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SIS Quarterly Practice Connections

A Supplement to *OT Practice®*

Table of Contents

AOTA's New Look

The content for this issue was developed before the COVID-19 pandemic, so the articles don't reflect the changes and challenges that have occurred over the past several months. But they do reflect the continued value and strength of occupational therapy, which has become more apparent than ever.

Occupational therapy continues to be the only profession that focuses on the use of occupations to maximize health, well-being, and quality of life, and AOTA continues to be the only organization wholly dedicated to advancing occupational therapy practice, education, and research through standard setting and advocacy.

To that end, AOTA's new logo, as seen in the Quarterly's new design, celebrates the passion, vibrancy, and diversity of occupational therapy practice, practitioners, and clients. The new logo honors the profession's values and it represents occupational therapy as a powerful and inclusive profession that is science-driven and evidence-based.

The Special Interest Sections continue our commitment to providing occupational therapy practitioners and students with the resources to support practice across specialty areas and settings. If you haven't done so already, I invite you to join our discussions on CommunOT™ at www.CommunOT.org.

Andrew Persch, PhD, OTR/L, BCP
Special Interest Sections Council Chairperson

Special Interest Section Guide

- AE Academic Education
- CY Children & Youth
- DD Developmental Disabilities
- HCH Home & Community Health
- MH Mental Health
- PA Productive Aging
- RD Rehabilitation & Disability
- SIP Sensory Integration & Processing
- WI Work & Industry

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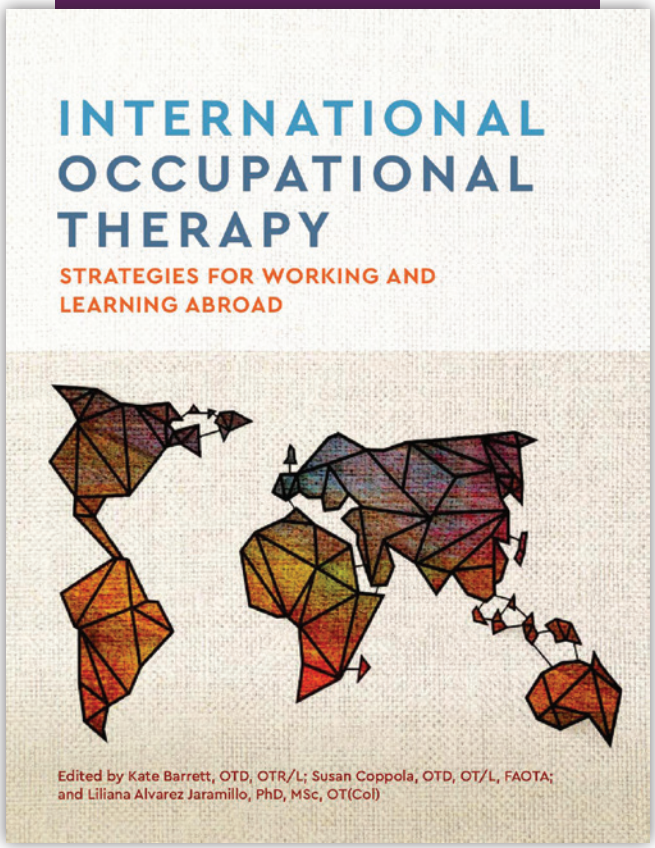
New From AOTA Press

Make the Most of Your Experience Abroad!



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International occupational therapy experiences provide immeasurable opportunities for students, practitioners, and faculty to better understand how culture affects occupation, collaborate in mutually beneficial endeavors, promote the profession, and grow personally as occupational therapy practitioners. Such experiences can drastically broaden students' and practitioners' understanding of occupation and client-centered care and strengthen cultural effectiveness—skills needed now more than ever.

International Occupational Therapy, the first comprehensive work on international occupational therapy practice, covers all aspects of learning or working abroad, from situating occupation in cultural contexts to developing partnerships to practical travel considerations. Focused on best practices in population or public health models, this text guides readers to ensure their work abroad addresses community concerns, contributing to sustainable health and well-being.

Throughout the text, vignettes and case examples illustrate the sociopolitical structures that reinforce health disparities, common pitfalls of working abroad, and diverse ways occupational therapy can contribute to communities. Activities and questions guide readers in exploring ways to continually develop cultural knowledge and self-awareness.

Edited by Kate Barrett, OTD, OTR/L; Susan Coppola, OT/L, OTD, FAOTA; and Liliana Alvarez Jaramillo, PhD, MSc, OT(Col)

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Mission Statement

The *SIS Quarterly Practice Connections* focuses on the role and application of research and other evidence to occupation-centered practice in areas of interest to members. It reflects the applicability and value of collaboration across specialty areas and settings.

American Occupational Therapy Association

Congratulations!

Congratulations to **Lauren M. Little**, PhD, OTR/L; and **Anna Wallisch**, PhD, OTR/L on being awarded the AOTA Special Interest Section *Quarterly* Writer's Award for their article "Telehealth in Early Intervention: A Case Example in the Measurement of Outcomes," which appeared in the May 2019 edition of the *SIS Quarterly Practice Connections.*

Practice Guidelines Now Printed in *AJOT*!

Did you know that the Occupational Therapy Practice Guidelines are now printed in the *American Journal of Occupational Therapy* (*AJOT*)? Visit https://ajot.aota.org to stay up-to-date on the latest practice guidelines:

- March/April edition: Older Adults With Low Vision—https://bit.ly/39PMsQo
- May/June edition: Children and Youth 0–5
- July/August edition: Children and Youth 5–21

American Medical Association Publishes OT–Led Study

Occupational therapist–led study published in JAMA Network Open finds association between patient therapy time, length of stay after hip fracture surgery. Read the article at http://ow.ly/TyzN50yeD1t

Sponsored in part by EBS Healthcare

Basic Activities and Anxiety Reduction in the Care of Canines (BAARCC) Protocol for Adults With Autism Spectrum Disorder

Patricia Henton, OTD, OTR/L, ICA; Lacy Deitrick, OTDS; Rachael Godfroy, OTDS; Cassidy Horodeczny, OTDS; Tori Madaris, OTDS; Sydney Mericle, OTDS; and Katelyn Stout, OTDS

Occupational therapy practitioners (OTPs) work with individuals with autism spectrum disorder (ASD) of all ages to support their participation in meaningful occupations throughout their lives (Crabtree & Demchick, 2018). Adolescents with ASD experience unique challenges in the transition to young adulthood because of social-communication limitations and restricted, repetitive behaviors (American Psychiatric Association, 2013) that can interfere with developing meaningful occupations and adult roles (McCollum et al., 2016). Anxiety during transitions and activities that involve social interactions (Hirvikoski & Blomqvist, 2015) may further affect daily living, and continued symptoms of ASD in young adults may result in decreased life satisfaction, lower self-esteem (Bishop-Fitzpatrick et al., 2018), and loneliness (Ward et al., 2017). Research pertaining to adults with ASD is limited, and few intervention studies address optimal participation, wellness, and quality of life (QOL; Gerhardt & Lainer, 2011), which may considerably change as adolescents move out of the structure of a school environment. Furthermore, young adults with ASD (18–25 years) may face challenges in performing new ADLs, IADLs, education, work, play, leisure, and/or social tasks as they transition into adulthood. They may also struggle to assume adult roles (McCollum et al., 2016). The increasing number of transitioning adults with ASD supports a growing need for services that can facilitate the development of occupational performance and roles (McCollum et al., 2016).

Occupational Therapy and Care of Pets

An important occupation within the category of IADL involves "care of pets" (American Occupational Therapy Association [AOTA], 2014, p. S19). Animals play various roles with individuals with disabilities. *Animal assisted interventions* (AAIs) is the broad term used to describe several practices that involve the intentional use of animals in education, therapeutic activities, or social/emotional support (Animal Assisted Intervention International [AAII], 2019; International Association of Human-Animal Interaction Organizations [IAHAIO], 2014). *Animal assisted therapy* addresses cognitive, psychosocial, and sensorimotor goals through the participation of an animal in therapy sessions (AAII, 2019; IAHAIO, 2014). *Animal assisted support* refers to animals as a form of emotional or physical assistance for an individual

with a disability. (For more details about occupational therapy's role in AAIs, visit https://bit.ly/37WLDDQ.) An area not often addressed in current literature is knowledge of standardized animal care protocols for individuals with ASD and other developmental disabilities. OTPs' expertise in occupation and goal-directed intervention provides a foundation for creating AAIs to assist individuals in achieving success in occupations and QOL, such as in the care of a pet. The *Basic Activities and Anxiety Reduction in the Care of Canines (BAARCC) Protocol* is a novel AAI the authors developed specifically for individuals with ASD to reduce anxiety, promote social participation, and increase occupational performance in the care of pets (specifically canines). This article reviews the BAARCC Protocol's clinical application and summarizes how the protocol can be used in standardized format for future research and collaboration.

The Use of Animals in Treatment

Although the literature on AAIs with adults with ASD is scarce, there is a clear need for individualized interventions that promote social participation and leisure, psychological adjustment, supportive transitions, and developing occupational roles for those with ASD (Haertl et al., 2013; McCollum et al., 2016). AAIs for the ASD population have been found to improve social participation and communication skills, and to decrease problematic behaviors and stress (O'Haire, 2013). Several studies suggest physiological, emotional, and social health benefits to interacting with canines (Allen et al., 2001; Bryan et al., 2014; Schneider & Harley, 2006; Silva et al., 2011; Ward et al., 2017). No other specific information on the use of animals for the development or enhancement of IADLs skills could be found. The lack of studies in this area detracts from OTPs' ability to provide evidence-based care to their adult clients with ASD; the lack of standardized AAI protocols limits generalizability of findings and challenges future replication of AAI (O'Haire, 2013).

Intervention and Protocol Development

The BAARCC Protocol is a novel occupation-based AAI created by the authors in response to the need for standardized AAI protocols. The *Occupational Therapy Practice Framework: Domain and Process, 3rd Edition* (*Framework*; AOTA, 2014) was used as a foundation to design a client-centered, occupation-based AAI for individuals with ASD. *Framework* concepts applied to canine care routines (CCRs) included meal preparation (feeding and watering), toileting, grooming, and leisure participation, or play (AOTA, 2014).

Development of the BAARCC Protocol included a review of the literature of AAIs for people with ASD, two role simulation sessions with a certified therapy canine and its owner, review of video recordings from each simulation session, and an expert review of the protocol. To establish fidelity among the developers, simulation of each CCR continued until there was at least 80% fidelity for its administration. Experts in the field of AAI and human-animal interaction research offered feedback and suggestions on the protocol. An individual who specializes in the field of companion animal well-being and human–animal interactions contributed expert knowledge on behavior, pet care procedures, and routines for canines.

As with all occupational therapy interventions, an occupational profile is completed first to identify individual client strengths, need areas, and goals for AAIs. This is followed by standardized assessments such as the Canadian Occupational Performance Measure (COPM; Law et al., 2014), Beck Anxiety Inventory (Beck et al., 1988), and the Adolescent/Adult Sensory Profile (Brown & Dunn, 2002). After the client's current functional status is clear the occupational therapist (OT) collaborates with them to develop goals around IADLs (canine care), emotional and/or sensory regulation, and social engagement and/or play as needed. All clients work with their family canine, and interventions incorporate their animal only, targeting the client's specific need areas.

Individualized strategies to facilitate social participation and social-communication skills typically include: (a) modeling (demonstrating how much food to pour out for the canine), (b) direct instruction (explaining how much food should be poured out), (c) prompting (giving direct verbal cues or instruction before and during the feeding task), and (d) feedback (to correct or confirm the individual's performance of the feeding task), as suggested by Roth and colleagues (2014). Guided reflection is embedded within prompts in the form of open-ended questions, such as: "How do you think the dog is responding to being fed?" to facilitate learning CCRs and heightening the client's awareness of the canine's emotional responses. This promotes reading environmental cues in a low-risk situation for the client and the canine, where they can receive feedback from the OTP. Visual supports including pictures and video are optional strategies that facilitate learning or serve as a reference when completing the CCRs independently, such as a picture of the specific measuring cup used to pour the appropriate amount of food for the canine, and a photo of the canine's bowls to ensure the client replenishes both food and water bowls. Client progress is routinely monitored during the performance of CCRs so the OTP can provide feedback and modify interventions as needed (upgrade, downgrade, or modify) in a collaborative fashion, as with all occupational therapy interventions. Although the protocol is designed for sessions twice a week during an 8-week period, it can be individualized to the needs of the client.

Case Example

Sam was a 22-year-old man with ASD who experienced anxiety in social situations. He had difficulty interacting with peers and making friends. Sam had graduated from high school 2 years earlier and was unemployed. Although Sam could communicate and follow simple to complex instructions, keeping a part-time job had been difficult because of his anxiety around people. Sam lived with supportive parents who wanted him to be independent, find a fulfilling job, and make friends. His occupational profile revealed that he was independent in all self-care, but he struggled to consistently complete IADLs, including the care of his family dog, Bella. Sam liked to play video games and interact with Bella; he did not engage with peers often because he no longer saw them in a structured school setting. Sam and his parents expressed interest in incorporating more responsibilities into Sam's daily routines, such as taking care of Bella and enhancing

his social skills. The OT completed an interview, an occupational profile, a COPM, and the Adolescent/Adult Sensory Profile, which showed that Sam needed supervision (verbal and visual reminders) for IADLs on most days, and experienced sensory avoidance when in close proximity to others. Mutually agreed upon goals for his 8-week treatment plan were for Sam to take care of Bella's feeding and toileting/walking on 5 of 7 days without reminders from his parents, and for Sam to make eye contact and say hello to a neighbor he saw routinely in the neighborhood park where he walked Bella.

Guided reflection helped determine Sam's preferred strategies for prompting regular pet care routines, such as committing to set his watch alarm for 4 p.m. each day so he would not forget to feed Bella. The OT gained his commitment to this task as she facilitated questions about how he felt when he was hungry and thirsty, and then asking him to watch Bella's behavior before and after she was fed. Sam benefitted from having a picture reminder of how much food to use and independently asked for a picture of the water bowl to be posted next to it so he could cross check his work with the completed picture. He expressed pride in his ability to measure accurately. Before walking Bella in the park, the OT and Sam rehearsed an encounter with his neighbor. Sam learned to move to the side and allow Bella to be closer to the middle of the walkway to establish a comfortable space between him and others. He practiced making eye contact with Bella as he groomed her to gain confidence in engaging in this way with others. As Sam grew confident in time management with Bella, he began to use his watch alarm to prevent other frustrating situations related to forgetting, such as being ready on time to go out to lunch on Sundays with his parents. Sam continued with the BAARCC Protocol with his OT for 10 weeks, focusing on increasing social interactions in the park after two successful episodes of saying hello to his neighbor.

Conclusion

The BAARCC Protocol is an AAI protocol for young adults (18–25 years) with ASD who desire to learn and participate in CCRs/IADLs and to address social and play skills through engagement with their pet canine in occupation-based activities. The authors have standardized the BAARCC Protocol for the purpose of future research into its clinical effectiveness. Specialized training was required to ensure it was administered in the same manner by various OTPs, and this should be considered if programs want to use this same level of standardization or for research purposes. However, the AAIs within it may be helpful to use with young adults with ASD who desire to have more independence in IADLs as they learn to assume roles that are more adult.

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Explore AOTA Resources

- **Animal-Assisted Intervention 101—https://bit.ly/3cJW7Kk**
- **Assistance Dogs Frequently Asked Questions—https://bit.ly/2vJQ8oa**

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Bagless Therapy: Reducing Toy Bag Dependency by Embracing the Coaching Interaction Style

Rachelle Lydell, MSOT, OTR/L; and Tiffany Bolton, OTD, MOT, OTR/L

Most practitioners would agree that human occupation is a complex phenomenon. As occupational therapists (OTs), we understand the multiple intrinsic and extrinsic factors that affect occupational performance and participation from multiple theoretical perspectives (Wong & Fisher, 2015). We view participation and occupation in social, cultural, economical, psychological, anatomical, and physiological contexts. This view allows us the unique ability to design an intervention plan solely focused on each individual client.

The philosophical base of occupational therapy purports that humans are intrinsically motivated to engage in purposeful activity that promotes survival, well-being, and self-actualization (American Occupational Therapy Association, 2017). In any given situation, OTs ask, "what factors are enabling and/or inhibiting occupational participation?" The early intervention (EI) OT uses clinical reasoning to analyze a child and their family's ability to participate in a meaningful routine. Often in an EI setting it is difficult to help a family determine their goals and outcomes because many individual family service plans (IFSPs) still reflect what professionals have stated as a need instead of what the family may prioritize as needs (Epley et al., 2011). OTs have a responsibility, as part of the IFSP team, to assume a collaborative role with caregivers to help a child achieve family-determined outcome(s). This includes the delivery of family-centered routines-based treatment in the child's natural environment, and it also means leaving the toy bag in your car.

What is Bagless Therapy?

Bagless therapy guides occupational therapy toward better adherence to the Individuals With Disabilities Education Improvement Act of 2004 (IDEA). The IDEA states that children and families receiving EI services should do so in their natural environments and the services should focus on families' needs and wishes for their child. When a bag filled with toys and materials is provided only when the OT is present, this approach is more provider-centered than family-centered, which undermines the natural environment. Bagless therapy allows the OT to implement authentic contextual interventions. Without our "bag of tricks," we rely on our clinical reasoning, unique view of participation, collaboration with the family, and the actual materials the family already owns (Williams & Ostrosky, 2019).

The EI framework falls under the educational model of service delivery, and therapy addresses participation in daily routines within the child's home, other caregivers' homes, and day care and/or preschool environments. This model often uses coaching, an evidence-based, top-down approach, which provides direct support to the caregivers of a child (Novak & Honan, 2019). Based on developmental theories, the EI team assumes that a child will progress with direct support from the family and the interprofessional team. The focus of intervention is participation in developmentally appropriate experiences the family has identified as meaningful. An EI OT can use reflective questioning to understand how the child participates and executes the task (Dunn, 2017). EI OTs can use a top-down approach to intervention by highlighting the strengths and challenges in occupational participation, initially dedicating less focus on body structures, function, and other client factors that often inhibit occupational participation. Highlighting a child's strengths and challenges includes considering the psychological, cultural, physical, temporal, and social contexts of the environment that the child and their family face when executing their daily tasks and activities. Using the principles of coaching, the EI OT can empower parents to take an active role in helping their child improve participation (Dunn, 2017).

When relying on an interaction style like coaching in lieu of a toy bag, a common misconception is that this approach is not billable. Our ability to provide skilled and billable intervention is not located in a bag. We innately apply "therapeutic use of self" in our therapy sessions to achieve the best possible rapport, volition, and outcomes from our clients and families. Implementing therapeutic activities without the use of a toy bag to build the skills of the child and family is essentially the same. Many practitioners believe toys, crafts, and other treatment media are required to justify skilled intervention; however, therapy bags deprive us of our distinct value as OTs in this setting. We are equipped with expertise rooted in development, psychology, neurology, human anatomy, environmental analysis, behavioral science, and activity analysis that makes us specialists in promoting occupational performance without specific treatment media. By taking toys and other therapy tools into a family's home that are otherwise unavailable to them, we are empowering ourselves and not the family.

What Do We Do Now?

The families we work with often have many routines, rituals, and habits that create a perfect opportunity to replace items from our bags. It can be very empowering for families when you help them realize something they are already doing can be of even further benefit for their child. Using their current routines also helps provide the child with the opportunity for better continued progress when we aren't present in their homes. There are many ways to go about making this transition if you find yourself reliant on your therapy bag. For example, during bath time the parent can facilitate range of motion and grasp with functional reaching to adjust water temperature, alter positioning, introduce soap and a washcloth, and encourage water play. This example is ripe with opportunities to address underlying needs without introducing external treatment media.

After a family identifies a routine or activity with which they are struggling, OTs can provide them with specialized knowledge to address the child's ability to participate and ultimately the family's difficulty with completing the routine with their child. You can provide self-regulation strategies to increase cooperation, positioning strategies to increase feeding participation and decrease risk of aspiration, and education to parents on how to adapt items found around the house. Because most of your time is spent collaborating

About the Children & Youth SIS

The Children & Youth Special Interest Section (CYSIS) provides resources to support the practice, leadership, and advancement of practitioners serving youth, families, and teams in early intervention and school programs. It promotes the meaningful participation of youth and families in their everyday lives where they live, learn, and play.

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with the family, accountability shifts to the parents to implement the new knowledge with their children. Using a coaching approach does not prevent you from handling or interacting with the child. When necessary, an EI OT can administer the skilled techniques required to facilitate function, and teach the parent how to perform the technique outside of their child's therapy sessions.

Siblings are also a powerful tool already present in the child's environment if you find you are still relying on your toy bag. Siblings should be included in learning and practicing any strategies you provide because they are a part of the family's daily routine. For example, an EI OT can assist with implementing strategies to facilitate positive communication styles and disciplinary strategies. This may ultimately strengthen the family unit as a whole by helping each family member build confidence and feelings of competence in their ability to complete and maintain their participation in daily routines.

Case Example

Brian was a 1-year-old boy born prematurely at 32 weeks gestation with fine and gross motor delays. During his NICU stay, he had an abnormal neurological assessment and was intubated for 3 days. He went home on oxygen and had complex medical needs because of chronic lung disease and a Grade I intraventricular hemorrhage. Brian qualified for EI services because he was not yet reaching or grasping for items, holding his bottle, and rolling over, and was referred to occupational therapy to address the family's participation and safety concerns during play and feeding routines.

Brian's mother and the OT collaborated to create the following measurable goals for Brian: participate in feeding and mealtime routines with the family by holding his bottle with both hands, reach for a toy or desired item with one or both hands, sit upright with support while playing and during mealtimes, and roll from his back onto his stomach to retrieve an item outside of his reach. In addition, she wanted him to be able to play with his older brother. The OT used coaching interaction style techniques such as conversational interviewing, reflective questioning, and informative feedback during therapy sessions (Rush & Shelden, 2011) in lieu of a toy bag. These goals were met within 6 months.

Therapy sessions were scheduled to include the family's mealtime and playtime routine so the OT could support Brian's mother in her ability to facilitate his feeding and motor skills. During playtime, the OT helped Brian's mother identify common objects and items around the house (e.g., pillows, handheld mirror, flashlight, keys) to facilitate reaching and grasping patterns. To facilitate sibling interaction, the OT modeled strategies (i.e., adaptive positioning to develop core strength and balance needed for independent sitting, graded physical prompting to facilitate transitions to and from back to stomach, and hand over hand to encourage reaching and grasping) to promote play. During mealtime, the OT provided adaptive feeding tools, addressed feeding safety, and obtained adaptive seating equipment to help Brian reach his feeding goals. The OT also addressed the family's ability to manage Brian's medical needs, as the family expressed concern that their remote living situation would prevent them from getting him needed care. The following billing codes were used: 97530—Therapeutic activities, and 97535—Self-care/home management training.

On the occupational therapy satisfaction survey, Brian's mother strongly agreed that she felt "empowered with the skills to continue to support [her] child" and that she "had insight into [her] child's development." When asked what she found most helpful during Brian's sessions, she stated:

> The ability to see what I have around the house, and what I'm already doing and figure out how to use it to help him, is really what has made him get better so quickly. I can't believe when we started, he was barely moving his arms and now he is feeding himself, sitting up on his own, cooperating when I dress him, and moving around to get things.

Conclusion

Bagless therapy encourages OTs to empower the family to enable their child's participation in occupation. An OT needs only his or her insightful clinical reasoning to enhance participation in occupation for families and children. An interaction style like coaching can be used in lieu of a toy bag when implementing family-centered routines-based treatment. Abandoning the toy bag brings occupational therapy back to its roots and highlights our distinct value.

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View a table on guidelines for therapy dosing on the Sensory Integration & Processing Special Interest Section CommunOT™ page: www.aota.org/SIPSIS-forum

Intensive Collaborative Intervention Programs for Children With Developmental Disabilities

SIP **Maria del Pilar Saa, OTD, OTR/L; Summer Squillaciotti, OTD, OTR/L; and Sheryl J. Rosin, PhD, CCC-SLP**

Dosing is an important topic of discussion within the occupational therapy community when determining a client's course of treatment. To determine the optimal frequency, intensity, and duration of an intervention, it is essential for occupational therapists (OTs) to use clinical, interactive, pragmatic, conditional, scientific, narrative, and ethical reasoning (Caracci et al., 2018). An increasing trend in outpatient facilities within the U.S. is the implementation of intensive interventions with the purpose of maximizing intervention results. The duration and frequency of these intensive programs vary depending on the facility and may include interprofessional services such as speech-language pathology and occupational therapy.

This article describes an intensive collaborative intervention program (ICIP) for children with developmental disabilities using occupational therapy with a sensory integration approach (OT-SI) and speech-language pathology applying the PLAY Project (Solomon et al., 2014) principles and methods (SLP-PLAY). The PLAY Project is based on Greenspan and Wieder's (1997) theoretical framework—a relationship-based developmental approach, focusing on the child's individual differences and social reciprocity. According to this framework, when dyadic interaction is contingent, reciprocal, and enjoyable, a child will progress through a series of functional developmental levels (FDLs), thereby improving skills and participation. Using the PLAY Project with children with autism has produced improvements in interaction skills, language development, and autism symptomatology (Solomon et al., 2014).

ICIP Program

Using SLP-PLAY and OT-SI in traditional settings has yielded significant improvements in motor and sensory functioning (Watling & Hauer, 2015) as well as social engagement and child–parent interactions (Solomon et al., 2014). Traditionally, OT-SI and SLP-PLAY are provided 1 to 2 times a week for up to 2 years (Gee et al., 2016; Tilmont Pittala et al., 2018). In contrast, this intensive model delivers 15 hours a week of combined SLP-PLAY and OT-SI for approximately 6 weeks. The ICIP was developed in 2017 to provide services to international families who have limited access to occupational therapy or speech-language pathology in their home countries but are able to visit the U.S. for short periods of time for therapy (e.g., 2 to 6 weeks). Rates for these families are discounted, and a nonprofit group was created to assist families who need and cannot fund services (created by Dr. Sheryl Rosin). Most families come from under-resourced and underserved areas in the Caribbean or parts of Central and South America.

Previous studies have reported OT-SI dosage effectiveness at 18 to 30 sessions to achieve individualized goals (Pfeiffer et al., 2011; Schaaf et al., 2014), and 3 hours per month of direct PLAY Project intervention plus 2 hours a day of caregiver–child PLAY interaction for 1 year (Solomon et al., 2014). The ICIP was developed with the purpose of achieving goals in a short period of time, hypothesizing that intensive treatments would accelerate improvements in skill acquisition, promoting participation in all environments (e.g., home, school, community). However, only one case study of such intensive treatment exists; this case examined intensive OT-SI and reported improvements in Goal Attainment Scale (GAS) goals and motor coordination (Andelin et al., 2019).

Using OT-SI dosage information and personal experience implementing intensive SLP-PLAY (S. J. Rosin, personal communication, December 19, 2019), the ICIP was designed to provide therapy for 3 hours a day (1 hour of OT-SI and 2 hours of SLP-PLAY), 5 days a week, for 3 to 6 weeks. In a family-centered approach, OTs, speech-language pathologists (SLPs), and family members collaborate closely to support improved client performance and address major factors that support and hinder participation. Parental education, a core principle of SLP-PLAY (Solomon et al., 2014) and an integral part of family-centered practice (Dunn, 2011) occurs throughout the course of the ICIP. The ultimate goal of the program is to train parents to use SLP-PLAY and sensory-based techniques, strategies, and principles so intervention techniques can continue in their home countries, with periodic collaboration with the therapists, improving the skills and quality of life of the child and family (Fingerhut et al., 2013). Continued collaboration with the family after the ICIP occurs through phone and/or videoconferencing to ensure maintenance and continued improvement of the child's newly acquired skills.

Evaluation and Outcome Measurement

The OT conducts an evaluation to develop the child's occupational profile and identify the areas that support and/or hinder the child's occupational performance. The SLP determines the child's FDLs and their speech and language profile. Together, the team (OT, SLP, family members) establish dosage, individualized goals, and plan of care. Although the ICIP was designed to provide therapy for 3 hours a day, 5 days a week, for 3 to 6 weeks, dosing is decided based on evaluating four client/family factors, adapted from the intervention frequency guidelines for the pediatric medical setting (Bailes et al., 2008). These factors are: (1) the client/family's potential to benefit from the therapy process; (2) the client/family's potential to participate in the therapy process; (3) the stage of critical period for skill

Figure 1. Kwame's Raw Goal Attainment Scale Scores at Baseline and After 6 Weeks of the Intensive Collaborative Intervention Program

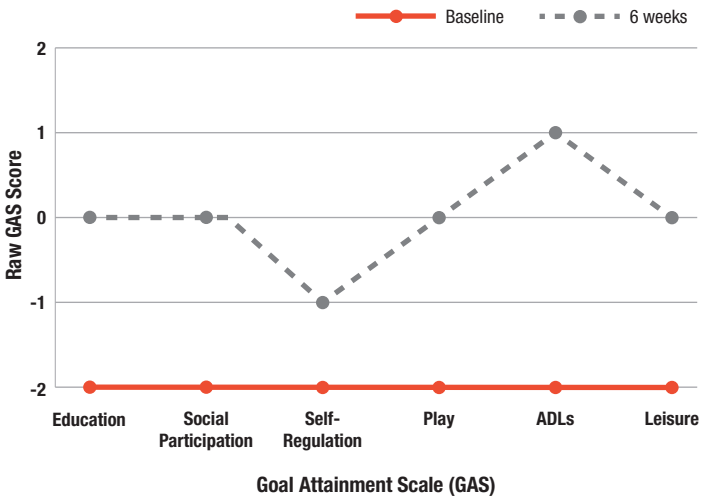
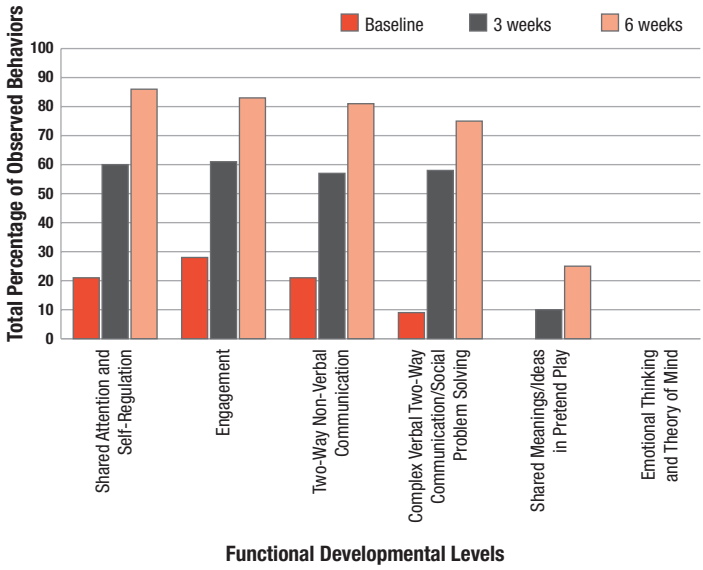


Figure 2. Kwame's Functional Developmental Level Scores at Baseline, 3 Weeks, 6 Weeks of the Intensive Collaborative Intervention Program



acquisition; and (4) the amount of clinical reasoning and problem solving required to attain the proposed goals and participate in daily life. Based on categorization for each factor, dosages considered are: (1) intensive (3–5 times/week); (2) continuous (1–2 times/week); (3) periodic (biweekly/monthly); or consultative (every 3 months or as needed). See the table on CommunOT for details.

To track progress, the ICIP uses outcome measures such as the GAS goals, FDLs, and discrete behavior measures when standardized evaluations are not available or the child is not able to comply with the standardized process. The GAS is an individualized outcome measure in which clients and therapists collaborate in goal selection and scaling to quantify progress towards achievement (Turner-Stokes et al., 2009). FDLs identify how a child integrates their abilities (e.g., emotional, language, sensory processing, motor skills) to relate to the social and cognitive world in a purposeful and emotionally meaningful manner, with scores in six domains (shared attention and self–regulation; engagement; two-way nonverbal communication; complex verbal two-way communication [social problem solving]; shared meanings/ideas in pretend play; emotional thinking and Theory of Mind; Greenspan & Wieder, 1997). Discrete behaviors are tracked during free play and while play situations are presented during evaluation.

Case Example

Kwame was a sweet and fun 4-year-old boy who lived in St. Kitts with his mother and father. Kwame displayed difficulties with communication, social participation, and emotional regulation (tantrum-like behaviors). Kwame was diagnosed with autism spectrum disorder 6 months before his visit to the U.S. St. Kitts does not currently have occupational therapy or speech-language pathology in the country, but Kwame's parents received outreach services from the U.S. (through the Caribbean Autism Project, created by Dr. Sheryl Rosin) and learned of the benefits of intervention. This led to their decision to travel to the U.S. to access services, which were provided at a discount. After the initial OT and SLP in-person evaluations and parent consultations, the therapists determined that Kwame should receive services in the ICIP program for 6 weeks, 5 days a week, 3 hrs a day (60 hrs of SLP-Play and 30 hrs of OT-SI) because of his potential for rapid progress and goal achievement, his family's potential to support intervention despite the inaccessibility of services, his age—suggesting a critical period for skill acquisition, and his need for a high level of support to attain goals and participate in daily life. No standardized occupational therapy assessments were used during evaluation because of Kwame's difficulty with participating in structured testing. Six GAS goals were developed for occupational therapy in the areas of social participation, education, self-regulation, play, ADLs, and leisure. Speech-language pathology FDL goals included shared attention and self-regulation, engagement, two-way nonverbal and verbal communication, social problem solving, and mood regulation.

The parent program included training on the PLAY Project principles and methods, and sensory-based activities. Kwame's parents were taught how to attain and maintain his optimal level of arousal while engaging in reciprocal interactions (e.g., nonverbal gestures, circles of communication, shared social attention, social interest) in both OT-SI and SLP-PLAY sessions, according to both sensory integration theory and PLAY Project theory. The parents completed a quiz to assess their understanding of these concepts and were instructed to log their time PLAYing with Kwame. Videos of parent interactions were reviewed by the lead OT and SLP weekly, with immediate feedback and further guidance provided to the parents. After completing the ICIP, Kwame's parents were asked to provide a new video to be reviewed every 3 months or when they needed feedback to revise the plan as his needs changed.

At the completion of the 6-week ICIP, Kwame exhibited improvement in all of his GAS goals for OT-SI (see Figure 1). Overall, his change in scores showed an expected level of achievement in all goals, except self-regulation, which demonstrated progress toward the outcome goal. For his SLP-PLAY FDL goals, Kwame demonstrated the most improvement in self-regulation and shared attention; engagement; and two-way nonverbal and verbal communication (see Figure 2). These levels build upon each other, and the acquisition of lower levels is critical for the development and progress of higher levels; therefore, the minimal change in shared meanings/ideas in pretend play, and emotional thinking and Theory of Mind, was expected throughout the ICIP.

Overall, Kwame made improvements in all pre-identified areas of difficulty, and his parents were very pleased with his progress and their caregiver training throughout the program. His parents will receive follow-up surveys for 1 year to evaluate skill maintenance and long-term effect of the ICIP to improve participation, identify new challenges, and determine the need for further therapeutic support (e.g., modify home program).

Conclusions

Although more research into the effectiveness of the ICIP is needed, our team is optimistic that further research will support the efficacy of intensive collaborative models, leading to greater use of intensive treatment models, which will improve access for children in need. It is hoped that this initiative will empower other professionals to create ICIPs to provide services, caregiver education, and follow-up care to underserved populations. These intensive models allow caregivers, through coaching, to become bridges for education in their own countries, advocate for their child's needs, and hopefully inspire individuals to pursue careers in the fields of speech-language pathology and occupational therapy and bring our professions to their home countries or communities. Finally, there is great potential for programs such as ICIP to contribute to the literature regarding dosing effectiveness for OT-SI and SLP-PLAY interventions in the care of children with developmental disabilities.

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Evidence Supports Yoga as Preparatory Activity for Children's Mental Health

There is strong evidence to support the use of yoga as a preparatory activity to improve mental health for children. Read more at https://bit.ly/2Vn1tF9.

AOTA Critically Appraised Topic Series: Children & Youth 5–21 Years

A Product of the American Occupational Therapy Association's Evidence-Based Practice Project

This Critically Appraised Topic (CAT) is one in a series of systematic reviews summarizing the evidence related to children and youth. For more information on the methodology and to read additional CATs in the series, visit http://www.aota.org/Practice/Children-Youth/Evidence-Based.aspx.

Focused Question

What is the evidence for the effectiveness of activity- and occupation-based interventions within the scope of occupational therapy practice to improve mental health, positive behavior, and social participation for children and youth ages 5–21 years?

Theme: Sports activities

Reference: Egan, B. (2019). *Sports activities for children 5-21 years. Systematic review of related literature from 2010 to 2017* [Critically Appraised Topic]. Bethesda, MD: American Occupational Therapy Association.

Clinical Scenario

Estimates show that the incidence of childhood mental health conditions is on the rise (Polanczyk et al., 2015). Nearly 15 million children and youths meet the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; American Psychiatric Association, 2013) criteria for a mental health condition (National Alliance on Mental Illness, 2011), and many more children are at risk for developing conditions over their lifetime (Polanczyk et al., 2015).

Children who struggle with maintaining mental health often experience negative outcomes related to occupational performance and academic success (Maurizi et al., 2013; Watling & Nielsen, 2010). There is a great need for effective and evidence-based interventions to promote mental health, positive behavior, and social participation among children and youth who have or are at risk for mental health conditions. Activity- and occupation-based interventions are increasingly recognized as supportive of mental health for children and youth (Bazyk & Bazyk, 2009; Petrenchik & King, 2011; Shea & Jackson, 2015; Tokolahi et al., 2013).

Occupational therapy practitioners can use activity- and occupation-based interventions to develop and enhance clients' competence, self-efficacy, and sense of subjective well-being (Lee & Kielhofner, 2017; Suldo et al., 2014). In addition, activity- and occupation-based interventions promote general mental health, positive behavior, and increased social participation (Bazyk & Bazyk, 2009; Petrenchik & King, 2011; Shea & Jackson, 2015; Tokolahi et al., 2013).

This Critically Appraised Topic (CAT) summarizes the findings related to the intervention theme of sports activities. For this CAT, sports activities included martial arts (Bahrami et al., 2016; Haydicky et al., 2012); basketball (D'Andrea et al., 2013); jumping rope, tennis, and darts (Kang et al., 2011); swimming (Pan, 2010); and modified boxing (Terry et al., 2014).

Summary of Key Findings

Two Level I and 4 Level II studies met the criteria for the review and provided evidence for sports activities to improve mental health, positive behavior, and social participation for children and youth ages 5–21 years.

Level I Studies

In the Level I studies, positive results of sports activities on social skill development and social participation were clear. Kang et al. (2011) found statistically significant improvements in the Cooperativeness subscale of the Social Skills Rating System after children ages 7–9 with attention deficit hyperactivity disorder (ADHD) participated in sports activities 2 times per week over a 6-week period. Bahrami et al. (2016) found statistically significant reductions in social skill and communication deficits at postintervention and at 1-month follow-up, as measured by the Gilliam Autism Rating Scale, for boys with autism spectrum disorder (ASD) who completed a 14-week karate intervention tailored specifically for youths with ASD.

Level II Studies

In the Level II studies, the results were mixed across mental health, positive behavior, and social participation outcomes. D'Andrea et al. (2013) investigated the impact of a trauma-informed basketball program for adolescents with severe behavioral issues living in residential treatment facilities. Using the Child Behavior Checklist (CBCL) to measure changes in mental health, the researchers found a statistically significant reduction in both internalizing and externalizing behaviors for participants in the sports intervention compared with those who did not participate. Positive behaviors during game play were recorded on an observational player skills utilization checklist. Behaviors related to persevering and resolving conflicts improved, but this improvement was not statistically significant.

Haydicky et al. (2012) found improvements in internalizing behaviors, externalizing behaviors, anxiety symptoms, and reported social problems for adolescent boys with co-occurring learning disabilities, ADHD, and elevated anxiety levels who participated in a manualized mindfulness-based martial arts intervention. However, changes in scores on Conner's Parent Rating Scale (which measures anxiety), CBCL scores, and parent-reported social problems were not statistically significant.

Pan (2010) investigated the impact of a 10-week swimming program, the Water Exercise Swimming Program, on social behaviors that support social participation. Findings based on the School Social Behavior Scales showed statistically significant decreases in antisocial behaviors but not improvements in social competence behaviors immediately after the intervention. Results at 10-week follow-up did not persist.

Terry et al. (2014) explored the impact of Box Tag®, a low-risk form of boxing, on psychosocial well-being for marginalized 7th graders. Compared with students who received a nonphysical social skills education program (Rock and Water), Box Tag participants' scores on the Brunel Mood Scale and the Strengths and Difficulties Questionnaire were not statistically significant at Week 4, Week 8, or Week 12 (follow-up). Although they were not statistically significant, the results support the consideration of Box Tag interventions for improving mood and overall psychosocial well-being.

Risk of Bias

Four studies reviewed in this CAT demonstrated high risk of bias. Two studies (Bahrami et al., 2016; Kang et al., 2011) demonstrated moderate risk of bias. The following findings were determined on the basis of an evaluation of the quality of the studies and their respective results.

- Strong evidence (2 Level I and 2 Level II studies) was found for using sports-activity interventions to support improved social participation for children and youths (Bahrami et al., 2016; Haydicky et al., 2012; Kang et al., 2011; Pan, 2010).
- Strong evidence (1 Level 1 and 1 Level II article) was found for using sports-activity interventions to support improved positive behaviors associated with inattention, perseverance, and conflict resolution (D'Andrea et al., 2013; Kang et al., 2011).
- Weak evidence (3 Level II articles), because of mixed results, was found for using sports-activity interventions to support improved mental health among children and youths (D'Andrea et al., 2013; Haydicky et al., 2012; Terry et al., 2014).

Intervention Format

The sports activities included in the interventions varied, as did the length of the interventions. Three studies lasted 6, 8, and 10 weeks, respectively (Kang et al., 2011; Pan, 2010; Terry et al., 2014). Three studies lasted between 3 and 5 months (Bahrami et al., 2016; D'Andrea et al., 2013; Haydicky et al., 2012).

All of the interventions included a group format except 1, which offered mostly individualized swimming experiences (Pan, 2010). Three were conducted in recreational environments (i.e., basketball court, swimming pool; Bahrami et al., 2016; D'Andrea et al., 2013; Pan, 2010), 2 were performed in a school setting (Kang et al., 2011; Terry et al., 2014), and 1 occurred in a clinical outpatient environment (Haydicky et al., 2012).

Outcome Measures

The outcome measures used in the studies varied. They included the following:

- Gilliam Autism Rating Scale—2 (Bahrami et al., 2016)
- Achenbach's Child Behavior Checklist (D'Andrea et al., 2013; Haydicky et al., 2012)
- Behavior Rating Inventory of Executive Functioning (Haydicky et al., 2012)
- Youth Self-Report (Haydicky et al., 2012)
- Social Skills Rating System (Kang et al., 2011)
- Social Skills Behavior Scales (Pan, 2010)
- Brunel Mood Scale (Terry et al., 2014)
- Strengths and Difficulties Questionnaire (Terry et al., 2014).

Bottom Line for Occupational Therapy Practice

Overall, strong evidence was found for the use of sports-activity interventions to improve social participation for children and youth 5–21 years old. The evidence suggests that sports-activity interventions offer social benefits to children with conditions that increase the risk of communication deficits (e.g., ASD, ADHD, severe behavior disorder). Weak evidence was found for the use of sports activities to support mental health and positive behaviors. The evidence suggests that sports-activity interventions may lead to short-term improvements in cooperative behaviors, decreased externalizing and internalizing behaviors, and reductions in antisocial behaviors, but the number, level, and quality of the studies do not allow researchers to draw any conclusions.

The evidence also provides support for interventions that use sports activities over several weeks, with multiple opportunities for engagement each week. Additionally, these studies provide evidence for using sports activities in group-intervention formats. Occupational therapy practitioners may want to consider how to leverage the social demands of most sports activities therapeutically to foster improved social skills and opportunities for social engagement and participation.

Future research in this area may benefit from designs using larger sample sizes and studies involving participants who do not have and are not at risk for mental health disorders, behavioral issues, or limited social skills. Qualitative research could increase researchers' understanding of the participants' experiences related to engaging in sports activities, which also might support occupational therapy practitioners in systematically selecting sports activities to incorporate into interventions. Because the evidence strongly suggests that many of the outcomes did not persist at follow-up points, future research should consider the length of the sports interventions needed to demonstrate maintenance effects for mental health, positive behaviors, and social participation.

This work is based on the evidence-based literature review completed by Brad Egan, OTD, PhD, CADC, OTR/L.

References can be found at https://bit.ly/2w4yiMu.

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Universal Design for Learning in OT/OTA Academic Programs: Working With Our Students

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In all practice settings, occupational therapy practitioners (OTPs) are encouraged to become lifelong learners, leaders, and experts in the clients they serve. OTPs creatively develop strategies to meet occupational therapy foundational outcomes of access, inclusion, and participation in occupations. OTPs who work in academia are privileged in choosing a work setting that develops future clinicians. According to the American Occupational Therapy Association's *Philosophy of Education* (2018), students are viewed as "occupational beings who are in a dynamic transaction with the learning context and the teaching-learning process" (p.1). For students, access and inclusion into the occupational therapy profession are based on their ability to understand and use knowledge, self-regulate, use professional behavior in working with peers, and demonstrate high standards of clinical reasoning and performance in meeting the needs of clients they will serve. In addition to student accountability for learning, educators must also assume responsibility for student success through delivery of and access to meaningful academic content, educational resources, and inclusive, creative environments for learning to occur.

One evidence-based strategy for assisting learners and occupational therapy educators in the academic setting is Universal Design for Learning (UDL; Center for Applied Special Technology [CAST], 2018). UDL is a framework designed to produce "expert learners who are purposeful and motivated, resourceful and knowledgeable, and strategic and goal directed" (Grant & Perez, 2018, p.108). Developed in the mid 1990s by clinicians working with children with learning disabilities in the K–12 environment, and in response to the poor learning outcomes of children participating in public education in the United States, researchers found school failure was often related to environmental and curriculum design rather than to the learners themselves (Meyer et al., 2014). Success in the K–12 setting (Crevecoeur et al., 2014) supported endorsing UDL in the Higher Education Opportunity Act of 2008. This law promotes access and opportunity for diverse learners across an ability spectrum based on socio-economic and life experiences, English language proficiency, and psychosocial, physical, or learning disabilities. By using the UDL framework, occupational therapy program courses may be designed with diverse learners in mind, so all students will benefit from the scaffolding, flexibility, and adaptation of the environment for optimal learning. This may be especially important to higher education leadership as focusing on admission, retention, and graduation rates of all students is imperative for institutional viability (Tobin & Behling, 2018).

The CAST UDL framework (CAST, 2018) relies on neuroscience evidence and the science of learning researched through developmental psychologist Lev Vygotsky (Meyer et al., 2014). The framework is meant as a flexible roadmap for redesigning courses and curriculums rather than for adapting one class for one student with an identified need. Vygotsky's research focused on three main neural networks where learning takes place through the interaction with the environment (Vygotsky, 1962). Through this interaction, information is learned, strategies are used to process information, and engagement in the learning task is promoted. In coordination with the neuroscience research, and designed to enhance learning for a variety of students, the framework is made up of three parallel levels: multiple means of engagement, representation, and action and expression (CAST, 2018; Meyer et al., 2014).

The first part of the framework—multiple means of engagement—is the *why* of learning. Engagement includes recruiting interest by helping students understand the meaning of the information through goals and objectives, fostering collaboration, and providing mastery challenges and feedback in real time. Through expectations that are motivating, students facilitate skills and strategies to help them *meet learning challenges* and outcomes. In this section of the framework, engagement, attention, and organization of information for purpose and meaning provide a foundation for learning.

The second part of the framework—multiple means of representation—is the *what* of learning. Representation offers students the opportunity to learn through multiple means with the goal of *comprehension* of material. This includes providing background knowledge, highlighting patterns and relationships, and promoting transfer of knowledge and generalization of information. Through providing multisensory experiences for the intake of information, varied learners can take advantage of learning in multiple ways. This can be provided visually through PowerPoint presentations, videos, and closed captioning; audibly through read-aloud textbooks, music, and podcasts; or kinesthetically through hands-on learning activities that promote three-dimensional sensory opportunities (Murawski & Scott, 2019).

The answer to the question of *how* the student understands and uses the information learned is illustrated through the third section of the framework—action and expression. Multiple means of action and expression allow the student to demonstrate knowledge through physical action such as lab work or assistive technology, and through expression and communication using multiple mediums. This can be accomplished through developing posters, graphic displays, or writing assignments, or making occupation-based activities. Through these multiple means of action and expression, students are promoting the use of *executive functioning and clinical reasoning* necessary for use with the complicated clients they will encounter in the profession.

Occupational therapists in academia are well suited for using UDL in classroom learning environments. Because of our profession's philosophy of inclusion, access, and participation, many instructors are familiar with the process of adapting environments and activities to meet client needs in other practice settings. UDL is an extension of this process specified for the higher education environment. Using this framework, educators are encouraged to set up the physical, virtual, cultural, and social environments to use multiple means of engagement, representation, and action and expression (Meyer et al., 2014). This provides opportunities for successful outcomes for students in the academic setting. One area of opportunity for UDL is in the online learning environment. The following case example illustrates using UDL in developing an online occupational therapy course.

Case Example

The UDL guidelines as described above provide a framework for instructional design that supports developing expert learners. In a recent course revision project for a hybrid occupational therapy program, a team of occupational therapy faculty incorporated the UDL guidelines into the instructional design process to reinforce scaffolded learning practices. This model provided consistency to the course design while supporting students in developing self-regulation, comprehension, and executive function skills. The following examples of applying UDL principles in the design and delivery of occupational therapy education were developed for the online environment with carryover provided during traditional labs and simulated clinical experiences.

An essential component to applying UDL guidelines during the course design was to ensure the process documents reflected and encouraged UDL principles to be embedded in the very structure of the course, along with the course content items and activities themselves. A curricular flow was decided upon: Unit Introduction, Key Concepts, Concepts in Action, Application and Assessment, and Conclusions. Establishing this framework for the course before developing content helped keep the faculty focused on structuring the class with UDL in mind.

The Unit Introduction served as an opportunity to promote expectations, activate background knowledge, and guide appropriate goal setting. One key item that was included in the Unit Introduction section, for promoting executive function skill development, was a simple unit checklist that briefly described the action steps a student would need to take to complete the unit.

The Key Concepts section of the course was devoted to the main content topics that were necessary to meet the course learning objectives. Several methods were used in the Key Concept section, which helped promote student comprehension. Through using multiple media, source options were provided to help students interpret the information in a way that supported their individual learning needs. Within a single unit and across the course, attempts were made to vary the media provided by using video demonstrations, video lectures, interactive slide presentations, text, audio slide presentations, and interactive infographics. Each unit was mapped to a media plan, which designated the type of media being used to deliver content, regardless of the subsection of the unit in which it appeared. The map was reviewed to ensure variability in delivery methods, but also to control for organization and consistency to prevent distractions. Additionally, each content item within the Key Concepts section included a text summary to explain to the student what they were about to learn and why it was relevant to their occupational therapy education. This

About the Academic Education SIS

The Academic Education Special Interest Section (AESIS) members share a common interest in the field of occupational therapy education and include program directors, fieldwork educators, academic fieldwork coordinators, and faculty. The AESIS has a Fieldwork Subsection for fieldwork educators and academic fieldwork coordinators, and a Faculty Subsection. The AESIS strives to share current evidence-based teaching and learning tools and strategies in order to facilitate best practices in occupational therapy and occupational therapy assistant education.

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textual explanation helped create interest by optimizing relevance, value, and authenticity, as well as promoting comprehension by tying existing knowledge to the current concept, highlighting the critical features of the content, and encouraging generalization. Each content item also included 2 to 3 guiding questions for students to consider. These questions served to heighten the salience of the unit objectives and provide opportunities for self-assessment and reflection. Finally, knowledge checks were integrated to promote understanding, clarify vocabulary, and guide information processing. The course content was designed with the intent to both develop occupational therapy knowledge and promote self-regulation and student engagement.

The Concepts in Action section was specifically designed to add context and meaning to the content presented in the unit. This section contained videos of therapists describing their role in working with particular populations or in certain settings, guided students through investigating resources and current evidence, provided case studies that illustrated the content in the real world, or demonstrated a real-world application of the content through video simulations or reenactments of treatment sessions. Building context helped maximize transfer and generalization, guide information processing and visualization, and promote expectations and beliefs that optimize motivation. The Concept in Action area provided students with another method for reinforcing the information provided in the unit through alternative exploration opportunities.

The Application and Assessment section varied widely by unit and depended highly on the objectives being met by the unit in relation to the course. Considerations for developing activities for this section included varying the use of formative and summative assessments, and encouraging collaboration and community through small group discussions, small group projects, and peer review. Each assignment included a space to describe the assignment itself in broad terms relative to the unit objectives and content, which helped highlight the salience of the goals and objectives. A description of how to complete the assignment to support planning and strategy development was provided; most importantly, a "where can this be applied" section was added to encourage students to maximize knowledge transfer and promote motivation. Assessments were developed to vary the ways in which students demonstrated knowledge and communicated their understanding, often giving students options of how to communicate their responses back to the instructor. Rubrics were developed that focused on mastery-oriented feedback. Each unit ended with a conclusion, which again focused on highlighting patterns, big ideas, and relationships. Simultaneously students were expected to reflect on their own performance or feelings regarding the content they had just encountered. This self-assessment and reflection was deliberate to encourage self-regulation and help the student monitor their capacity for progress.

Integrating UDL principles in the course design process allowed the faculty to draw upon the various UDL strategies to ensure they were being integrated across units and courses. The focus on UDL created a more engaging and student-centered course and challenged faculty to integrate new techniques into the online learning space. The results of the UDL-focused instructional design process were met with increased student satisfaction in the online course, increased preparation for hands-on class components, and improved student engagement.

Conclusion

OTPs in academia are uniquely positioned to advocate for and apply UDL principles in their classrooms and programs. From designing course materials that are accessible to learners of all abilities (e.g., those with visual impairments, hearing impairments, or learning disabilities; English as a second language learners), to providing a wide range of assignments that enable learners to apply and demonstrate their knowledge of course content, occupational therapy educators can ensure that the structure of their course meets the needs of diverse learners. Using UDL evidence, this is best completed proactively before course and syllabus development for optimal scaffolding and inclusion of all students. In the case example presented, students benefited from the opportunity for multiple means of understanding materials and the ability to demonstrate skills through various assignments and interactions online. This enhanced the educator's and learners' ability to translate their knowledge of occupational therapy education to the clients they will serve in future practice.

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Improving Outcomes in Chronic Conditions: Occupational Therapy's Distinct Value in PDGM

HCH

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In the context of recent Medicare Part A payment changes for home health, occupational therapy practitioners (OTPs) should consider their vital role in addressing chronic conditions and improving outcomes for home health clients. Many home health clients have multiple chronic conditions to manage, in addition to the acute condition or event that triggered a referral to home health. OTPs should highlight their role in managing chronic conditions with their home health agency (HHA) and colleagues to help ensure that the HHA is using its practitioners in a way that best meets the needs of their clients.

The Patient Driven Groupings Model (PDGM) is the payment methodology that the Centers for Medicare & Medicaid Services (CMS) implemented for traditional home health effective January 1, 2020. *Patient* characteristics *drive* the payment through data collected in OASIS. One of the critical payment groupings is driven by the primary home care diagnosis. Although patients are given a primary diagnosis under PDGM, it does not mean this is the *only* diagnosis indicating a need for home health.

Table 1 on page 16 lists the clinical diagnoses under PDGM and the historical frequency of these clinical groups for home health patients. As the table demonstrates, the Medication Management Teaching and Assessment (MMTA) group is a considerable portion of the home health referrals. *CMS has indicated that even though there are two "rehabilitation" groups (Musculoskeletal and Neuro), these are not the only two Clinical Groupings that should receive therapy* (CMS, 2020). Therefore, OTPs should diversify their practice to include chronic disease management assessment and intervention to provide holistic and high value care for the patient and agency.

Therapy Diagnoses

Assigning the most accurate primary home care diagnosis to the client is a critical step in achieving the most accurate PDGM payment. A known pitfall to that process is the list of diagnoses that CMS has deemed too "non-specific" for use as a payment diagnosis. Most of these include symptomatic codes versus diagnosis codes.

CMS expects the plan of care to look different for clients with a neurological condition versus a biomechanical condition, so codes such as "muscle weakness" or "abnormalities of gait and mobility" (Medicare and Medicaid Programs, 2019) are not sufficiently descriptive. CMS believes clinicians should know the precipitating cause of the abnormality or change in condition to effectively treat the client (Medicare and Medicaid Programs, 2019). Therefore, occupational therapists (OTs) should not consider the client symptom as the

therapy diagnosis, but should investigate further to identify the most accurate cause of the need for therapy.

Several diagnoses, or conditions, on this list have been used for the last 20 years to explain the reason for therapy on the plan of care, the most prevalent being "muscle weakness." In an effort to apply uniform rules to therapy plans of care, home health coders believed certain codes such as "muscle weakness" were needed to explain the reason for therapy. Unfortunately, this forces therapy practice in home health to focus on muscle strengthening to adequately address the therapy diagnosis indicating a need for therapy. The unintended consequence in that practice shift was that it shifted attention from the value occupational therapy provides to clients with chronic conditions, which, as seen in the historical breakdown, comprises the largest prevalence of diagnoses in home health. The therapy diagnosis guidance above should be used to ensure the plan of care accurately reflects the diagnosis that indicates the need for therapy. If the plan of care is going to address chronic disease management, that should be reflected in the therapy diagnosis coding.

AOTA provides numerous resources for OTPs to ensure the most accurate therapy diagnosis, including navigating the ICD-10 codes (https://bit.ly/2tHL8yF). *The therapy diagnosis should indicate the performance deficit(s) indicating a need for therapy and medical complexity*. Examples of common codes used by OTPs can be found at https://bit.ly/2FrQ6SY, courtesy of AOTA. Any questions regarding coding should be directed to regulatory@aota.org.

Table 1. Clinical Groupings (Medicare and Medicaid Programs, 2019)

Descriptions	Historical Breakdown of Groupings
MMTA—Surgical Aftercare	51.6%
MMTA—Cardiac & Circulatory	
MMTA—Endocrine	
MMTA—Gastrointestinal & Genitourinary	
MMTA—Neoplasms, Infectious, & Blood-Forming Diseases	
MMTA—Respiratory	
MMTA—Other	
Behavioral Health	3.1%
Complex Nursing Interventions	4.4%
Musculoskeletal Rehabilitation	18.8%
Neuro Rehabilitation	10.2%
Wound	11.9%

Note. MMTA = *Medication Management Teaching and Assessment.* Assessment, evaluation, teaching, and medication management for various medical and surgical conditions not classified in one of the above listed groups. The subgroups represent common clinical conditions that require home health services for medication management, teaching, and assessment.

Chronic Condition Management

Practitioners should consider all client characteristics including primary diagnoses and comorbidities when developing the plan of care to appropriately tailor it to the client. In *Home Health Care: A Guide for Occupational Therapy Practice*, Carol Siebert (2016a) accurately identifies that, "One of the important goals of home health is to transfer management of the condition to (or back to) the client or caregiver. Day-to-day management of a chronic condition by the person experiencing the condition is one aspect of self-management" (p. 53)

Siebert (2016a) goes on to aptly describe how the home health population differs from other more acute rehabilitation settings:

> The term *condition* is more appropriate than *diagnosis* when discussing the home health population. Most home health clients have more than one health problem, so diagnosis alone does not adequately capture the health condition of a given client. The home, including its physical, social, and cultural contexts, influences the client and the needs and services provided. Each client's unique home situation is an environmental condition that is integral to the provision of home health care. (p. 49)

Although certain conditions such as cardiovascular, respiratory, and metabolic conditions may present with acute exacerbations indicating the need for resuming home health, these diseases are chronic and require continuous management by the client. Through effectively managing such conditions the client is better able to control the disease and even reduce the need for intensive services (Vance, 2016).

OTPs must support a client's self-management by assisting in strategies to manage these individual chronic conditions through functional interventions and education. Siebert (2016b) elucidates:

> For most clients, managing health conditions includes managing medication, or administering the right medication at the right dose at the right time, on a routine basis … self-management may also include monitoring blood glucose levels, engaging in appropriately paced physical activity, adhering to specific dietary recommendations, managing supplemental oxygen, and performing daily monitoring of blood pressure or weight (p. 122).

Analyzing performance in context helps identify a problem and allows clients to not simply perform or teach-back such activities, but to demonstrate their ability to integrate disease management into their daily lives. Through task analysis and problem-solving activities, clients and caregivers can proactively identify barriers to success and identify solutions early on to reduce a potential escalation of a problem (Vance, 2016).

Occupational Therapy Strategies for Chronic Condition Management

Managing chronic conditions requires multiple areas of consideration when developing a plan of care and completing an evaluation. To best serve the client, OTs must not only identify what symptoms the client is experiencing, such as weakness and fatigue, but also identify the cause of these symptoms as indicated by the physician, such as a Chronic Obstructive Pulmonary Disease exacerbation or congestive heart failure with volume overload. To address the symptoms and help prevent recurrence, OTs must address chronic disease management to obtain optimal outcomes and reimbursement under PDGM.

The *Occupational Therapy Practice Framework, Domain and Process*, 3rd Edition (AOTA, 2014) helps guide OTPs in understanding how certain elements support the client's ability to self-manage their chronic condition. The following sections indicate skills and routines needed to successfully manage a chronic disease. Additionally, Table 2 provides recommended areas for evaluations and interventions, grouped by diagnoses.

Managing Medication Routines

OTPs must first understand the distinction between medication management and teaching, a function reserved for skilled nursing

services. When addressing medication management, the occupational therapy plan of care should address the client's routine around taking medications, such as:

- What time(s) of day are they taken?
- Where are they kept in relation to when they are taken?
- Which ones are taken less often? Help the client identify why.
- How has the client managed successfully before?
- What are the barriers to taking all the medications at the right time and in the right way?

During this process, opportunities arise to collaborate with nursing and prescribing clinicians to ensure the client sufficiently understands their medications and does not require any medication adjustments because of cognitive or physical barriers revealed during the occupational therapy plan of care.

Additionally, there needs to be an analysis of the component skills required for obtaining medications, and for managing the medications and containers. What follows are appropriate compensatory strategies to manage deficits in component skills, including the critical step of integrating medication management into daily habits and routines (AOTA, 2017b).

Integrating Dietary Recommendations Into Meal Preparation

The occupational profile recommends the occupational therapy plan of care should address food preferences, the client's understanding of the effects of diet on their condition, and their willingness to consider alternative foods. Analysis must include how food is obtained, how and who prepares it, and compatibility with daily routines. Analysis of skills includes preparing meals safely, and consistency and knowledge regarding dietary recommendations. Occupational therapy practitioners can facilitate the development of compensatory strategies to obtain food and prepare meals, provide education on the effects of nutrition on disease process and symptoms, and facilitate identification of alternative food types or recipes consistent with dietary recommendations.

Conserving Energy as Lifestyle

During the occupational therapy plan of care, OTPs should ascertain the client's existing routines and habits in relation to their energy demands and capacities. Interventions will include providing education on pacing and planning to balance demands with capacities; self-monitoring energy and energy expenditure with an "energy budget;" adapting activities and routines to extend energy; using specific techniques (e.g., controlled breathing, relaxation) to extend energy; and using pulse oximetry to provide the client with an objective measure of success.

Incorporating Physical Activity Into Daily Routines

The occupational profile provides a picture of avocational or leisure preferences in addition to needed overall daily physical activity. In the case of chronic conditions, increasing activity and engagement in basic ADLs and IADLs is more relevant and sustainable than increasing specific muscle group strength (Hand et al., 2011). Identifying long-term options to sustain physical activity and endurance is often more effective than a home exercise program that the client may not perform independently.

Including the client in identifying these meaningful activities, and how they help them meet their long-term goals, can improve engagement in occupational therapy and client outcomes. For example, although long-term goals such as returning to volunteering at the local food bank may not be realized during the home health episode of care, if a client is able to identify how cleaning dishes and putting away laundry can help them meet their goal, engagement in these activities is likely to improve (Lenze, et al., 2019).

Table 2. Examples of Diagnostic-Specific Interventions

Diagnosis	Areas to Consider for Evaluation and Interventions
Diabetes	Meal planning, ability to read nutrition labels, ability to count carbohydrates, fine motor skills to administer insulin injections, compliance/understanding of daily foot/skin inspections, compensatory strategies for decreased stereognosis because of neuropathy, low vision training, medication management (American Occupational Therapy Association [AOTA], 2011)
Chronic Obstructive Pulmonary Disease (COPD)	Pulse oximetry use; wearing schedule and safety with oxygen tubing; education on side effects of low oxygen saturation (i.e., brain damage, muscle fatigue, falls); referral to resources such as the COPD Foundation; energy conservation; fall safety; medication management (Siebert & Vance, 2013)
Congestive Heart Failure (CHF)	Incorporating daily weights into routine, medication management, energy conservation, using blood pressure cuff, meal planning (AOTA, 2015)
Dementia	Caregiver training, activity modification, ADL checklists, establish daily routines, home modifications, referral to local support groups, cognitive and driving evaluations, safety education, problem solve long-term care plan for disease progression (AOTA, 2017a)
Wound Care	Daily wound checks and dressing changes; modifications to ADLs/mobility with weight-bearing precautions; lymphedema, infection control; home safety; personal hygiene; caregiver training (AOTA, 2018)

Self-Monitoring as Lifestyle

Chronic conditions require a considerable amount of self-monitoring of body systems and symptoms. Analyze the client's skills and capacities relative to demands of the task they are expected to perform, such as monitoring blood pressure, blood glucose, weight, and skin integrity. After education and training is provided, if gaps in capacity are identified, OTs should identify compensatory strategies and level of assist needed from the environment or caregivers to support self-monitoring. Assist clients in integrating condition-specific self-monitoring tasks into daily routines for increased success in consistency.

Problem Solving (Reducing Hospitalization Risk)

Analyzing occupational performance in context such as location and time of day shifts client teach-back from words to actions. Analyzing performance in context also helps reduce risk and promote consistent performance by the client. Helping the client to identify performance barriers promotes client and caregiver problem recognition and problem solving through those barriers. Focus on identifying an emerging need, problem, or risk at the earliest possible stage to prevent escalation of the problem.

Conclusion

Although this article focuses on occupational therapy's role in PDGM, client-focused practice should be applied across all care settings. Considering individual client factors when developing a plan of care is important for all clients in all settings. Part of those characteristics include the client's chronic diseases and their ability to manage them; often, the mismanagement of a chronic disease leads to a worsening

condition and need for therapy. OTPs have a valuable role to play in value-based, preventative care. It is our job as practitioners to ensure we communicate and demonstrate our value through holistic care.

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About the Home & Community Health SIS

The Home & Community Health Special Interest Section (HCHSIS) provides resources and support for occupational therapists and occupational therapy assistants who provide services in the home and community. Examples include home health, adult day services, senior housing, wellness programs, community mental health centers, home modification, and accessibility consultation. The HCHSIS also includes the Home Modification Network.

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Evidence Connection Article Applies Home Modification Research to Practice

Conducting home safety evaluations and recommending environmental modifications are some of the ways occupational therapy practitioners support a client's health and wellness. This Evidence Connection on Home Modification demonstrates the application of research to clinical practice: https://ajot.aota.org/article.aspx?articleid=2541625.

Head Injury and Homelessness: An Opportunity for Occupational Therapy

MH **Lee Westover, MS, OTR/L; and Caitlin Synovec, OTD, OTR/L, BCMH**

On a given night in 2019, approximately 568,000 people were experiencing homelessness in the United States (U.S. Department of Housing and Urban Development, 2020). Individuals who are homeless experience higher rates of disability and mental illness, earlier death, and less access to supportive services than the general population (Dams-O'Connor et al., 2014; Topolovec-Vranic et al., 2012). Individuals who are homeless are also much more likely to have experienced serious head injury (Stubbs et al., 2020). Occupational therapists (OTs) are uniquely able to facilitate increased independence and stability for these individuals (American Occupational Therapy Association [AOTA], 2019).

Traumatic brain injury (TBI) is a "disruption in the normal function of the brain that can be caused by a bump, blow, or jolt to the head, or penetrating head injury" (Centers for Disease Control and Prevention [CDC], 2015, p. 15). Symptoms of TBI can affect cognition, physical function, mood, and personality. A 2019 systematic review identified that approximately 53% (21 studies, *N*=11,417) of homeless and marginally housed individuals experience a TBI over the course of their lives and that nearly half of those individuals (12 studies, *N*=6,302) have experienced moderate or severe TBI (Stubbs et al., 2020). TBI can also be considered a risk factor for homelessness, as 51% to 92% of homeless individuals who report having a TBI were injured before they became homeless. TBI rates are even higher among veterans, who are overrepresented as 9% of the homelessness population (Barnes et al., 2015; U.S Interagency Council on Homelessness, 2018).

Cognitive impairment is a hallmark symptom of TBI that is also frequently present in the general population of homeless persons (CDC, 2019; Stubbs et al., 2020). Attention is commonly affected, with implications for concentration, time management, and working memory (Andersen et al., 2014). These deficits can affect the ability to complete ADLs and especially complex IADLs, such as health management (Gillen, 2009). In adults experiencing homelessness, these symptoms can make it especially difficult to navigate access to services and may affect the ability to re-enter independent housing or employment. TBI can correlate with mental health disorders, personality changes, substance use disorders, suicidality, migraines, epilepsy, increased contact with the criminal justice system, increased emergency room visits, and unmet health needs despite increased access to physicians (Stubbs et al., 2020; Topolovec-Vranic et al., 2017). Many practitioners working with these individuals do not routinely perform TBI screens, and symptoms are often attributed to other conditions like aging, depression, learning disability, or

emotional difficulties (Dams-O'Connor et al., 2014). It is therefore essential that OTs working with the homeless population administer TBI screens and education as a part of standard practice.

Evaluation

Although OTs do not diagnose head injuries, a notable incident or series of incidents in an individual's history could alert the OT to consider sequelae of TBI in intervention design (Lemsky et al., 2018). Self-report measures continue to be supported as the most effective screening method (Dams-O'Connor et al., 2014). Both mild and major head injuries should be recorded, as well as any loss of consciousness, which generally results in more severe symptoms (Dams-O'Connor et al., 2014; Lemsky et al., 2018). The Ohio State University Traumatic Brain Injury Identification Method (OSU TBI-ID) has demonstrated high interrater reliability and predictive validity (Corrigan & Bogner, 2007), and is recommended by the National Health Care for the Homeless Council (NHCHC; Lemsky et al., 2018).

Additionally, OTs' distinct role in evaluating functional cognition allows assessment of the effect of cognitive limitations on overall function in individuals who are homeless (AOTA, 2019). For these individuals, evaluating function may focus more specifically on skills for self-and health management, as well as housing maintenance as a person prepares to transition into housing (AOTA, 2019; Raphael-Greenfield, 2012; Synovec, 2019).

Intervention

OTs frequently provide occupation- and activity-based interventions as part of multidisciplinary rehabilitation teams that provide services to individuals with TBI (Powell et al., 2015). Homeless individuals often experience limited access to health care services and/or ability to adhere to a treatment plan (Lemsky et al., 2018). Thus, special accommodation should be made, such as integrated and flexible service delivery where clients can easily access multiple services in one location, and support to navigate health care systems (Bonin et al., 2010). Until recently, resources explicitly designed for OTs working with this specific population were few. In 2018, however, NHCHC released "Adapting Your Practice: Recommendations for the Care of Patients Who Are Homeless or Unstably Housed Living with the Effects of Traumatic Brain Injury" (Lemsky et al., 2018). A multidisciplinary team that included an OT developed this set of guidelines, available free with registration at https://nhchc.org. Recommendations include how to ensure accurate collection of history, TBI screening, tips for cognitive and functional evaluation, mitigating potentially negative associations with health care providers, and trauma-informed care. The guidelines also offer basic strategies to accommodations for an individual with TBI. OTs can support organizations at a structural level to identify system-wide accommodations, and work with providers to identify specific strategies that can be implemented during individual encounters.

When working directly with individuals in this setting, OTs can implement occupation-based interventions to address existing cognitive challenges. Sessions may focus on maintaining safety in the community, completing ADLs/IADLs within a shelter setting, establishing strategies that can be used without in-person supports and accommodate clients' daily routines, and developing supports for occupational engagement. The following case example highlights how an OT may both directly address a person's needs and provide accommodations to increase engagement in services.

Case Example

Anthony was a 45-year-old man living in a homeless shelter. The OSU TBI-ID administered by the OT found he had sustained multiple mild concussions in his youth and early 40s, followed by a significant head injury resulting in a coma for 3 days. Before this injury, he was working and living independently, but he had no direct support systems. After a brief stay in rehabilitation care, he was discharged to a shelter.

Anthony had difficulty managing multiple chronic conditions, including diabetes and high blood pressure. He frequently missed medical appointments, as he was unable to remember his appointment schedule and was not always aware of the date or time of day. The shelter had reprimanded him several times because of his disorganized and messy bed area, as well as for leaving the floor past the designated curfew. Anthony was referred to occupational therapy to address self-management and health management skills.

Anthony was motivated to manage his diabetes and take medications, but he had trouble organizing medications, following written instructions, and adapting to medication changes. He was unable to remember dietary recommendations, and often ate pasta casseroles at the nearby soup kitchen. The OT administered a cognitive screening tool, which confirmed that Anthony displayed cognitive impairment in the areas of attention and recall. Through functional assessment, Anthony demonstrated difficulty with executive functioning and problem-solving skills. The OT first worked with Anthony to organize his bunk area. Anthony was able to keep a calendar above his bed to review nightly, cross off each day, and then in the morning remind himself of appointments. The OT also assisted Anthony with finding one safe space to put his essential belongings, making it easier to find them in the morning and leave on time. Anthony kept his pillbox in this space so he could take it with him during the day, to take medications with meals. Anthony benefited from structured support to identify specific meals offered at the soup kitchen that met his diabetes recommendations. The OT worked with Anthony and his team to establish a routine of breakfast, followed by coming to the clinic for appointments. He met with a nurse weekly to review his pillbox and receive education and support for dosing changes. Anthony was able to continue working with the OT to apply organization strategies within his space at the shelter and further establish routines and strategies for recall and organization.

Conclusion

While awareness about high rates of TBI in homeless individuals is gaining traction, there continues to be a paucity of evidence in

About the Mental Health SIS

The Mental Health Special Interest Section (MHSIS) supports and advocates for occupational therapy practitioners, educators, and researchers working with individuals, groups, or populations across the lifespan in settings ranging from hospitals to schools and community programs who are at risk for or are currently diagnosed with a mental health challenge. The MHSIS values the centrality of occupation in the intervention process to prevent further illness, and promote performance, participation, quality of life, well-being, role competence and occupational justice.

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regards to providing occupational therapy services for this specific population (Stubbs et al., 2020). Continuing to promote screening for head injury in settings that serve homeless individuals will contribute to clinical insight regarding the unique functional, personal, and social issues faced by this population, and how these factors affect their ability to exit the cycle of homelessness. Because of the unique role occupational therapy serves, there is an opportunity to establish occupational therapy services within settings serving adults who are homeless to address specific needs related to TBI.

Read the *American Journal of Occupational Therapy's* Evidence Connection article about occupational interventions for adults living with serious mental illness at https://bit.ly/33UGU56.

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Evidence Supports Cognitive-Behavioral Interventions for Caregivers

For caregivers of people with dementia, there is strong evidence to support cognitive-behavioral interventions that help them reframe beliefs, leading to decreased anxiety, depression, and stress. Read more at https://bit.ly/32kFdNl.

AOTA Critically Appraised Topic Series: Mental Health

A Product of the American Occupational Therapy Association's Evidence-Based Practice Project

This Critically Appraised Topic (CAT) is one in a series of systematic reviews summarizing the evidence related to children and youth. For more information on the methodology and to read additional CATs in the series, visit http://www.aota.org/Practice/Mental-Health/Evidence-Based.aspx.

Focused Question

What is the evidence for the effectiveness of interventions to help people with serious mental illness lose weight?

Clinical Scenario

Obesity rates among people with serious mental illness are higher than among the general population (Janssen, McGinty, Azrin, Juliano-Bult, & Daumit, 2015). High rates of obesity-related physical illness are often neglected by health care providerswho serve people with serious mental illness (Nankivell, Platania-Phung, Happell, & Scott, 2013). So egregious is the health care disparity that one study found decades of potential life lost for public mental health clients when compared with the general population. The most common cause of death was cardiovascular disease, of which obesity is a contributing cause (Colton & Manderscheid, 2006).

Weight-loss programs are needed that address the specific needs of people with serious mental illness, and occupational therapists have the expertise to develop such programs. The aim of this review is to assist occupational therapy practitioners in making evidence-based decisions about using weight-loss interventions for clients with serious mental illness.

Summary of Key Findings

Nineteen Level I studies addressing weight loss as an outcome were reviewed; 17 of the studies were randomized controlled trials (Attux et al., 2013; Bartels et al., 2013, 2015; Brown, Goetz, Hamera, & Gajewski, 2014; Cordes et al., 2014; Daumit et al., 2013; Forsberg, Björkman, Sandman, & Sandlund, 2008; Goldberg et al., 2013; Green, Janoff, Yarborough, & Yarborough, 2014; Green et al., 2015; Iglesias-Garcia, Toimil-Iglesias, & Alonso-Villa, 2010; Masa-Font et al., 2015; Mauri et al., 2008; Methapatara & Srisurapanont, 2011; Pagoto et al., 2013; Usher, Park, Foster, & Buettner, 2013; Wu et al., 2008), and 2 studies were systematic reviews (Bruins et al., 2014; Krogh, Speyer, Norgaard, Moltke, & Nordentoft, 2014).

Although 8 studies did not find a difference between the intervention and control groups (Cordes et al., 2014, Forsberg et al., 2008; Goldberg et al., 2013; Iglesias-Garcia et al., 2010; Krogh et al., 2014; Masa-Font et al., 2015; Pagoto et al., 2013; Usher et al., 2013), the majority of the studies (i.e., 11) found that, at some point in time, the weight-loss intervention group lost significantly more weight than the control group (Attux et al., 2013; Bartels et al., 2013, 2015; Brown et al., 2014; Bruins et al., 2014; Daumit et al., 2013; Green et al., 2014, 2015; Mauri et al., 2008; Methapatara & Srisurapanont, 2011; Wu et al., 2008). The average amount of weight change was relatively modest, ranging from a weight gain of 3.6 lb (Goldberg et al., 2013) to a weight loss of 9.9 lb (Mauri et al., 2008).

There was a wide variety of weight-loss programs. The studies that tended to be most effective focused on a few key goals of behavioral change with specific dietary recommendations (Green et al., 2014, 2015; Mauri et al., 2008) or included content related to both nutrition and physical activity and used a combined approach of group and individual sessions (Bartels et al., 2013, 2014; Daumit et al., 2013). Some studies also found improvements in fitness levels, as measured by walking speed (Bartels et al., 2013, 2014; Krogh et al., 2014; Masa-Font et al., 2015).

Bottom Line for Occupational Therapy Practice

Strong evidence derived from high-quality studies indicates that people with serious mental illness can lose weight using targeted programs that include content related to both nutrition and physical activity. Some features of the most effective interventions included the provision of nutrition and exercise components with specific dietary recommendations, at least weekly sessions, and a combined group and individual approach. Participants in weight-loss programs might need ongoing intervention and support to continue to meet weight-loss goals or maintain weight loss over time. In addition, occupational therapists should approach the process of weight loss realistically with their clients, acknowledging that there is variability in the amount of weight loss that will occur among individual clients.

The interventions included in this review are within the scope of occupational therapy practice, and occupational therapists are well suited to develop and lead weight-loss programs using knowledge related to active-learning principles and adoption of healthy routines and habits. Occupational therapists also have expertise related to skills training, which is particularly useful in the areas of shopping and meal planning for weight loss.

This work is based on the evidence-based literature review completed by Catana Brown, FAOTA, Lydia Geiszler MOT, OTR/L, Kelsie Lewis MOT, OTR/L, and Megan Steuter, OTS.

References can be found at https://bit.ly/33k8qbW.

Sponsored in part by Life Care Centers of America

Aging Innovatively: A Community-Based Healthy Aging Program

PA **Anne Lansing, OTD, MOL, OTR/L**

The current population of adults age 65 and older in the United States is approximately 46 million and is estimated to more than double by the year 2050 (AARP, 2017). This growth, along with the high cost of health care, has created new challenges associated with caring for aging adults. One way to support older adults in communities is through programs that educate on healthy aging. Community-based programs that include an occupational therapist (OT) have been shown to be effective (Clark et al., 2015; Fowler, 2019; Matuska et al., 2003; Szanton et al., 2018).

Occupational therapy professionals provide person-centered interventions that acknowledge how the environment can affect participation (American Occupational Therapy Association, 2014). Emerging assistive technologies (AT) provide additional supports for aging in place, but many older adults are unfamiliar with options for using technology in their daily lives. *Aging Innovatively* is an OT-led community-based program, developed by the author, that has been implemented in Davenport, Iowa, since 2018. This program includes strategies to promote healthy aging along with opportunities to learn about AT to support participants to age successfully in the community.

Community Partnerships

Community partnerships are foundational to successful community-based programs. Such affiliations provide a mutually beneficial relationship by allowing the program to be immersed within the community and for sharing resources. A partnership between the St. Ambrose University Occupational Therapy Department and a local church near the University created an opportunity to build upon healthy aging programs in the community by adding exposure and experiences related to AT. Jim's Place, an AT-equipped house affiliated with the Occupational Therapy program, provided a unique environment for participants to learn about and interact with an array of technology. Readers can explore Jim's Place virtually at https://info.sau.edu/jimsplace/.

Aging Innovatively participants were at least 60 years of age, lived in the community, and had transportation to and from each session. To ensure an adequate experience, total participant capacity was set at 12–15 older adults. The community partner provided the primary setting for this program. Educational sessions and hands-on learning were conducted in classroom and gathering spaces. Jim's Place served as the setting for a field trip during one session of the program. The accessible home includes a ramp, elevator, stair glide, and a ceiling track lift/mobility system. The home also features various home modifications and durable medical equipment (DME) to promote independence and participation. This site was chosen to provide an

opportunity for participants to learn and trial a wide variety of AT and DME embedded within a home setting.

Program Content

Two evidence-based programs helped to guide the curriculum of this program including Lifestyle Redesign® (Clark et al., 2015) and Designing a Life of Wellness (Matuska et al., 2003). Rowe and Kahn's Model of Successful Aging (1997, 2015) provided a guide for designing the program. This model includes three distinct components: avoiding disease and disability, maintaining good physical and cognitive function, and continuing to engage in life. Successful aging may also include factors of life satisfaction related to psychological and social well-being, spirituality and transcendence, and financial and environmental security (Zanjari et al., 2017).

Aging Innovatively includes several topics focused on healthy aging, while providing exposure to AT to support successful aging. The program includes educational sessions presented weekly for 5 consecutive weeks. Occupational therapy faculty facilitate the sessions, which include lectures, discussion, and hands-on learning opportunities. Occupational therapy students assist with hands-on learning stations. Educational topics focus on staying engaged in meaningful occupations and overcoming barriers to participation. Weekly topics address occupation, health, and well-being; the home environment; falls prevention; social engagement; and brain health, which can be supported by such lifestyle choices as staying physically active, engaging in new learning, and maintaining social connections (see Table 1). Feedback is obtained from participants after each session.

At each session, the participants problem solve solutions to overcome barriers to occupational participation. Assigned homework helps to incorporate these ideas into their lives. For example, participants reflect upon and identify an area of interest for new learning, and list two to three action steps toward engaging in the identified learning opportunity. Homework is also assigned in preparation for an upcoming session, such as completing a home safety checklist ahead of the Week 2 discussion on creating a supportive home environment. Assignments to prepare participants ahead of sessions or to promote opportunities for reflection after sessions help enhance discussions throughout the program.

Two individualized coaching sessions conducted with an occupational therapist are scheduled with participants: one before the first session to establish goals for the program, and one at the end of the sessions to reflect upon learning from the program and the degree to which their personal goals were attained. Participants then establish new personal goals to carry over the healthy aging strategies they have learned. The Life Balance Inventory (Matuska, 2012), Older People's Quality of Life-brief (Bowling, 2017), and the Goal Attainment Scale (Kiresuk & Sherman, 1968), are measures that have been used to guide the goal-setting process and contribute to measuring specific outcomes of the program. Thoughtfully guiding participants in the goal-setting process toward challenging yet achievable goals can help set the stage for participants to

Table 1. *Aging Innovatively* Program Summary

Week/Session Title	Summary
Pre-program Intake Data	▸ Intake form sent to participants before the program starts. Includes demographic information, details on the participant's home environment, driving status/primary mode of transportation, current use of assistive mobility devices, and any accommodations needed for low hearing and/or low vision.
Individualized Coaching Session 1	▸ 1:1 session with an occupational therapist. Initial assessment completed individually with participants, which includes the Goal Attainment Scale (GAS; Kiresuk & Sherman, 1968). Additional assessments included if necessary.
Week 1: *Occupation, Health, and Well-being*	▸ Importance of occupational engagement to health and well-being. ▸ Identify meaningful occupations and determine engagement in these occupations. Identify barriers and solutions to occupational participation. ▸ Hands-on exposure to assistive technology (AT).
Week 2: *How Does Your Home Environment Support You?*	▸ Ways participants' home environment can be a support or barrier to occupational participation. ▸ Discuss fitting one's home to age in place. ▸ Hands-on learning with AT throughout Jim's Place.
Week 3: *Let's Prevent Falls*	▸ Fall risks and personal strategies to prevent falls. ▸ Hands-on learning with AT related to falls prevention. ▸ Tai Chi class led by a Tai Chi instructor experienced with older adults and certified in arthritis and fall prevention through the Tai Chi Health Institute (TCHI). This certification requires 16 hours of group training with a TCHI Master Trainer, passing a workshop post-test, 50 hours of practice of which 30 are in the field supervised by a TCHI Senior or Master Trainer, and CPR certification before teaching.
Week 4 *Staying Socially Engaged and Getting Out*	▸ Importance of social and community engagement. ▸ Discuss book, *The Turquoise Table: Finding Community and Connection in Your Own Front Yard* by Kristin Schell, which participants read before the session. ▸ Hands-on learning with AT to support social participation and community mobility.
Week 5 *The Brain and Lifelong Learning*	▸ Overview of the brain, learning, and memory. Discuss the importance of continued learning to brain health as one ages. ▸ Discuss how participants are still learning, and desires for new learning. ▸ Hands-on learning with AT and community programs to support continued learning.
After Week 5 session *Individualized Coaching Session 2*	▸ Reflect on goals established at the start of the program. Complete GAS. Follow-up assessments as necessary. ▸ Establish new goals. ▸ Complete program evaluation form.

take personal responsibility for their own health and create a more customized experience.

The group-learning format within the educational sessions provides opportunities for socialization, discussion, and knowledge sharing among the group. The range of contextual factors and experiences surrounding the participants has contributed to rich discussions throughout the program. Social experiences, integral to the success of the program, have been identified as a strength of the program through program evaluations completed by participants.

Case Example

Mary was a 76-year-old retired widow, living alone in a single-family home. She reported having a large extended family, most of whom lived outside of the area. She disclosed feeling socially isolated and physically inactive, and she had concerns about the upkeep of her home and yard. Through the *Aging Innovatively* program, she hoped to gain ideas and strategies for staying active and socially connected, which aligned with her interests.

The visit to Jim's Place allowed Mary to see how home modifications could support continued safety, independence, and occupational participation. She trialed a magnifying lamp, which could be used to support her hobby of crocheting and needle work. Mary sampled various ergonomic gardening and yard tools to help with managing yard work, and she reported that she would purchase some of the tools through a local home improvement store. She also viewed and trialed an array of home modifications and AT for future consideration, including:

- Drop-down kitchen cabinetry, an adjustable height sink, and French door oven, which could provide easier access to items needed for meal preparation when reach and mobility are limited.
- A home elevator, allowing continued access to the upper or lower levels of the home if she experienced challenges with functional mobility.
- The zero-depth shower with grab bars, for greater independence and safety during the occupation of bathing.
- A voice-activated environmental control unit, which would allow her to operate lights and electronic devices throughout the home using her voice.
- Telepresence with remote camera options for greater security and the ability to see throughout the interior and exterior of her home if her mobility was limited. This could also allow her family members to visually access her home remotely to ensure her safety and security.
- A ramp with deck option for easier access to her home and more social opportunities to visit with those with limited mobility.
- A raised garden so she could continue her occupation of gardening by allowing her to stand or sit, vs. bending to the ground.

During the falls prevention session Mary learned about the importance of staying physically active to prevent falls. Occupational therapy students helped her download a free app for falls detection to relieve her worries about falling while completing yardwork. The app could detect her fall and provide an alert to a designated family member, friend, or neighbor to provide assistance if needed. She engaged in a Tai Chi session for falls prevention and obtained information on where local classes were being offered. She also learned about the connection of physical activity to brain health during *The Brain and Lifelong Learning* session, and she was informed about some community walking programs (i.e., Silver Sneakers, Walk with a Doc).

Within the social engagement session, Mary learned about the importance of social connections to maintain her health and well-being. She gained exposure to AT, which could support her goal to stay in touch with loved ones. Participants problem solved and shared experiences with their own social connectivity and use of AT to bridge gaps to maintain a sense of community. Occupational therapy students instructed Mary on AT options to support social engagement. They helped her set up a Facebook page and download the Instagram App, to view photos of relatives and friends. She was instructed on video calls using FaceTime on her cell phone, to connect with her children and grandchildren who do not live locally. The following week she used the newly learned apps and enjoyed connecting with family members. At the end of the fourth session, Mary and three other group members shared their plans to meet for coffee beyond the program. Mary expressed that she was pleased to have formed new friendships through program.

Conclusion

The ability to trial AT is an effective component of *Aging Innovatively*. Participants showed positive attitudes toward trialing AT and frequently listed exposure to the AT devices as a beneficial experience within each session. Participants who trialed AT often reported purchasing the item to implement for home use (e.g., long-handled reachers, sock aides, grab bars, motion-activated lighting, a bidet, Amazon Echo). Participants also have followed through with downloading apps presented, including those for falls detection, ride-sharing/transportation support, social media, and learning a new language. Participant attitudes toward AT at the beginning of the program may influence the approach used to introduce them to the devices. For example, a greater level of inquiry or discussion may be required before demonstrating AT for participants who are unsure about new technology. The program can be adapted to provide detailed instruction on devices and additional hands-on application to allow participants to trial items at home to increase receptivity toward the AT devices. If participants are eligible for DME through Medicare, the opportunity to trial devices may help them make an informed decision with their primary care provider to prescribe a device.

Advancement of high-quality occupational therapy interventions through community-based healthy aging programs align well with the shifting models of reimbursement and emphasis toward prevention and health promotion services. OT-led community-based programs create opportunities to bring forward occupational therapy's distinct value in support of healthy aging and aging in place (Popova & Wescott, 2019). The *Aging Innovatively* program currently

About the Productive Aging SIS

The Productive Aging Special Interest Section (PASIS) provides resources and support for clinicians, researchers, educators, and students who are addressing the complex needs of older adults along the continuum of care. It highlights new and innovative intervention approaches for older adults with physical, psychosocial, and developmental needs, as well as relevant policy impacting current geriatric practice.

- Meet the PASIS committee members at www.aota.org/PASIS.
- Join the CommunOT™ discussion at www.aota.org/PASIS-forum.

is free of charge to participants through a community partnership; however, when considering funding or reimbursement for services, programs such as these may fall under the community-based service delivery model as reimbursement structures continue to evolve (Colligan et al., 2015).

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Evidence Supports Cognitive-Behavioral Interventions for Sleep

Are you addressing sleep as an occupation with older adult clients? A systematic review on occupational therapy interventions addressing sleep for community-dwelling older adults found strong evidence for cognitive-behavioral interventions to support sleep. Read more at https://ajot.aota.org/article.aspx?articleid=2681980.

Sponsored in part by Life Care Centers of America

The Role of Occupational Therapy in Delirium Detection and Management for Critically Ill Clients

RD **Lyndsay Laxton, OTR/L; and Meghan Morrow, OTR/L**

Delirium, defined as an acute "disturbance of consciousness, with reduced ability to focus, sustain, or shift attention," is experienced by 45%–87% of clients admitted to the intensive care unit (ICU), and up to 80% of clients experiencing mechanical ventilation (Álvarez et al., 2017; American Psychiatric Association, 2013; Karnatovskaia et al., 2015). Delirium is often characterized by an acute onset of disorganized thought, not to be confused with dementia, which is typically a chronic and insidious condition (Lippmann & Perugula, 2016). Clients who experience an acute onset of delirium during ICU hospitalization are at risk for long-term physical, cognitive, and psychological deficits, termed *Post-Intensive Care Syndrome* (Myers et al., 2016). Additionally, longer duration of delirium is linked to increased mortality, psychological morbidity, decreased executive functioning, and impairments in performing ADLs (Brummel et al., 2014; Karnatovskaia et al., 2015).

Occupational therapy practitioners (OTPs) are well positioned to lead initiatives to reduce the incidence and duration of delirium. Through the client-centered nature of the profession, and rigorous academic training in theoretical rehabilitation frameworks, particularly the Person–Environment–Occupation Model, OTPs have a deep understanding of the transactional relationship that occurs between a critically ill client, the ICU environment in which they are hospitalized, and the meaningful occupations in which clients strive to participate (Law et al., 1996). In this article, we provide an overview of evidence-based assessments and interventions for combating delirium.

Assessment

Using valid and reliable measures to assess clients for delirium is critical for early detection and intervention. Table 1 summarizes three commonly used assessments to comprehensively measure delirium—the Confusion Assessment Method–Intensive Care Unit (CAM-ICU), the Confusion Assessment Method Severity Scale (CAM- S), and the Richmond Agitation-Sedation Scale (RASS). Any health care provider can perform these no-cost assessments after studying the manual. The CAM-ICU determines the presence or absence of delirium and is the gold standard for delirium screening (van Eijk et al., 2011). The CAM-ICU identifies delirium as present when the client is experiencing an acute change or fluctuation in mental status, inattention, and a) an altered level of consciousness, and/or b) disorganized thinking (Sessler et al., 2002). Although the CAM-ICU remains the most widely researched and used assessment of delirium, it cannot be used to quantify the severity of delirium, which is correlated with length of stay, mortality, and duration of

nursing home residence (Álvarez et al., 2017). As such, the CAM-S was designed to quantify the severity of attention deficits and disorganized thinking, and it allows the clinician to illustrate trends in severity of delirium symptoms over time (Inouye et al., 2014). Additionally, the RASS is a 10-point scale used to communicate a client's level of arousal, ranging from unarousable to combative (Table 1) and can be used by OTPs to objectively describe behaviors suggestive of hyperactive or hypoactive delirium (Sessler et al, 2002).

Outcome measures such as the CAM-ICU, CAM-S, and RASS provide objective data to identify clients experiencing delirium, as well as illustrate key features and severity of delirium to the interdisciplinary team. Therefore, we recommend routine use of all three assessments. When OTPs routinely screen for delirium, they can implement evidence-based treatment interventions, which allow for better outcomes and improved overall quality of life.

Traditional Occupational Therapy Interventions

The effectiveness of traditional nonpharmacological interventions on the prevention and management of delirium within the ICU has been well documented and encouraged for routine usage. Rivosecchi and colleagues (2015) and Álvarez and colleagues (2017) determined that multi-component delirium protocols result in a reduction of delirium incidence and duration. Such interventions include early mobilization; reorientation education; sensory normalization (i.e., applying glasses, hearing aids, dentures); cognitive stimulation activities; normalizing circadian rhythms; environmental modifications (i.e., private rooms, windows, open blinds); positioning interventions to prevent edema and bedsores; ADL engagement; and exercises stimulating upper extremity motor function.

Contemporary Occupational Therapy Interventions

In addition to traditional interventions, several contemporary nonpharmacological interventions, such as the ICU Diary, preferred music listening, and family engagement, are suggested to have a positive effect on the neurocognitive functioning of clients within the ICU. Structured as a timeline, the ICU Diary provides the client with background information about their admission to the ICU through a daily narrative, which details medical events, presence of visitors, functional milestones, and/or emotions. The ICU Diary has been found to assist with filling memory gaps, re-create biographical accounts of factual events, and validate the client's emotions (Blair et al., 2017). The ICU Diary can act as a platform for OTPs to initiate cognitive reeducation by addressing specific cognitive skills such as short-term memory, sustained attention, and orientation. The ICU Diary is also used for family members to express emotions, reflect on shared experiences, and reduce symptoms of posttraumatic stress disorder that are associated with critical care admissions.

Preferred music listening is a safe and feasible preparatory activity to engage clients neurocognitively in the beginning phases of their ICU admission. Music listening activates areas of the brain involved with memory, sustained attention, and emotion (Khan et al., 2017). Preferred music listening, particularly to low tempo music, is "an excellent way to deliver client-centered care and promote a healing environment by increasing activity in the area of the brain related to memory" (Khan et al., 2017, p. 2). Through using client-preferred music listening for up to 2 hours a day, OTPs can engage the client's basic neurocognitive processes and help expedite recovery.

Family education and involvement in client care is an essential component of client recovery and can prevent long-term psychological deficits experienced by families and caregivers of ICU clients (Myers et al., 2016). By inviting a family member to participate in basic aspects of a client's care, OTPs assist family members in regaining control, aid the client in initiating daily routines, and attempt to re-establish premorbid roles. When family members are engaged in the plan of care, aware of weekly goals, and educated on expectations for a daily routine, there is improved continuity of care and transparency. Offering education on the first day of ICU admission empowers family members and maximizes carryover of OTPs' instructions on delirium prevention and management (Carbone & Gugliucci, 2015).

Case Example

John, an 89-year-old man, was admitted to the ICU after a lumbar spinal fusion that was complicated by an intraoperative dural tear, resulting in 24 hours of surgeon-prescribed bed rest. Occupational

Table 1. Summary of Delirium Assessments

Assessment	Purpose	Administration Time	Reliability	Validity	Scoring
Confusion Assessment Method–Intensive Care Unit	Identify the presence of delirium for clients in the intensive care unit	2–3 min	0.79–0.96	Sensitivity 95%–100% Specificity 93%–98%	CAM + = presence of delirium CAM - = absence of delirium
Confusion Assessment Method Severity Scale	Quantify severity of delirium symptoms	5–7 min	0.85		0 = least severe 7 = most severe
Richmond Agitation-Sedation Scale	Rate level of consciousness	Observational from 30 sec–1 min	0.83		+4: combative +3: very agitated +2: agitated +1: restless 0: alert & calm -1: drowsy -2: light sedation -3: moderate sedation -4: deep sedation -5: unarousable

therapy services were initiated after the bed rest restriction was removed. At this time, John was found to be CAM-ICU positive, with a CAM-S score of 6, and presented at a RASS-3 level. Because of the hypoactive nature of the delirium John was experiencing, initial occupational therapy interventions targeted increasing stimulation, which included sensory modulation (i.e., placing hearing aids and eye glasses), progressive mobilization, and increasing family interactions with John through conversation, storytelling, and reading a favorite book aloud. The occupational therapist provided reorientation through education, environmental modifications (i.e., opening the blinds, playing meaningful music), and facilitated engagement in basic ADL tasks. With continued family engagement, sensory integration, progressive mobility, and ADL participation over the course of 2 days, John demonstrated significant improvement in his level of arousal, with a decrease in his CAM-S score. On hospital day 4, he was without delirium for a period of 24 hours.

Conclusion

Clients who experience delirium are at an increased risk of long-term neurocognitive and functional impairments, with duration of delirium associated with severity of neurocognitive dysfunction. Early and consistent use of valid and reliable screening tools is essential for early implementation of evidence-based interventions, which have been shown to reduce the incidence of delirium. Because of the client-centered nature of occupational therapy and extensive theoretical training, OTPs are well positioned to provide meaningful contemporary and traditional interventions during the most vulnerable moments of a client's recovery.

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About the Rehabilitation & Disability SIS

The Rehabilitation & Disability Special Interest Section (RDSIS) addresses the needs of practitioners who serve individuals with physical dysfunction resulting from a wide range of conditions. The RDSIS also includes the Hand Rehabilitation Subsection for those who address dysfunction of the hand and upper extremity, and the Driving/Driver Rehabilitation Network to educate and support therapists to provide pre-driving screens or driver assessments and training, or to serve as referral sources to appropriate agencies.

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Occupational Therapy and Workplace Stress

WI

Marissa Marchioni, OTD, OTR/L, CEAS; Priya Parekh, OTD, OTR/L, CEAS; and Brandy Brown, OTD, OTR/L

Work is a primary form of paid occupation for up to 63% of individuals in the United States (U.S. Bureau of Labor Statistics, 2019). According to the American Occupational Therapy Association (2014), work also includes occupations that are unpaid yet contribute socially and economically to society. Work plays a central role in individual and social identity development and provides a sense of purpose for one's life (Fossey, 2019; Waddell & Burton, 2006). In addition, work has been shown to have positive implications for the health and well-being of the worker by providing financial resources for material needs and setting a time structure for daily activities (Waddell & Burton, 2006; Wilcock, 2001).

The quality, nature, organizational climate, and social context of work vary greatly and, unfortunately, not all work positively affects worker health and well-being (Arnetz et al., 2011; Waddell & Burton, 2006). Work-related stress is a major public health concern shown to have negative effects on both physical and mental health (Lee et al., 2013). The work demands placed on the individual, the individual's ability to withstand the pressure from the demands, and the resultant effects can all contribute to this stress (Stein, 2008). Work-related stress has been associated with increased symptoms of depression such as fatigue, insomnia, poor concentration, and feelings of worthlessness (Lee et al., 2013). Sources of work-related stress may include poor work conditions, challenging social interactions, job demands, job insecurity, and poor worker fit (Baumert et al., 2014; Grawitch et al., 2015; Khubchandani & Price, 2015; Menéndez-Espina et al., 2019).

Stressors in the Workplace

Work-related stressors including adverse work conditions such as physically and emotionally uncomfortable work, high job demands, and interpersonal conflict, as well as decreased job security and poor job fit have been correlated with an increased suicide risk (Baumert et al., 2014; Tiesman et al., 2015). Workers who have high job demands but little control over how the job is done often experience higher levels of work-related stress than those with more autonomy (Nieuwenhuijsen et al., 2010). Other risk factors for increased work-related stress include low support from coworkers or supervisors and a high effort–reward imbalance—where work efforts are high but rewards such as job security, promotion, or being valued by the organization are low (ten Have et al., 2015). The presence of these factors places the worker at risk for developing a stress-related disorder (Nieuwenhuijsen et al., 2010).

Challenging social interactions and interpersonal conflict in the form of workplace bullying are also predictive of stress-related disorders and negative mental health outcomes (Khubchandani & Price, 2015). Workplace bullying affects 60.3 million Americans and includes verbal harassment, threatening or humiliating peers, and work interference (Namie, 2017). Workers who experience these negative interpersonal interactions have increased risk of poor mental and physical health, increased absenteeism, higher levels of burnout, and lower levels of commitment to the organization (Attell et al., 2017; Houshmand et al., 2012; Nielsen & Einarsen, 2012).

Greenhalgh and Rosenblatt (1984) identified *job insecurity*, the feeling that your job is at risk or that you may be fired based on performance or personality, as another stressor in the work environment. Workers may have higher levels of job insecurity based on the type of work they do or concerns about the workplace itself, such as during times of economic recession (ten Have et al., 2015). Job insecurity has been strongly correlated with decreased mood, increased anxiety, and the use of maladaptive coping strategies through increased substance use (Menéndez-Espina et al., 2019).

Other work-related stressors include poor *work–life fit* (balance between work and life) and poor *worker fit* (way a worker feels in his/her job) (Marchand et al., 2015; Shepherd-Banigan et al., 2016). While sometimes under acknowledged, workers with poor work–life fit are also at greater risk for worse mental health outcomes, sickness, absenteeism, and lifestyle disturbances (Grawitch et al., 2015). Poor balance between work and other aspects of life can be a major stressor for workers, have a negative effect on emotional well-being, and lead to increases in family conflict (Shepherd-Banigan et al., 2016). When a worker experiences poor fit within their job they think that their skills or capabilities are overused or underused, and can experience increased work-related stress and negative mental health outcomes (Marchand et al., 2015).

Table 1. Occupational Therapy Assessment Tools and Interventions for Work-Related Stress

Assessment Tool	Description	Interventions
Beck Anxiety Inventory (Beck et al., 1988)	Measures severity of anxiety in adult populations	• Physical activity • Mindfulness training • Stress management training • Coping skills training • Assertiveness training • Time management training • Role playing • Effective communication skills training • Career exploration • Collaboration with other professionals (vocational rehab counselor, psychologist, or psychiatrist) • Consultation with management and leadership to eliminate or reduce stressors (Harvey et al., 2014)
Beck Depression Inventory II (Beck et al., 1996)	Assesses severity of depression in adolescent and adult populations	
Canadian Occupational Performance Measure, 5th Edition (Law et al., 2014)	Assesses change in an individual client's perceived occupational performance over time	
Stress Management Questionnaire (Stein et al., 2003)	Assists the client in identifying everyday life stressors, symptoms of stress, and coping mechanisms	
Work Environments Scale (Moos, 2008)	Examines the interpersonal environment of a workplace	
Worker Role Interview–Version 10.0 (Braveman et al., 2005)	Explores psychosocial and environmental factors related to work	

Occupational Therapy Interventions for Work-Related Stress

Occupational therapists can ably enter the front lines against work-related stress through applying evidence-based best practice methods including using thoroughly reviewed assessment tools and interventions (see Table 1). Occupational therapy interventions that have been successful in reducing work-related stress and symptoms of depression include physical activity programs, mindfulness-based programs, stress management interventions, and work environment modifications (Joyce et al., 2016; Khoury et al., 2015; Richardson, 2017; Stoewen, 2016). These interventions can be delivered in a multitude of ways: consultation with managers and organizational leaders, training to support skill building in leadership, or direct services to workers through individual and group-based activities (Harvey et al., 2014).

Case Example

Anna is a 30-year-old mental health community coordinator with a history of anxiety and depression. She recently missed a week of work because she did "not feeling like going in." She eventually saw her physician, who adjusted her medications and referred her to occupational therapy to address work-related performance issues. During her initial evaluation, Anna completed the Worker Role Interview—Version 10.0 (WRI; Braveman et al., 2005), which assists in identifying environmental and psychosocial factors that may inhibit or facilitate return to work. Anna's scores for the Roles section of the WRI are indicated in Table 2.

During the interview, Anna reported that she was "burnt out" and felt "overwhelmed." Anna stated barriers to occupational engagement including role strain between work and providing care to her parents. Anna noted that she was "no longer doing anything like I wanted," expressing frustration with her inability to perform at work and do everyday things like maintain her home. Based on this information, Anna's current roles were interfering with her ability to return to and maintain work.

In collaborating with Anna, the occupational therapist set goals to help her identify how her roles were conflicting, how to balance them to minimize conflict, and the effect that the imbalance was having on other areas of her life. The intervention plan primarily consisted of group therapy sessions once weekly, which addressed education and participation in stress management skills, coping strategies including mindfulness, and effective communication skills, with individual sessions as needed. The occupational therapist used occupation-based activities (e.g., time management to allow for engagement in desired leisure activity at least 15 minutes/day to

Table 2. Scores for Roles Section of Worker Role Interview

Roles	Score					
Appraises work expectations	SS	S	***I***	SI	N/A	Somewhat understands general responsibilities in current job.
Influence of other roles	SS	S	I	***SI***	N/A	Having difficulty balancing being a caregiver to parents, working, and managing daily activities such as home management.

Note. SS=strongly supports, S=supports, I=interferes, SI=strongly interferes, N/A=not applicable for return to work or finding and keeping work in general

decrease stress), role-play, and assertiveness training to address some of these performance skills deficits to enable Anna to do things the way she wants in the future, while maintaining her other roles of worker and caregiver.

Conclusion

Occupational therapy practitioners can be instrumental in promoting work-related health and well-being. Through using a client-centered, holistic approach rooted in evidence, we can address work-related stressors at various levels within an organization. We can have a positive effect on our clients' ability to function both inside and outside of the workplace, as well as on their overall quality of life.

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The Work & Industry Special Interest Section (WISIS) focuses on the distinct role of occupational therapy in assisting people and groups across populations to engage and reengage in the meaningful occupation of work throughout the lifespan. The WISIS is dedicated to understanding the relationship of work to human development, motivation, and performance and supporting occupational therapy practice in a wide variety of settings. The WISIS provides a forum for networking with peers and other professionals, a means to access clinical resources, and a way to share emerging service delivery systems.

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