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Exploring the Role of Occupational Therapy in a Collaborative Care Program for Older Adults
with Cognitive Impairment

Kiersten Ham, OTS

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Under the direction of the faculty capstone advisor:

Julie Bednarski, OTD, MHS, OTR

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By

Kiersten Ham

OTS

Approved by:

Faculty Capstone Advisor

Date

Doctoral Capstone Coordinator

Date

Accepted on this date by the Chair of the School of Occupational Therapy:

Chair, School of Occupational Therapy

Date

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University of Indianapolis

Abstract

The proportion of adults aged 65 and older in the United States is steadily rising as the baby boomer population continues to age (Alzheimer's Association, 2017). Given the prevalence of older adults with neurocognitive disorders, it is an international research priority to identify effective treatments to prevent, significantly delay progression, or positively intervene throughout the course of the disease (Posner et al., 2017). Rehabilitation professionals have the opportunity to target brain health through the reduction of modifiable risk factors. In an attempt to respond to this need, the role of occupational therapy in a collaborative care program targeting brain health in older adults with cognitive impairment was explored. Therapy services were not incorporated into the Aging Brain Care (ABC) program prior to the Doctoral Capstone Experience (DCE). Through advocacy, education, and interdisciplinary collaboration, 22 patients were referred to occupational and physical therapy. The referrals served as the outcome measure for the DCE. The gap between the outpatient therapy clinic and the ABC program was bridged. The aims of this paper were (1) to investigate the role of occupational therapy for older adults with cognitive impairment and (2) to describe the role of occupational therapy in a well-established brain care program.

Exploring the Role of Occupational Therapy in a Collaborative Care Program for Older Adults
with Cognitive Impairment

Background

The proportion of adults aged 65 and older in the United States is steadily rising as the baby boomer population continues to age (Alzheimer's Association, 2017). By 2050, the number of Americans age 65 and older is projected to nearly double, rising from 48 million to 88 million. The prevalence of neurocognitive disorders (NCDs) drastically increases with age (Hugo & Ganguli, 2014). Therefore, as the aging population grows, the prevalence of cognitive impairment and other dementias is expected to rise (Hugo & Ganguli, 2014). According to the Alzheimer's Association (2017), there were approximately 110,000 individuals age 65 and up living with Alzheimer's in Indiana in 2017. This number is expected to rise to 130,000 by 2025 (Alzheimer's Association, 2017). Given the prevalence of cognitive impairment and other dementias, "the search for effective treatments to prevent its onset, significantly delay its progression, or otherwise positively intervene in the disease course is an international research priority" (Posner et al., 2017, p. 22-23).

As people age, some degree of cognitive slowing can be typical (Hugo & Ganguli, 2014). Therefore, clinicians must determine (1) when cognitive changes are clinically significant, and (2) the underlying etiology of the cognitive decline (Hugo & Ganguli, 2014). Clinicians and researchers work diligently to increase the efficiency of diagnostic methods and criteria for NCDs. The fifth edition of the *American Psychiatric Association's Diagnostic and Statistical Manual (DSM-5)* provides the most recent diagnostic criteria for NCDs. The terms are described in greater detail in Appendix A (American Psychiatric Association [APA], 2013). In the DSM-5, *Mild Neurocognitive Disorder* (Mild NCD) has replaced the term Mild Cognitive Impairment

(MCI), from the fourth edition of the DSM (DSM-IV) (APA, 2013). When discussing previous research throughout this paper, these terms will be used interchangeably to correlate to their respective study. Additionally, in the DSM-5, the term *Major Neurocognitive Disorder* (Major NCD) has replaced the term dementia, from the DSM-IV (APA, 2013). These terms will also be used interchangeably throughout this paper to correlate with their respective studies.

Attention, memory, planning, problem solving, self-monitoring, and self-awareness are all components of an individual's cognition (Giles, 2017). Functional cognition is the utilization of these cognitive skills to complete self-care and community living skills. Cognitive impairment can be a result of human genetics, mental illness, transient or continuing life stresses or changes, or neurologic disease, injuries, and disorders (Giles, 2017). The cause of the cognitive impairment can determine if cognition will return to normal, maintain its current state, or progress into Alzheimer's or other dementias (Alzheimer's Association, 2017).

Occupational therapy (OT) plays a vital role in the lives of individuals with cognitive impairment beyond normal aging. "Occupational therapy practitioners focus their interventions on the relationship between the client's cognitive skills, functional performance, and environmental context to enhance the daily life experience of individuals with cognitive impairment," (Giles, 2017, p.1). By addressing deficits in functional cognition, OT can promote safety and independence required to age in place, increase quality of life, and decrease caregiver burden (Giles, 2017; Smallfield, 2017). The purpose of this literature review was to identify occupational therapy's role for individuals with cognitive impairment and mood disorders, by synthesizing evidence-based research.

Mild Neurocognitive Disorder/Mild Cognitive Impairment

Mild cognitive impairment has been developed as a term for individuals who are experiencing cognitive changes but do not meet the definition of dementia, either clinically or functionally (Maskill, 2017). Mild cognitive impairment is divided into two subtypes: amnesic (aMCI) and non-amnesic (naMCI) (Csukly et al., 2016; Jekel et al., 2015). According to Jekel et al. (2015), individuals with aMCI are at a higher risk for developing Alzheimer's disease, and individuals with naMCI are at a higher risk for developing non-Alzheimer's dementia, such as Lewy body dementia. It is possible for MCI to revert to normal cognition or remain stable, such as when the cognitive impairment is being caused by medications or mood disorders (Alzheimer's Association, 2017). However, individuals with MCI are more likely to develop Alzheimer's or other dementias. Approximately 15 to 20 percent of older adults have MCI (Alzheimer's Association, 2017).

Major Neurocognitive Disorder/Dementia

Dementia can result from a number of causes such as Alzheimer's disease, vascular dementia, dementia with Lewy bodies (DLB), mixed dementia, frontotemporal lobar degeneration (FTLD), Parkinson's disease, Creutzfeldt-Jakob disease, and normal pressure hydrocephalus (Alzheimer's Association, 2017). Dementia often impacts an individual's ability to perform everyday activities due to difficulty with memory, language, and problem-solving skills (Alzheimer's Association, 2017).

Alzheimer's Disease

Dementia caused by Alzheimer's disease, also known as Alzheimer's dementia, is a degenerative brain disease and is the most common cause of dementia (Alzheimer's Association, 2017). Alzheimer's disease commonly begins by damaging the neurons in the brain required for

cognitive function. As the disease progresses, it destroys other parts of the brain required to perform basic bodily functions, ultimately resulting in death (Alzheimer's Association, 2017).

According to the Alzheimer's Association (2017), approximately 5.5 million Americans are living with Alzheimer's dementia. Out of those 5.5 million Americans, it is estimated that 5.3 million are age 65 and older, equating to one in ten American's age 65 and older living with Alzheimer's dementia (Alzheimer's Association, 2017). This number is expected to rise to 7.1 million by 2025, nearly a 35 percent increase (Alzheimer's Association, 2017).

Occupational Therapy Intervention for Cognitive Impairment

A variety of studies have examined the effectiveness of treatment for individuals with cognitive impairment. Individuals with cognitive impairment will encounter difficulty with occupation and performance patterns (Atchison & Dirette, 2012). Dawson, Judge, and Gerhart (2017) found that individuals with cognitive impairment can experience improvement in balance, lower extremity strength, and fast gait speed by participating in a moderate-intensity functional exercise program. Although improvements were noted in these areas, there were no improvements noted in cognition. This may indicate that improving functional activity may be beneficial with or without the improvement of cognitive function (Dawson et al., 2017).

Interdisciplinary Approach

Researchers have examined the effectiveness of numerous pharmacological interventions for slowing or reversing cognitive decline, however evidence suggests that these interventions have not altered functional outcomes or the progression to dementia (Rodakowski, Saghafi, Butters, & Skidmore, 2015). Therefore, the need to identify non-pharmacological interventions has increased. In addition, non-pharmacological interventions may be preferred, due to the adverse side effects and risks associated with pharmacological interventions (Rodakowski et al.,

2015).

Rodakowski, Saghafi, Butters, and Skidmore (2015) examined the science related to non-pharmacological interventions designed to slow decline in older adults with MCI or early-stage dementia by reviewing 32 randomized controlled trials (RCT). Within the 32 RCT reviewed, interventions included cognitive training (remediation or compensation approaches), physical exercise, or psychotherapeutic interventions (Rodakowski et al., 2015).

Through the review of literature for interventions for older adults in early stages of cognitive decline, Rodakowski et al. (2015) identified several findings for future interventions and research. Previous research on remediation and aerobic exercise interventions produced mixed findings. However, cognitive training focused on compensatory strategies and psychotherapy showed positive implications for intervention to address cognitive changes and impact the lives of older adults in early stages of cognitive decline (Rodakowski et al., 2015). Rodakowski et al. (2015) also found the benefits of synergistic pharmacological and non-pharmacological interventions were more effective than either intervention individually.

Summary of Literature

This literature review was conducted to gain an understanding of the role of OT for older adults with cognitive impairment beyond that of normal aging. As the baby boomer generation continues to age, the number of Americans with NCDs is expected to rise, following the population's shift to older ages (Alzheimer's Association, 2017). Previous studies have produced mixed results on effective treatments for cognitive decline in older adults; However, evidence suggests "that combination therapies can be significantly more effective than medication or non-pharmacological therapy alone" (Rodakowski et al., 2015, p. 12). More research is needed to

examine the synergistic benefits of pharmacological and non-pharmacological interventions to identify effective treatment for cognitive decline in older adults (Rodakowski et al., 2015).

The Person-Environment-Occupation-Performance Model

The Person-Environment-Occupation-Performance (PEOP) Model is a client-centered approach and can be applied to community-oriented health promotion programs (Cole & Tufano, 2008). The PEOP model examines the person-environment-occupation relationship and defines occupational performance as the outcome (Cole & Tufano, 2008). Individuals with cognitive impairment experience difficulty with the person-environment-occupation relationship, and new challenges are presented as the disease progresses, negatively impacting occupational performance. Occupational therapists can help identify these disruptions in the person-environment-occupation relationship and assist the client in overcoming obstacles. For individuals with cognitive impairment, this model can increase quality of life and promote the ability to age in place for longer.

Aging Brain Care Program

The Doctoral Capstone Experience (DCE) described in this paper took place in an urban public health safety-net hospital serving Indianapolis, IN (Callahan et al., 2017). The DCE was in collaboration with the Aging Brain Care (ABC) program, an innovative collaborative care program designed to provide intensive primary care to community-dwelling individuals with brain care needs; it is considered best-practice primary care because it utilizes a collaborative care approach to brain care tested in a previous clinical trial (Callahan et al., 2017; Callahan et al., 2006). In the previous clinical trial, Callahan et al. (2006) found the collaborative care model resulted in significant improvements in behavioral and psychological symptoms of dementia, as well as increased quality of care and quality of life for the patient-caregiver dyad (Boustani et al.,

2011; Callahan et al., 2017). Information on the research, development, design, protocols, and outcomes associated with the ABC program have been described in greater detail in previous articles (Boustani et al., 2011; Callahan et al., 2017; Callahan et al., 2006; Callahan et al., 2014).

There are currently six ABC physicians. Each physician provides care during a half-day clinic session one time per week. Each clinic is staffed by an ABC collaborative care team consisting of a geriatric psychiatrist or a geriatrician, a registered nurse, a social worker, two or more care coordinator assistants, and a medical assistant. Despite the positive outcomes found by Callahan et al. (2006), the best-practice collaborative care intervention has not slowed the rate of patients' functional decline (Callahan, 2017). Prior to the DCE, the therapy department was not involved in the ABC program. The purpose of this DCE was to explore the role of OT in the collaborative care model focusing on brain health in older adults.

Screening and Evaluation

Needs Assessment

The occupational therapy student (OTS) and site mentor met with the Director of Clinical Operations of the ABC program upon commencement of the DCE. During the meeting, the Director of Clinical Operations voiced concern for a lack of physical and functional assessment components in the neuropsychological evaluations performed for new ABC patients. The Director of Clinical Operations acknowledged that OT and physical therapy (PT) were not involved with the ABC program at that time, suggesting a disconnect between the two services. The OTS attended a half-day clinic session with two out of six ABC physicians each week to determine the role of OT and PT in the ABC program.

The OTS observed a combination of new patient evaluations, family conferences, and return appointments. Although the ABC physicians and clinics follow standardized operating

protocols (Boustani et al., 2011), each clinic, evaluation, and follow-up varied slightly based on the individual needs of the client and the personalization of each physician. The neuropsychological evaluations consistently included a semi-structured interview with a caregiver, an expanded Consortium to Establish a Registry for Alzheimer's Disease (CERAD) neuropsychological battery, brain imaging, blood work, medication review, and a chart review of the medical history (Callahan et al., 2006). The physicians also performed a targeted neurological and cardiovascular physical examination including components such as eye movements, finger taps, respirations, pulse, heart rate, gastrointestinal sounds, cervical range of motion, a brief observation of gait, and informal manual muscle testing of the upper and lower extremity (Callahan et al., 2006). Through these observations, a lack of physical and functional baseline assessments was confirmed. During initial observations, the OTS also identified patients who could benefit from OT or PT, but were not referred, which confirmed the disconnect between the ABC program and therapy referrals. The OTS conducted a survey to obtain the ABC physicians' perspective on the potential role OT and PT could add to the ABC program.

Survey

The primary objective of the survey was to understand supplemental assessments the physicians' would find valuable, as an addition to the neuropsychological evaluation. A secondary objective was to identify potential barriers the ABC physicians faced in obtaining OT or PT referrals for their ABC patients. See Appendix B attached for the content of the survey. Four out of six survey responses were received. See Figure 1 and Table 1 for ABC physician responses to the survey. Responses to question one and two on the survey (see Figure 1 and Table 2) provided support to create an additional physical and functional baseline evaluation and helped guide appropriate assessment tool identification.

Question three on the survey asked, “What challenges have you faced in referring a patient for OT/PT services at Eskenazi Health?” Responses to question three on the survey (see Table 1) emphasized the disconnect between the ABC program and the therapy department. The OTS addressed each of these responses through education, advocacy, and program development, as discussed throughout this paper. Through OTS observations, personal collaboration with ABC collaborative care team members, review of the literature, and the conducted survey, the need for additional physical and functional baseline assessment measures was confirmed.

Rationale

Individuals with MCI have a greater risk of developing Alzheimer’s disease or other dementias than individuals without MCI (Alzheimer’s Association, 2017). For individuals with cognitive impairment, early diagnosis and management of modifiable risk factors is imperative. A previous report concluded that regular physical activity and management of cardiovascular risk factors reduce the risk of cognitive decline and may potentially reduce the risk of dementia (Baumgart et al., 2015). A systematic review concluded that exercise can have a positive effect on the rate of cognitive decline in individuals with Alzheimer’s disease, and attention should be given to this concept in future research (Farina, Rusted, & Tabet, 2014). Therefore, physical function should receive equivalent attention as cognitive function.

Due to the nature of cognitive impairment and the inevitable progression of major NCDs, intermittent intervention is indicated throughout the course of the disease to support the patient-caregiver dyad as they are faced with new challenges (Maskill, 2017). When baseline physical and functional assessments are utilized in conjunction with the current neuropsychological evaluation, the collaborative care team may be able to more effectively measure cognitive or physical decline. If tests show a significant decline in physical function upon reevaluation, OT or

PT intervention may be necessary to promote safety and independence, and increase quality of life. Giles (2017) stated, “Progressive cognitive disorders worsen over time, but with appropriate treatment, clients can often remain independent in self-care and other activities well into the disease process” (p. 2). Occupational therapists can collaborate with the patient and caregiver to establish compensatory strategies, task simplification, and environmental modifications to overcome new barriers and create a supportive environment (Giles, 2017).

Giles (2017) stated, “addressing deficits in functional cognition that enable individuals to participate more fully in self-care, work, leisure, and community activities enhances quality of life while reducing the burden on caregivers and societal resources” (p. 2). Although previous research on interventions that slow or reverse cognitive decline have produced varied results, identifying such interventions could have a significant impact on individual, familial, and societal burden (Rodakowski et al., 2015). “The measure of efficacy of these interventions may best be detected through changes in (or at least maintenance of) cognitive function and impact of these changes on daily living” (Rodakowski et al., 2015, p. 2). Adding physical and functional assessment components to the neuropsychological evaluation does not ensure a change, but it will provide a more holistic view of the patients’ baseline, which could aid in identifying future deficits and appropriate interventions.

Compare and Contrast OT Process

The physical and functional baseline evaluations were performed by an occupational and a physical therapist in the outpatient clinic. Therapists in the outpatient clinic utilize a variety of assessment tools based on the individual needs of the clients. The OT process in the outpatient clinic most commonly includes a physician referral, evaluation, plan of care, intervention, and discharge. The OT process for the baseline evaluations for ABC patients varied greatly compared

to the traditional evaluations completed in the outpatient clinic. When a patient was referred from the ABC program for baseline testing, the initial objective was to provide evaluation only. The evaluation was intended to provide baseline information to aid in a more holistic view of the patient, allow for reevaluation as needed to identify decline in function, and provide intervention as necessary. However, if a current need was identified, the therapists had the opportunity to provide intervention immediately following the baseline assessment to address current needs.

At this site, patients are typically required to call the outpatient therapy clinic to schedule their own appointments. In response to question three on the survey, one physician stated “Largest obstacle was the requirement for the patient to make the appointment.” At this site, if the patient is considered to be part of a vulnerable population, the outpatient therapy director will call the patient to set up their appointment. The outpatient therapy director confirmed that ABC patients are considered vulnerable due to their cognitive impairment. As a solution, the outpatient therapy director will screen referrals weekly, identify ABC referrals, and call the patients to set up their appointment. The OTS informed ABC team members of this change.

Baseline Evaluation Assessment Tool Identification

A lack of physical and functional baseline assessment measures was identified, as explained in the previous sections of this paper. Question one of the survey, asked ABC physicians to select components of assessments they would find valuable as an addition to the neuropsychological evaluation. See Appendix B for question one answer choices. Physician responses to question one can be found in Figure 1. In question two of the survey, ABC physicians were provided an open-ended format to state additional assessment components they would find valuable, that were not included in the first question on the survey (see Appendix B). Physician responses to question one can be found in Table 1. Feedback from the first and second

question on the survey were used to guide supplemental assessment tool identification for the physical and functional baseline evaluations.

The OTS informally met with an ABC physician and the director of the outpatient therapy clinic to guide assessment tool identification. Based on the meetings, the ideal assessment tools would encompass the following qualities: evidence-based, strong psychometric properties, norms for geriatric population, cost-efficient, performance or observation-based, and intended for outpatient-use, evaluation, and reevaluation. During the meeting with the director of the outpatient therapy clinic, the OTS was informed the evaluation would be a combined one-hour OT and PT evaluation. The OTS conducted an extensive search to identify appropriate physical and functional assessment tools that would enhance the existing neuropsychological evaluation, fulfill the one-hour time constraint, and provide the desired qualities previously listed. A list of potential assessment tools was compiled.

The OTS held individual meetings with the occupational therapist and physical therapist who would be completing the baseline evaluations. The objective of these meetings was to provide a brief synopsis of the services and evaluation process in the ABC program, articulate the objectives of the baseline evaluations, discuss the potential assessment tools and their respective qualities and purposes, and collaborate to determine the list of assessments that would be utilized. The OTS referenced the occupational and physical therapists' feedback when determining appropriate assessment tools to be utilized.

The ABC program utilizes an initial informant interview that provides a brief synopsis of the patient's activities of daily living (ADLs) and instrumental activities of daily living (IADLs). There is value in informant-reported measures of functional abilities; however, subjective judgments may be prone to error and response bias (Harvey et al., 2017). Performance-based

functional assessments are valuable due to the “immediate clinical relevance as a direct measure of functioning and not a distal measure such as a word list recall” (Harvey et al., 2017, p. 34).

Leadership Skills to Effective Service Provision

The OTS indirectly provided OT services through advocacy and consultation processes, on behalf of the ABC and its corresponding patients (American Occupational Therapy Association [AOTA], 2014). During initial observations, the OTS identified several patients who could benefit from OT or PT, but were not being referred. This confirmed the Director of Clinical Operation’s concern that there was likely a disconnect between the ABC program and therapy referrals. The third question on the survey asked, “What challenges have you faced in referring a patient for OT/PT services at Eskenazi Health?” One physician answered, “have not tried to refer” and one physician responded, “I know very little about the programs.” This suggested a need for advocacy and education of OT and PT services. The *Occupational Therapy Practice Framework: Domain and Process 3rd Edition* states, “occupational therapy practitioners can indirectly affect the lives of clients through advocacy” (AOTA, 2014, p. S11). The OTS educated the collaborative care team on the role of OT and PT and advocated for the professions and patients throughout the DCE, so current and future ABC patients could receive the appropriate care.

Implementation

The OTS was present in the ABC program for two half-day clinic sessions per week to educate the physicians and collaborative care team members on the objectives of the DCE, advocate for the role of OT and PT, and assist with ABC patient referrals. The OTS assisted in 22 ABC patient referrals for physical and functional baseline testing for the ABC program. The OTS additionally identified opportunities for OT or PT to benefit several patients who were

referred for baseline testing to address present concerns such as chronic pain, physical dysfunction, decreased mobility, and decreased strength. The OTS educated the physicians and collaborative care team members on the role of OT and PT for these deficits, to support their understanding of the OT and PT professions and services available to ABC patients. The noted deficits were addressed in conjunction with the baseline evaluation. The first baseline evaluation occurred on week eleven of the DCE.

Staff Development Through Education and Advocacy

A previous study was conducted through the ABC program to determine whether a home-based OT intervention delivered one time a month over a two year period, in addition to the ABC collaborative care model, would slow the rate of functional decline among older adults with Alzheimer's disease (Callahan et al., 2017). A slow in functional decline among older adults with Alzheimer's disease was not definitively demonstrated (Callahan et al., 2017). Therefore, this DCE project and corresponding survey introducing the role of OT and PT in the ABC program caused hesitation in several ABC physicians. During week eight of the DCE, an ABC physician requested a formal meeting to discuss the role of OT and PT in the ABC program, as an alternative to filling out the brief survey (see Appendix B). Plans to attend the meeting were discussed by the site mentor and ABC Director of Clinical Operations. The OTS was not granted the opportunity to attend the meeting, due to a high volume of discussion topics previously included on the agenda.

The collaborative care team members that the OTS collaborated with also serve on the care team for the other four ABC physicians. Therefore, as an alternative to educating and collaborating with the additional four ABC physicians, the OTS focused her efforts on the two collaborating physicians and the collaborative care team members. The OTS advocated for the

role of OT and PT in the ABC program and educated the collaborative care team members on OT and PT services available to ABC patients. In week 12 of the DCE, the collaborative care team approached the OTS with a case study for an ABC patient from clinic with a different ABC physician. The OTS confirmed the need for OT and PT, educated on the services therapy could provide, and educated the team on the referral process. The collaborative care team members successfully advocated to the ABC physician and referred the patient for OT and PT.

Brain Care Bundle

The neuropsychological evaluation is performed on the initial visit for each new ABC patient. A family conference is held on the second visit, approximately two to four weeks following the initial visit. The family conference includes diagnosis and prognosis disclosure, direct clarification of patient and family questions, individualized self-management training manual, care recipient pharmacological prescriptions, care-recipient non-pharmacological prescriptions, pro-active referrals to community resources, and/or caregiver pharmacological and/or non-pharmacological prescriptions (Boustani et al., 2011). A brain care bundle is included in the training manual, and includes recommendations for brain exercises, physical exercise, socializing, diet, stress, and emotional wellness. Through dissemination of the brain care bundle, the OTS noted a gap in materials pertaining to physical activity, cognitive activity, local resources, and online resources.

The OTS compiled resources to add to the brain care bundle. The compilation was presented to the Director of Clinical Operations on week nine of the DCE. The Director of Clinical Operations gave approval to the OTS to present the resources to the two collaborating ABC physicians. The compilation of additional resources was informally presented to the physicians on week ten of the DCE. The ABC physicians selected two of the resources to utilize;

the first resource (see Appendix C) is a list of general physical activity recommendations and the second resource (see Appendix D) is a list of suggestions for endurance activities and locations. Due to the ABC program's emphasis on research and evidence-based practice, the physicians requested the resources be used as a continuous quality improvement project. Due to time constraints of the DCE, the OTS assisted with this process so the collaborative care team would be able to sustain this continuous quality improvement project. The two resources are being distributed in one ABC clinic. If the ABC team members find the resources to be effective through the continuous quality improvement project, the resources will be distributed as a part of the brain care bundle in all six ABC clinics.

Discontinuation and Outcome

The primary objective of the DCE was to explore the role of OT in the ABC program. Through advocacy, education, and interdisciplinary collaboration, 22 patients were referred to OT and PT. The referrals served as the outcome measure for the DCE. The gap between the outpatient therapy clinic and the ABC program was bridged. Several efforts were made to increase the sustainability of the project and maintain the connection between the two clinics.

The first ABC patient was seen for a physical and functional baseline evaluation during week eleven of the DCE. After the first baseline evaluation, the OTS met with the referring ABC physician and the evaluating physical and occupational therapists. During this time, each interdisciplinary team member was given the opportunity to provide feedback. The OTS reviewed topics such as documentation content and assessment tools utilized. This feedback helped determine changes for future baseline evaluations to promote continuous quality improvement. The continued feedback and subsequent adaptations were essential to ensure the ABC physicians found the information obtained through the baseline evaluations to be valuable,

accessible, and understandable. This was a desired and necessary outcome to promote the sustainability of this project.

Throughout the DCE, the OTS was the primary source of communication between the outpatient therapy clinic and the ABC program. The OTS collaborated with appropriate interdisciplinary team members to identify and implement the most effective form of communication between the outpatient therapy clinic and the ABC program. This was done to help maintain the relationship that was established during the DCE. As previously stated, patients are typically expected to call the outpatient therapy clinic to schedule their therapy appointments. However, due to the vulnerability of this population, the director of the outpatient therapy clinic will scan therapy referrals weekly to identify ABC patients who have been referred for a baseline evaluation. She will then call the ABC patients to set up their appointment. ABC patients will also receive reminder phone calls the day prior to their appointment, in an effort to promote patient buy-in and attendance.

After the first baseline evaluation, a gap in communication between therapy and the ABC program was evident; the ABC physicians were not notified when the OT and PT evaluation had been completed. To minimize potential gaps in future communication, the occupational and physical therapists will send an electronic provider-to-provider note to notify the referring physician of the completed evaluation.

The OTS created a template for both occupational and physical therapy to utilize for baseline evaluations for ABC patients. The template was formatted to meet the desires of the ABC physicians, with an emphasis on information included in the assessment and plan. The template was also designed to include specific recommendations for ABC patients, as well as elaborate descriptions of the purpose of the evaluation and interpretation of outcome measures.

The OTS also included a long list of abbreviations and what they stand for, so the physicians would have a reference for unfamiliar terms. The purpose of the template was to provide the ABC physicians with evaluation documentation that was understandable and valuable, while attempting to minimize the added documentation requirements for the evaluating occupational and physical therapists. The template was created as a result of continuous quality improvement efforts to promote sustainability.

The OTS created two handouts to ease the referral process and support continued interdisciplinary collaboration after the completion of the DCE. The handouts are attached in Appendix E. The first referral process handout outlines the steps the physicians must complete in order to refer an ABC patient to the outpatient therapy clinic for a physical and functional baseline evaluation. Additionally, it outlines the referral process for OT and PT to address existing concerns. The outpatient therapy director's contact information is included in the first handout, so the ABC physicians and collaborative care team members will be able to direct their questions and concerns efficiently. The first handout was intended to serve as a reminder resource for the two collaborating ABC physicians, as well as an educational resource for the four ABC physicians who were not involved in the collaboration of the DCE.

The second referral process handout includes a list of possible reasons a physician could refer a patient to OT or PT. The second handout is intended to be a resource for the ABC physicians to utilize when determining an appropriate plan of care for their patients in the future. Both handouts were posted in the ABC office and shared on the electronic drive to help maintain the connection that had been established between the outpatient therapy clinic and the ABC program.

The OTS facilitated a meeting between the interdisciplinary team members, upon the conclusion of the DCE. The purpose of the meeting was to allow face-to-face collaboration between the outpatient therapy clinic and the ABC program, to increase the relationship that had been established. The meeting also provided an opportunity for pertinent interdisciplinary team members to collaborate and address any questions or concerns they had for each other.

Enabling Occupational Therapy to Respond to Change

There has been an increased focus on exploring cognitive and functional outcome measures that support the clinical trials targeting earlier intervention of individuals with cognitive impairment (Posner et al., 2017). The evaluation of new patients in the ABC program is extensive. However, the evaluation was lacking in physical and functional outcome measures prior to the DCE. Appropriate outcome measures were identified and implemented as a complimentary addition to the neuropsychological evaluation completed for ABC patients.

Given the prevalence of cognitive impairment and other dementias, “the search for effective treatments to prevent its onset, significantly delay its progression, or otherwise positively intervene in the disease course is an international research priority” (Posner et al., 2017, p. 22-23). This has been, and continues to be, one of the primary goals of the ABC program and collaborative care team members. Rehabilitation professionals have the opportunity to target brain health by the reduction of modifiable risk factors through physical activity interventions and lifestyle changes (McGough, Kirk-Sanchez, & Liu-Ambrose, 2017). Through this DCE, the gap between therapy and the ABC program was bridged. As a result, this DCE enabled occupational and physical therapy to integrate “health promotion into practice for the prevention of dementia and other neurological conditions in older adults” at this site (McGough et al., 2017, p. S55).

Overall Learning

As a learner amongst experienced professionals, effective communication skills were an essential attribute to promote a successful DCE. Throughout the DCE, my written, verbal, and nonverbal communication skills increased significantly. Face-to-face communication with interdisciplinary team members was limited due to a high volume of work demands. Therefore, communication via email was heavily utilized. This allowed interdisciplinary team members to communicate at their earliest convenience. My written communication skills increased significantly through this mode of communication.

Verbal and nonverbal communication skills were equally important during the face-to-face meetings with interdisciplinary team members, patients, family members, and caregivers. My ability to tailor a conversation to my audience was significantly increased due to variety of people I was addressing on a daily basis. During the DCE, I joined a team of collaborative care team members in a well-established program. In an environment such as this, it was integral to know when to attentively observe and when to actively collaborate. I was consistently attentive, well-dressed, and actively listening to display professional nonverbal communication, regardless of who I was surrounded by. Since face-to-face communication time with all interdisciplinary team members was limited, I quickly learned the importance of utilizing every opportunity to collaborate to the fullest. When communicating with other professionals in the fast-paced environment, my talking points were planned prior to the conversation, and my verbal communication was intended to be efficient, direct, and purposeful.

Through collaboration with interdisciplinary team members, I learned about teamwork, leadership, and professional skills, and the importance of these characteristics. In regards to teamwork, I learned that it is essential to be patient and respectful of colleagues' time while also

actively making an effort to move forward; those two steps did not always go hand-in-hand. My deadlines, goals, and focus were often significantly different than that of my colleagues.

However, in numerous situations, it was difficult for me to move forward without their collaboration. This taught me about the skills required to accomplish a task when working as part of a team. It was important to advocate the goals and objectives to colleagues so they were invested, and so they knew what was needed from them. It was necessary to possess professional skills such as organization, efficiency, respect, patience, and communication skills, to promote effective collaboration.

Lastly, leadership skills were an essential part of this process, in order to set goals and efficiently accomplish them. I was the primary source of communication between the ABC program and the outpatient therapy clinic during the DCE. There was a significant amount of support and encouragement from both clinics in regard to this DCE. However, due to the additional work demands that the interdisciplinary team members faced, both clinics were reliant on me to effectively communicate and take the steps necessary to establish the relationship and meet the objectives. I was surrounded by professionals who encompassed the skills required to be effective leaders, which supported my transition to a leadership role.

My advocacy skills significantly improved throughout the DCE. As previously stated, I was the only member from therapy involved in the ABC program. Therefore, I was responsible for advocating for the role of OT and PT to the physicians, collaborative care team members, stakeholders, patients, family members, and caregivers. As previously stated, several of the ABC team members were resistant to occupational therapy as a result of the previous study that was conducted by Callahan et al. (2017). Therefore, I repeatedly advocated for the purpose of the DCE and the role of OT and PT for community dwelling older adults with cognitive impairment,

beyond slowing functional decline. The ABC physicians were strongly driven by research, data, and evidence-based practice. Therefore, my ability to incorporate previous research, and articulate and justify its relevance to this DCE and project was essential.

Throughout the DCE, I was fortunate to be surrounded by interdisciplinary team members who were evidence-based, ethical, motivating, diligent, and innovative leaders. Through personal research, observation, and collaboration with interdisciplinary team members, my leadership, advocacy, and professional skills have significantly increased. The skills I have gained from this DCE will enable me to be a competent professional and excel in my career as an occupational therapist.

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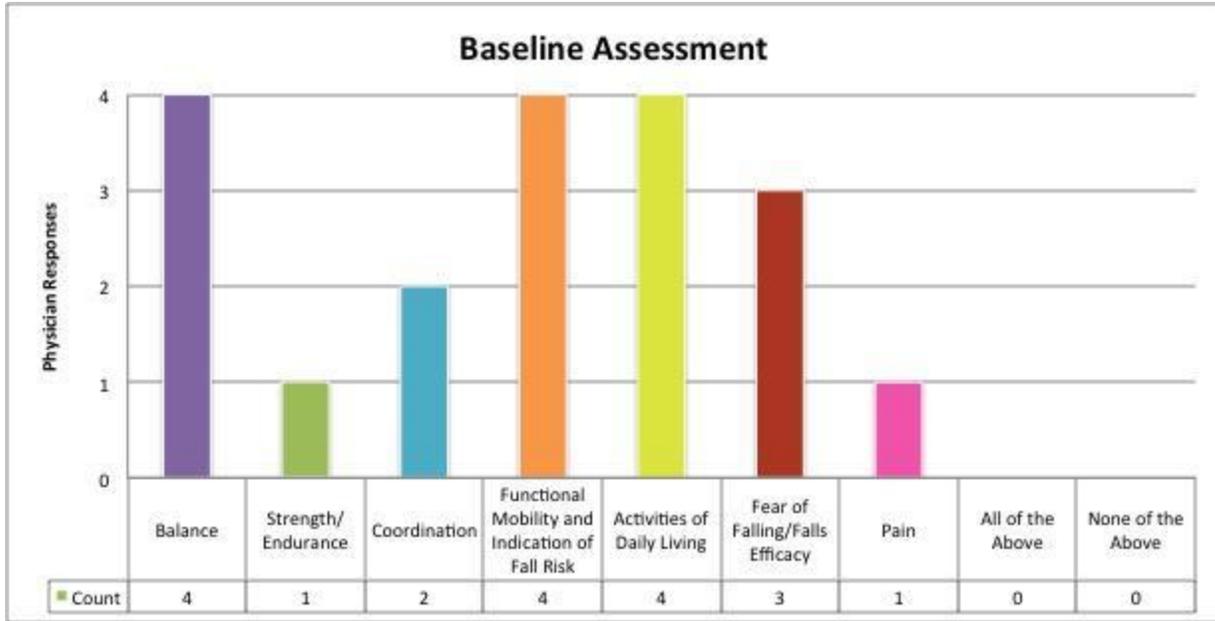


Figure 1. Physician responses to question one from the survey located in Appendix B.

Table 1

Physician Responses for Survey Question Two and Three

Physician	Physician Response
Q1. What type of services not listed above are you interested in occupational/physical therapy providing?	
P1	After initial assessment creating a home exercise program for patients to maintain function
P2	Performative tasks that help determine financial capacity (e.g. check writing)
P3	Driving assessment or other aspects of home safety
P4	Computer simulated driving evaluation
Q2. What challenges have you faced in referring a patient for OT/PT services at Eskenazi Health?	
P1	Transportation, patient motivation and buy in, patient compliance and completion
P2	I know very little about the programs
P3	Largest obstacle was the requirement for the patient to make the appointment. Sometimes need a home-based assessment as home safety an important issue
P4	Have not tried to refer

Appendix A. Terminology.

Mild Neurocognitive Disorder:

- 1) Modest cognitive decline in one or more cognitive domains, based on:
 - a) Concern about mild decline, expressed by individual or reliable informant, or observed by clinician.
 - b) Modest impairment, documented by objective cognitive assessment.
- 2) No interference with independence in everyday activities, although these activities may require more time and effort, accommodation, or compensatory strategies.
- 3) Not exclusively during delirium.
- 4) Not better explained by another mental disorder.

Major Neurocognitive Disorder:

- 1) Significant cognitive decline in one or more cognitive domains, based on:
 - a) Concern about significant decline expressed by individual or reliable informant, or observed by clinician.
 - b) Substantial impairment, documented by objective cognitive assessment.
- 2) Interference with independence in everyday activities.
- 3) Not exclusively during delirium.
- 4) Not better explained by another mental disorder.

Specify one or more etiologic subtypes, “due to:”

- 1) Alzheimer’s disease
- 2) Cerebrovascular disease (Vascular Neurocognitive Disorder)
- 3) Dementia with Lewy Bodies (Neurocognitive Disorder with Lewy Bodies)

Appendix A. Terminology.

- 4) Parkinson's disease
- 5) Huntington's disease
- 6) Traumatic Brain Injury
- 7) HIV Infection
- 8) Prion Disease
- 9) Another Medical Condition
- 10) Multiple Etiologies

Cognitive domains:

- 1) Complex attention
- 2) Executive functioning
- 3) Learning and memory
- 4) Language
- 5) Perceptual-motor/visuospatial function
- 6) Social cognition

Appendix B. Physician Survey Questions.

1. Listed below are components of assessments utilized in occupational and physical therapy to identify deficits in function. Which components would you find of value, as an addition to your new patient evaluation? Please check all that apply.

 Balance

- Static/dynamic balance
- Gait quality/speed
- Fall Risk

 Strength/Endurance

- Manual Muscle Testing- upper/lower body
- Grip Strength
- Pinch Strength

 Coordination

- Range of motion- upper/lower body
- Gross motor- upper/lower body
- Fine Motor

 Functional Mobility and Indication of Fall Risk

- Static/dynamic balance
- Gait quality/speed
- Durable medical equipment/assistive devices
- Community vs. home ambulation

 Activities of Daily Living

- Performance-based
- Functional status of activities applicable to patient
- Time required to complete
- Safety awareness
- Level of assistance required vs. level of assistance available

 Fear of Falling/ Falls Efficacy

- Perception of balance/stability during ADLs
- Perceived awareness of safety

 Pain

- Numerical pain scale
- At rest/with activity
- Relation to mood and participation in ADLs, IADLs, social activity, physical activity, sleep, etc.

 All of the Above None of the Above

Appendix B. Physician Survey Questions.

2. What type of services not listed above are you interested in occupational/physical therapy providing?

{Open-ended}

3. What challenges have you faced in referring a patient for OT/PT services at Eskenazi Health?

{Open-ended}

Appendix C. Brain Care Bundle General Tips Sheet

https://drive.google.com/file/d/1flL0stZRducq1Wto1tg_X0ycSiY4QY2Q/view?usp=sharing

Appendix D. Brain Care Bundle Endurance Sheet

<https://drive.google.com/file/d/1WdcvltM70ERmSiGNgD87N1jm3-GJVCLT/view?usp=sharing>

Appendix E. OT/PT Referral Sheet

https://drive.google.com/file/d/1ul8-emQs21J6I1x-odWutT_qg0q1BUBA/view?usp=sharing