.

The resource took approximately three weeks to create, with additional vendors added and changes made following feedback from therapists and managers after the tool was presented. The resource was created using Google Sheets and Google Docs, designed to be easy to use and access, as all therapists were able to view the resource with internet access. The Google Sheet was organized with five tabs: Introduction, DME, AE, Home Modifications, and Vendors. The DME, AE, and Home Modifications tabs were further organized by piece of equipment or service, including information about the vendors that provide them, if the vendors accept insurance, and approximate before-insurance pricing. The Introduction tab provided instructions on how to navigate the resource, while the Vendor tab provided a full list of vendors with additional information about if the vendor accepts insurance and contact numbers. Each time a

vendor was listed, the company name was a link connecting the therapists to a vendor-specific Google Docs page, with information regarding payment sources, order process and timeline, delivery methods, and preferred communication methods for each vendor that was gathered during meetings.

Presentation of the resource took place at five different meetings: one all-therapy meeting for OT and PT clinicians, and four regional team meetings for OT, PT, SLP, and nursing disciplines. The DCE student explained the purpose of the DCE project and instructed the staff on how to access and navigate the resource. Case study examples were also included so the DCE student could demonstrate how to use the resource in multiple practical scenarios. At these presentations, post-presentation surveys (See Appendix C) were passed out to be completed by each staff member to provide feedback on satisfaction with, and effectiveness, of the resource. Questions from the needs assessment regarding current knowledge of DME, AE, and home modification resources, satisfaction with current knowledge, and ideas on additional barriers were used again for comparison, while questions regarding satisfaction with the resource and recommendations for improvement were added.

Staff Development and Leadership

By increasing therapists' knowledge of available DME, AE, and home modification services throughout the community, the centralized resource and presentation directly resulted in staff development. Providing this information better enabled therapists to aid their clients by easing their workload while increasing the safety, independence, and quality of life of clients. As evidenced by the needs assessment results, therapists' knowledge and satisfaction of knowledge on available services varied greatly. Through implementation of this resource, Community management and the DCE student sought to decrease this variance by increasing

overall knowledge. The resource will be updated by staff after the DCE student leaves and will also be immediately available for new hires, so that professional development will continue for all current and future therapists.

Leadership is "a process of creating structural change wherein the values, vision, and ethics of individuals are integrated into the culture and community as a means of achieving sustainable change" (Braveman, 2016, p. 4). The idea of creating a positive, sustainable change to better allow therapists to carry out Community's vision and mission was the overall goal of the resource. Taking on a project of this magnitude was an example of leadership in itself, as many therapists and managers had attempted to independently create a resource without success. However, to complete the project, the DCE student demonstrated multiple traits of an effective leader, including initiative, persistence, sociability, and self-confidence (Braveman, 2016).

The DCE student demonstrated initiative and persistence while scheduling and meeting with vendor representatives and acquiring vendor information. These skills were necessary when contacting vendors, particularly when vendors did not immediately return calls. Without initiative and persistence, the resource created would have been much less comprehensive, with fewer vendors included. Next, the DCE student demonstrated sociability when interacting with vendor representative and therapists, ensuring all were comfortable with participating in the capstone experience and ultimately contributing to the resource. Being able to connect with vendor representatives in a positive manner resulted in these individuals being more willing to provide additional information, including management contact information and equipment ordering forms. Lastly, self-confidence was crucial during the presentation of the resource to staff. By reviewing the resource multiple times, creating a variety of scenarios, using the resource to walk through the scenarios, and rehearsing the presentation, the DCE student was

prepared for not only the presentation itself, but also the questions and concerns following the presentation. Ultimately, by exhibiting these traits associated with an effective leader, the DCE student was able to successfully create and present a centralized resource to increase the effectiveness and efficiency of DME, AE, and home modifications interventions implemented by OT and PT clinicians at Community Home Health Services.

Outcomes and Discontinuation

Outcomes

Following the large all-therapy and regional team meetings during which the online resource was presented, surveys were completed by those in attendance. The survey was in a similar format to the needs assessment, but this time with seven self-developed questions. In addition to OT and PT clinicians, nurses, speech language pathologists, and social workers attended the regional team meetings. All were asked to fill out the survey to provide the DCE student and site mentor with as much feedback as possible; however, only surveys completed by OT and PT clinicians were used for comparison to the results of the needs assessment. Surveys were returned by 37 OTs and PTs, a sample size of approximately 35% of all Community Home Health OTs and PTs. Similar to the needs assessment, the sample size was large enough for the site mentor and DCE student to conclude the results could be generalized for the OT and PT population at Community Home Health Services. As done previously, the results of these surveys were organized into themes after being analyzed using open coding (Johnson & Christensen, 2014). Four themes emerged from the data: (a) therapists' self-reported rating on a scale of 1-10 on knowledge of DME, AE, and home modification vendors in the community, as well as satisfaction with that knowledge, increased following the presentation of the online resource; (b) therapists overwhelmingly reported being "very satisfied" with the resource in

terms of vendors included and types of equipment and modifications included; (c) therapists value and identify the potential positive impact this resource can have on streamlining the process of obtaining DME, AE, and home modifications; (d) additional barriers therapists commonly mentioned included a lack of information on insurance requirements as well as issues with Community's in-house DME provider.

The first theme identified through the post-presentation survey results was therapists' self-reported rating on a scale of 1-10 on knowledge of DME, AE, and home modification vendors in the community, as well as satisfaction with that knowledge, increased following the presentation of the online resource. Two questions, "On a scale of 1-10 (1 being the lowest and 10 being the highest) how would you rate your current knowledge regarding available home modification, AE, and DME resources," and "On a scale of 1-10 (1 being the lowest and 10 being the highest) how satisfied are you with the above answer" were used in both surveys to allow for direct comparison. The average rating on the knowledge of home modification, AE, and DME resources increased from a 6 at the needs assessment to an 8.15 at after the presentation, while satisfaction with knowledge increased from a 5.5 at the Needs Assessment to an 8.88 after the presentation. These changes in self-rated scores showed a significant positive impact, demonstrating the effectiveness of the resource and presentation.

Next, the second theme identified was that therapists overwhelmingly reported being "very satisfied" with the resource in terms of vendors included and types of equipment and modifications included. All but one therapist stated they were "very satisfied" with the resource, with comments such as "Awesome" and "This is great and will be a useful tool" included. The one therapist did not rate her satisfaction, but instead wrote of her concerns, saying, "I tried several different ways to pull the resource up and was unable," and "I am far from tech savvy so

I would need to be able to access the information easily." These comments and concerns, which were provided after the first presentation at the all-therapy meeting, were taken seriously and adjustments were made for the following presentations. Instructions for how to open the resource, as well as how to save the resource as a "favorite" on the desktop, were sent to all therapists and managers by the site mentor. At the following presentations, both the DCE student and site mentor circulated the room and assisted therapists in navigating the resource when asked.

Thirdly, the next theme identified was that therapists value and identify the potential positive impact this resource can have on streamlining the process of obtaining DME, AE, and home modifications. Many positive comments were shared when asked how this resource will benefit the therapists and their clients in the future. One therapist wrote that they will now "be able to access information easier and understand [insurance] coverage." Another stated the resource allows for a "streamlined resource list, enhanced time management, [and] improved patient and caregiver education."

The final theme identified was additional barriers therapists commonly mentioned included a lack of information on insurance requirements as well as issues with Community's in-house DME provider. Questions about additional perceived barriers to care were included in both the needs assessment and post-presentation survey to better understand areas in which Community Home Health Services could continue to improve. Understanding insurance coverage of equipment was stated multiple times following the first presentation, so at the following meetings an emphasis was placed on showing staff a Medicare screening and guideline reference, so that they could search for a piece of equipment and immediately find the Medicare requirements for the equipment to be covered under Medicare part B. While this does not

answer all questions about insurance coverage, the hope was that the reference could help with many questions considering the majority of Community Home Health Services patients are insured through Medicare. Concerns and frustrations with Community Home Medical Equipment, Community Health Network's in-house DME supplier, were also voiced, leading to the DCE student's opinion that additional communication between the vendor and therapists should be initiated or even another DCE student could focus a project on enhancing communication and effectiveness of the vendor.

Discontinuation

By providing Community Home Health Services and its therapists with a centralized resource including information on DME, AE, and home modification vendors in the area, along with additional resources regarding Medicare and Medicaid coverage, the basics of mobility devices, and documentation requirements for orders, this DCE project has directly met the organization's needs. The organization's management identified it was struggling to meet the needs of its patients, as 87% of individuals over the age of 65 wanting to remain in their homes as they age (American Association of Retired Persons, 2014). With more and more older adults wishing to stay in the home, there was an increased need to modify the home environment to prevent falls, increase independence, and maintain overall safety for those older adults. However, with insufficient and inconsistent information provided to therapists on how to best recommend equipment and modifications to patients, implementation of these modifications or equipment was being delayed or not occurring. Increased knowledge and satisfaction with the resource as seen through the post-presentation surveys demonstrated the effectiveness of the resource and the positive impact having this information had as therapists are able to more effectively and efficiently ensure the safety and independence of their patients.

To ensure the positive impact on Community Home Health Services' need for a centralized resource on DME, AE, and home modification vendors in Central Indiana, a discontinuation plan was put in place. To ensure sustainability, the resource was made in an electronic format that will always be available to therapists as long as they have the link, which was provided to them via email and was placed on their shared documents drive. Management requested a "view-only" format, so that changes could not accidentally be made. The site mentor as well as another therapy team manager were made contributors to the resource, so that they may make changes in the future or add additional contributors to update the resource. The DCE student and therapy managers had talked about how updating the resource would be good mini-projects for students, especially level 2 fieldwork students. A student would potentially contact a couple of vendors during their fieldwork to verify information was still current and make changes as needed. This way, students could gain experience in networking with community vendors as well as DME, AE, and home modifications, all while Community Home Health gets to maintain an updated resource.

Overall Learning

Goal Completion

Throughout the DCE, there were five goals with corresponding objectives the DCE student sought to obtain. To successfully complete these five goals, effective communication by verbal, nonverbal, and written means with managers, clinicians, and vendor representatives was crucial. The first goal was to determine the role of OT in finding and providing DME, AE, and resources for home modifications. This was done through searching current evidence-based literature for OT's role in implementing DME, AE, and home modifications into treatment plans, as well as using survey questionnaires as a means of completing the needs assessment.

Literature allowed for understanding of the role of OT in this setting nationally and internationally, while the surveys allowed for understanding of the role of OT and PT within this specific home health agency.

The second goal was to develop a tool for current therapists regarding resources in the community that provide DME, AE, and home modifications. This was completed by exploring the resources Community Home Health Services had when the project began to determine what was beneficial and what could be enhanced. Through verbal and electronic communication with managers and therapists, it was determined that only a small sheet with less than five equipment vendors existed at that time, so information on additional vendors in an easy to access format was needed.

The next goal for the DCE project was to increase interdisciplinary understanding of OT's role in DME and AE use and home modifications. This was done by the DCE student observing home modification focused and DME evaluation sessions with Community Home Health therapists. This allowed the DCE student to increase her own understanding of OT's role so she could better explain this role to other disciplines. This goal was further achieved by providing additional presentations of the resource so all disciplines involved in home care, including nursing, social work, and speech language pathology could have visual and verbal instruction.

The fourth goal for the DCE project was to present the DME, AE, and home modification resource to current OT and PT clinicians during an in-service session. To gain an understanding of how meeting sessions occurred, the DCE student attended multiple therapy meetings and observed how information was commonly presented. The resource was ultimately presented at an all-therapy meeting where the student provided information on her project purpose and

demonstrated how to navigate the resource. Questions were answered throughout the session and the DCE student and site mentor provided assistance as appropriate.

Lastly, the final goal of the project was to determine additional barriers impacting therapist job performance, including possible suggestions for improvement. This was competed through the Needs Assessment and post-presentation questionnaires. Written communication from the surveys showed frustration with Community Health Network's inhouse DME supply as well as understanding insurance requirements. Suggestions for improvement including additional DCE students in the future were provided to the site mentor.

Leadership and Advocacy

As stated previously, the DCE student demonstrated multiple traits of an effective leader, including initiative, persistence, sociability, and self-confidence throughout the DCE (Braveman, 2016). Demonstrating these traits while meeting with vendor representatives, therapists, and those in management allowed for effective and professional written, oral, and nonverbal interactions, ultimately resulting in completion of the resource. Despite successful interactions, advocacy during the DCE was crucial when meeting with vendors as well as clinicians. The DCE student advocated for the online resource when reaching out to vendors, including when some criticized or questioned its necessity. For example, a few vendor representatives questioned why Community Home Health therapists would want information from vendors other than Community Health Network's inhouse DME provider. Another vendor questioned the DCE student's understanding of DME and her qualifications to be completing the project. However, the DCE student was able to verbally advocate for herself, the project, as well as the therapists and clients of Community Home Health Services. The DCE student explained her qualifications, including the completion of two Level 2 fieldworks prior to beginning her DCE. The DCE

student also advocated for the necessity of the project in order to ensure therapists, and more importantly, clients would be able to receive crucial information on area vendors, providing them with the freedom to choose who they would work with. Ultimately, vendor representatives understood the necessity for therapists to have information regarding insurances accepted, average timelines, and the process of working with their company so patients can receive the most client-centered care possible.

Conclusion

As a result of this DCE project, Community Home Health Services' OT and PT clinicians now have a centralized, online resource which provides information on available DME, AE, and home modification vendors throughout central Indiana. The DCE student successfully completed all of her goals for the project as well as gained valuable leadership, advocacy, and other professional skills. After comparing the results of the needs assessment and post-presentation surveys as well as after receiving verbal feedback during presentation sessions, it was determined by the DCE student and site mentor that the resource had a significant positive impact by decreasing the workload of therapists while being used to increase the safety and independence of patients. The resource will be continued through editing from two managers and possibly from future fieldwork students when the managers deem appropriate. All home health agencies should carefully consider the barriers clinicians face regarding implementation of DME, AE, and home modification interventions as well as the potential impact of providing clinicians with resources on available services in their communities.

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Appendix A

Needs Assessment Questionnaire: *Home Modifications and Durable Medical Equipment in the Home Health Setting: Decreasing Barriers in Providing Effective and Efficient Interdisciplinary Care*

Name_____ Discipline _____

1. On a scale of 1-10 (1 being the lowest and 10 being the highest) how would you rate your current knowledge regarding available home modification and durable medical equipment resources in the community?

2. On a scale of 1-10 (1 being the lowest and 10 being the highest) how satisfied are you with the above answer?

3. What do you feel your role is in situations involving DME or home modifications and how does that differ from other disciplines?

4. What DME and home modifications do you most commonly implement with clients?
    a. DME:
    b. Home modifications:

5. Which companies do you most commonly use for:
    a. DME:
    b. Home modifications:

6. What information regarding DME, home modifications, and vendors would you like to learn more about?

7. What do you feel are barriers to providing effective treatment for patients requiring DME or modifications to the home?

8. How would you decrease the negative impacts of these barriers?

9.What additional barriers (not related to DME/home modifications) do you encounter that prevent you from providing the most beneficial client-centered care?

10. How would you decrease the negative impacts of these barriers?

Appendix B

DME/ Home Modifications Vendor Questions: *Home Modifications and Durable Medical Equipment in the Home Health Setting: Decreasing Barriers in Providing Effective and Efficient Interdisciplinary Care*

1. Are you enrolled and participating in Medicare?
2. What other insurance/ payment sources do you take?
3. What areas/regions of the state do you cover?
4. Describe the overall process from the beginning: ordering through delivery
    a. What steps do the therapists/ clients take?
b. How does one order – online, come into store, home visits, etc.
5. How do you communicate where you are in the process with clients, therapists, etc?
6. How does delivery occur?
    a. Certain days
    b. Certain areas
    c. Certain equipment of size of order necessary
7. What is the average timeline to complete orders?
8. How has the end of competitive bidding impacted you?
    a. Offer any incentives or discounts?
    b. What do you have to offer that is different than other vendors?
9. List of relevant DME and pricing
    a. Hospital beds
    b. Walkers – standard, rolling, rollator
    c. Wheelchair
    d. Power wheelchair
    e. Canes – single point and quad
    f. Wheelchair cushions
    g. Lift chairs
    h. Bed rails
    i. Toilet safety frame
    j. Raised toilet seat
    k. Shower chairs
    l. Tub transfer bench
    m. Grab bars
    n. Hand held shower heads
    o. Bedside commodes
10. What are the criteria/insurance justification parameters for these pieces of equipment?
11. What challenges or barriers do you face that clients/therapists should understand?
12. Vendor contact info for a specific person to talk to if there are issues

Home Modifications Vendor Questions: *Home Modifications and Durable Medical Equipment in the Home Health Setting: Decreasing Barriers in Providing Effective and Efficient Interdisciplinary Care*

1. Describe the overall process from the beginning: ordering through delivery
    a. What steps do the therapists/ clients take?
    b. How does one order – online, come into store, home visits, etc.
2. What areas/regions of the state do you cover?
3. What is the average timeline to complete orders?
4. How do you communicate where you are in the process with clients, therapists, etc?
5. Are there any payment sources other than out of pocket that you accept?
6. Do you allow payment/financing plans?
7. What do you have to offer that is different than other vendors?
8. List of relevant services and prices – understand will be different from home to home
    a. Home assessment
    b. Stair lifts
    c. Roll in shower
    d. Walk in tub
    e. Grab bars
    f. Hand held shower head
    g. W/C ramp
    h. W/C lift
    i. Patient lifts
        i. Single rail
        ii. Traverse rail
        iii. Room to room
        iv. Free standing hoist
9. If there needed to be repairs, how does that work? Is anything under warranty, are there fees, or is it just totally dependent on the situation?
10. What challenges or barriers do you face that clients/therapists should understand?
11. Vendor contact info for a specific person to talk to if there are issues

Appendix C

Post-Presentation Questionnaire: *Durable Medical Equipment, Adaptive Equipment, and Home Modifications in the Home Health Setting: Decreasing Barriers in Providing Effective and Efficient Interdisciplinary Care*

Name_____ Discipline _____

1. On a scale of 1-10 (1 being the lowest and 10 being the highest) how would you rate your current knowledge regarding available home modification, AE, and DME resources after this presentation?

2. On a scale of 1-10 (1 being the lowest and 10 being the highest) how satisfied are you with the above answer?

3. How satisfied were you with the information provided in this resource in terms of vendors and the process of working with them?

    1. Very satisfied
    2. Satisfied, but improvements needed
    3. Not satisfied

How could this be improved? _____

4. How satisfied were you with the information provided in this resource in terms of types of equipment and home modifications?

    1. Very satisfied
    2. Satisfied, but improvements needed
    3. Not satisfied

How could this be improved? _____

5. How do you think this resource will benefit you and your patients in the future?

6. What additional barriers (not related to DME/AE/home modifications) do you encounter that prevent you from providing the most beneficial client-centered care?

7. How could Community decrease the negative impacts of these barriers?