The primary purpose of this paper is to define the role of occupational therapy and the scope of occupational therapy services available for individuals with an autism spectrum disorder (ASD) to persons outside of the occupational therapy profession. In addition, this document is intended to clarify the role of occupational therapy with this population for occupational therapists and occupational therapy assistants. “The American Occupational Therapy Association (AOTA) asserts that occupational therapy services are grounded in the belief that persons with an ASD are integral members of their families and communities and have the right to fully participate in the educational, social, cultural, political, and economic life of society” (AOTA, 2009a, p. 843). Occupational therapy practitioners1 work collaboratively with individuals on the autism spectrum, their families, other professionals, organizations, and community members in multiple contexts to advocate for and provide a range of needed resources and services that support the individuals’ ability to participate fully in life (Case-Smith & Arbesman, 2008). According to a study conducted by the Interactive Autism Network (2009), occupational therapy ranks second to speech and language as the most frequently provided services for people with autism throughout the United States.

Prevalence data suggest that autism currently affects approximately 1 in 100 children (Centers for Disease Control and Prevention, 2009) with the same rate being reported in adults (Brugha et al., 2009). Other estimates of ASD diagnoses in the United States have suggested that these rates might be higher, with as many as 1 in 91 children ages 3–17 having a parent-reported diagnosis on the autism spectrum (Kogan et al., 2009). These figures reflect a dramatic increase in the number of individuals living with an ASD in the United States over the past 15 years.

Pervasive developmental disorder (PDD) is the diagnosis used in the Diagnostic and Statistical Manual of Mental Disorders, 4th edition, text revision (DSM-IV-TR; American Psychiatric Association [APA], 2000) and in the International Classification of Functioning, Disability and Health (ICF; World Health Organization [WHO], 2001) to describe the cluster of symptoms that range in type and severity and include (1) qualitative impairment in social interaction; (2) communication disorders; and (3) stereotyped, repetitive patterns of behaviors or a restricted range of interests. Depending on the level and distribution of symptoms across these categories, a child can be diagnosed with autistic disorder, Asperger disorder, or pervasive developmental disorder–not otherwise specified (PDD–NOS). At present, this range of disorders often is referred to as the autism spectrum disorders (ASD) rather than the PDDs. This shift in terminology reflects better awareness on the part of researchers and clinicians that services often appropriate for individuals with autism are suitable for other individuals on the spectrum (Johnson, Myers, & Council on Children With Disabilities, 2007; Lord & Risi, 2000). It reflects

1When the term occupational therapy practitioner is used in this document, it refers to both occupational therapists and occupational therapy assistants (AOTA, 2006). Occupational therapists are responsible for all aspects of occupational therapy service delivery and are accountable for the safety and effectiveness of the occupational therapy service delivery process. Occupational therapy assistants deliver occupational therapy services under the supervision of and in partnership with an occupational therapist (AOTA, 2009b).
Autism Statement
The American Occupational Therapy Association

general agreement that individuals with lesser impairments should also be considered part of the spectrum.

Rather than using the term ASD, the Individuals with Disabilities Education Improvement Act of 2004 (IDEA; P. L. 108–446) uses the term autism as a disability category under which children might be eligible for special education and related services. The IDEA regulations define autism as a developmental disability significantly affecting verbal and non-verbal communication and social interaction generally evident before age 3 that adversely affects a child’s educational performance. Other characteristics often associated with autism are engagement in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences. (IDEA, 2004, §300. 8[c][1][i])

Under Part B of IDEA, occupational therapy is a related service; under Part C, occupational therapy is a primary service. Thus, occupational therapy must be provided to students with autism if those services will help the student to benefit from special education (IDEA, 2004, §602[26][A]). Because educational classification and identification criteria vary considerably from state to state, readers are referred to the specific state policies and requirements.

**Occupational Therapy Domain and Process**

The aim of occupational therapy is to support individuals’ health and participation in life through engagement in occupations (AOTA, 2008). Occupations are activities that are meaningful to individuals and that support their health, well-being, and development (AOTA, 2008). Occupational therapy services focus on enhancing participation in and performance of activities of daily living (ADLs), instrumental activities of daily living (IADLs), rest and sleep, education, work, play, leisure, and social participation within their natural and daily contexts. Consistent with all occupational therapy intervention, the focus of services for individuals with an ASD is determined by their specific goals and priorities for participation. Given that individuals with an ASD may experience complex challenges including social–communication difficulties, the collaboration with key people such as family members, caregivers, and educators is important for determining goals and priorities. Some examples of occupations (ADLs) that may be challenging for people with an ASD, and that can be addressed by the occupational therapy practitioner are included in Table 1.

**Table 1. Potentially Challenging Areas of Occupation**

<table>
<thead>
<tr>
<th>Areas of Occupation</th>
<th>Examples of Occupations (Daily Life Activities) That May Be Challenging for People With an ASD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activities of daily living (ADLs)</td>
<td>Bathing, showering, dressing, eating, toilet hygiene, personal hygiene and grooming, sexual activity</td>
</tr>
<tr>
<td>Instrumental activities of daily living (IADLs)</td>
<td>Communication management, community mobility, meal preparation, fiscal management, health management and maintenance, home establishment and management, meal preparation and cleanup, safety and emergency maintenance, shopping</td>
</tr>
<tr>
<td>Rest and sleep</td>
<td>Achieving a calm state, sleep preparation, developing routines that support sleep, sleep participation</td>
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<tr>
<td>Education</td>
<td>Formal and informal education participation; written language skills; computer use; assistive technology; skills needed to access the curriculum; participation and transition within school environments such as classroom, cafeteria, playground, hallways, auditorium, and other school activities</td>
</tr>
<tr>
<td>Work</td>
<td>Employment interests and pursuits, employment seeking and acquisition, job performance, retirement preparation and adjustment, volunteer exploration, volunteer participation</td>
</tr>
<tr>
<td>Play and leisure</td>
<td>Play and leisure, exploration and participation</td>
</tr>
<tr>
<td>Social participation</td>
<td>Appropriate interactions with others (e.g., family, peers and friends, community), social competencies and management of novel situations, behavior management</td>
</tr>
</tbody>
</table>

The process of occupational therapy service delivery includes evaluation, intervention, and assessment of outcomes. Services can be provided to the client at the individual, organizational, and population levels and may include direct service, consultation, education, and advocacy to support the individual, family members, health professionals, educational staff, and community agencies. At the individual level, collaboration with family, caregivers, educators, and other team members is essential for understanding the daily life experiences of individuals with an ASD and those with whom they interact. At the organizational level, services may focus on educating staff and designing programs and environments that are more socially inclusive for persons on the autism spectrum. At the population level, occupational therapy practitioners may engage in education, consultation, and advocacy initiatives with ASD consumer groups.

The evaluation process is designed to gain an understanding of the client’s occupational profile and occupational performance. This process includes an analysis of the client’s strengths and challenges related to occupations, performance skills, performance patterns, body functions and body structures, and activity demands. The evaluation process is comprehensive and tailored to the concerns of the specific client, organization, or population. Evaluation information collected through interviews, structured observations, and standardized assessments guides occupational therapy services. Because the literature shows that individuals with an ASD may have difficulties in areas of occupation such as self-care; IADLs; sleep; functional and pretend play; leisure pursuits; social participation; education and work performance; and performance skills such as sensory modulation, self-regulation, praxis, and motor imitation, occupational therapy evaluations conducted at the individual level should assess these areas (Baranek, 2002; Case-Smith & Bryan, 1999; Dawson & Watling, 2000; Kientz & Dunn, 1997; Libby, Powell, Messer, & Jordan, 1998; Rutherford & Rogers, 2003; Shattuck et al., 2007; Watson, Baranek, & DiLavore, 2003; Zaks, 2006). At the organizational level the evaluation process may focus on analyzing the program structure, resources, and services that support persons on the autism spectrum to engage in desired occupations. At the population level the evaluation process may focus on collaborating with ASD consumer groups to identify their capacities and needs to support societal participation. Recent textbook chapters and practice guidelines have been developed to inform the practice of occupational therapy related to ASD and include
Occupational therapy intervention is based on the results of the evaluation and is implemented to foster occupational engagement and social participation by attending to the transaction among the client, the activity, and the environment. The goal of intervention is to promote engagement in and performance of daily activities, personal satisfaction, adaptation, health and wellness, role competence, quality of life, and occupational justice for people with an ASD within the contexts of their families and communities. At the individual level the intervention may emphasize social engagement and participation, include strategies to improve adaptive behaviors and occupational performance, and support family priorities. Some research has demonstrated the effectiveness of occupational therapy interventions for children and adolescents with an ASD that lead to improvement in self-care and play and that include the use of activities that promote social interaction, problem solving, and pivotal behaviors (e.g., joint attention, initiative, persistence, executive functioning, cooperation) in addition to addressing specific skill acquisition (Case-Smith & Arbesman, 2008). Effective interventions also address contextual factors such as structure, consistency of routine, sensory environments that optimize attention and arousal, and caregiver skills that contribute to occupational performance. Research evidence indicates that the occupational therapy intervention process should be individualized, intensive, and comprehensive; include the family; and facilitate active engagement of the individual (Tomchek & Case-Smith, 2009). There is additional support in the literature for the use of developmental and behavioral approaches to intervention for individuals with an ASD, in particular, for young children (Callahan, Henson, & Cowan, 2008; Dawson et al., 2009; Rogers & Vismara, 2008). Environmental modification to address problem behaviors also has been shown to be effective (Horner, Carr, Strain, Todd, & Reed, 2002).

At the organizational level interventions could include recommendations for educational and policy initiatives, provision of staff education, and development of new programs. At the population level emphasis may be on inclusion and advocacy initiatives.

Assessing the outcomes of service is an integral part of the occupational therapy process and is important for determining future actions and for evaluating occupational therapy services provided for the individual, organization, or population. This assessment involves monitoring the client’s responses to intervention, reevaluating and modifying the intervention plan, and measuring intervention success through outcomes that are important to the client within the dynamic physical and social environments and cultural contexts where functioning occurs. Progress is noted through improvement in the client’s occupational performance, adaptation, participation in desired activities, satisfaction, role competence, health and wellness, and quality of life and through prevention of further difficulties and facilitation of effective transitions. Occupational therapy practice for individuals with an ASD is consistent with the WHO’s (2001) *ICF* and the National Research Council’s 2001 recommended practices for educating individuals with an ASD. Table 2 provides case examples that reflect a range of occupational therapy evaluation and intervention services for people with an ASD at the individual, organizational, and population levels across the lifespan.
Table 2. Case Studies of Occupational Therapy Evaluation and Intervention Services for People With an ASD

<table>
<thead>
<tr>
<th>Description of Client</th>
<th>Evaluation</th>
<th>Occupational Therapy Intervention</th>
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<tbody>
<tr>
<td><strong>Kamau</strong> is a 2½-year-old boy with autism. His language consists of single-word utterances. He has an intense interest in a few objects such as wheels and mobiles.</td>
<td>Develop occupational profile of play behaviors, family interactions, and food preferences through parent interview.</td>
<td>Provide weekly occupational therapy in the home setting with mother present to facilitate Kamau to establish self-regulation, social engagement, and pretend play skills (Greenspan &amp; Wieder, 1997; Kasari, Freeman, &amp; Paparella, 2006; Mahoney &amp; Perales, 2005; Salt et al., 2001).</td>
</tr>
<tr>
<td><strong>Heang</strong> is a 4-year-old girl with autism and attends an inclusive preschool through her school district. Her parents have sought individualized occupational therapy services from an</td>
<td>Develop an occupational profile of behavior and self-regulation in play through parent and teacher interview.</td>
<td>Utilize sensory integration methods; behavioral strategies, including positive reinforcement; and reciprocal play to improve social interaction.</td>
</tr>
<tr>
<td><strong>Kamau</strong> also is receiving speech therapy services and an applied behavioral analysis program at home through the state early intervention program.</td>
<td>Conduct clinical observations of behavior, self-regulation, and parent–child interaction during free play and interactive parent–child play.</td>
<td>Collaborate with the speech–language pathologist regarding Kamau’s intervention program and arrange co-treatment sessions to promote social interaction.</td>
</tr>
<tr>
<td></td>
<td>Conduct structured observation of parent–child interaction during play and while Kamau is eating.</td>
<td>Collaborate with the behavioral therapist (Cohen, Amerine-Dickens, &amp; Smith, 2006; Smith, Groen, &amp; Wynn, 2000) to integrate sensory and behavioral strategies helpful in modulating Kamau’s behavior.</td>
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<td></td>
<td>Administer Infant/Toddler Sensory Profile (Dunn, 2002), Bayley Scales of Infant and Toddler Development (Bayley, 2006) and Pediatric Evaluation of Disability Inventory, Self-Care Scale (Haley et al., 1992).</td>
<td>Provide parent training related to sensory processing and behavior management strategies (Koegel, Bimbel, &amp; Schreibman, 1996) and social participation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Provide parent consultation to improve the family’s mealtime routine and the variety of foods Kamau eats (Horner et al., 2002; Ledford &amp; Gast, 2006).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Provide weekly occupational therapy in a clinical setting with the parent present.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consult with preschool team, including teacher and speech–language pathologist.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Provide interventions to improve self-regulation to allow for socially appropriate behavior</td>
</tr>
</tbody>
</table>
outpatient clinic.

- She uses only a few basic gestures to communicate.

- She primarily engages in solitary sensory–motor exploration of her environment and does not yet spontaneously play beside other children or with toys.

- She has frequent tantrums and screams particularly when there are changes in the environment or when being directed toward a specific task.

- **Jorge** is a 6-year-old kindergarten boy with a diagnosis of PDD–NOS.

- He demonstrates minimal social initiation with peers, although he interacts better with adults.

- When peers initiate interaction, he withdraws or responds aggressively.

- He needs direct adult supervision to manage his school materials and complete school tasks.

- Develop an occupational profile of play, work/reward routine, and behavior regulation through parent and teacher interview.

- Conduct structured clinical observations of classroom behavior, social–communication, parent–child interaction, and play skills.

- Administer Short Sensory Profile (McIntosh, Miller, & Shyu, 1999) and School Function Assessment (Cognitive/Behavior Scales; Coster, Deeney, Haltiwanger, & Haley, 1998).

- Conduct formal functional behavior analysis of aggressive behaviors.

- Provide occupational therapy services within the school setting.

- Collaborate with teacher to implement structured teaching methods based on TEACCH (Ozonoff & Cathcart, 1998; Panerai, Ferrante, & Zingale, 2002) and a visual schedule in the classroom (Ganz, 2007).

- Implement positive behavior supports (Horner et al., 2002) and a sensory diet, including strategies for self-regulation based on the functional analysis of aggressive behaviors (Borrero & Borrero, 2008).

- Develop and implement social stories (Reynhout & Carter, 2006) prior to challenging school situations (e.g., standing in line, assemblies, fire drills) to encourage appropriate behavior.

- Develop peer buddies and modeling program to build social–communication skills during naturally occurring play activities (Harper, Symon, & Frea, 2008).
The local museum of science is interested in making the museum more accessible to people with an ASD. The museum hosts school classes on a daily basis and specialized weekend learning programs. Develop an occupational profile of supports and inhibitors to engagement in museum activities through observation of museum patrons of various ages interacting with museum exhibits. Complete structured observation of behavioral, sensory, and social demands of the museum, including structure, timing, and transitions of docent-led groups, signage, “way-finding” materials, and universal design features of physical space. Conduct focus groups at the museum with parents who have children with an ASD to elicit their recommendations for improving accessibility. Initially provide occupational therapy on a weekly basis in the clinic, then in the community. Provide direct intervention to address grooming and hygiene needs through the use of a specific step-by-step self-monitoring system. Consult with the Division of Vocational Rehabilitation to assist in the employment search. Use role playing, video self-modeling, and collaborative problem solving to address social communication/pragmatic language needs related to the interview process and interaction with coworkers. Initiate job coaching to allow T. J. to learn and master job skills.

T. J. is a 21-year-old young man with Asperger syndrome. T. J. currently is enrolled in a junior college and is having difficulty finding a needed part-time job. He lives independently in an apartment. He presents with poor grooming and hygiene skills and pragmatic language deficits. He has several interests but spends most of his free time reading about antique cars. His interest in cars...
Autism Statement
The American Occupational Therapy Association

has led to distractibility during driving and resulted in a minor auto accident and a traffic citation for failing to stop at a stop sign.

Wolenski, 2006).

- **Sanjaya** is a 34-year-old man diagnosed with Asperger disorder. He lives in an apartment with his wife and contributes to the family income through an online business.
  - Sanjaya has challenges with arousal regulation and coping skills, difficulty with body space awareness, and difficulty reading and sending body language signals that affect his social participation.
  - Sanjaya has tactile defensiveness, which leads to difficulties with intimacy.

- **Martina** is a 47-year-old woman with high-functioning autism who has recently transitioned from her parent’s home to a group home with 24-hour supervision due to her parents’ declining ability to care for her.
  - Martina has tactile defensiveness, which leads to difficulties with intimacy.

  Develop an occupational profile of ADL and IADL routines through interview with Martina and her parents.
  - Administer the Adolescent/Adult Sensory Profile (Brown & Dunn, 2002) and the Canadian Occupational Performance Measure (Law et al., 1998).

  Develop an occupational profile regarding behavior regulation and interpersonal relatedness through interview.
  - Administer the Adolescent/Adult Sensory Profile (Brown & Dunn, 2002) and the Canadian Occupational Performance Measure (Law et al., 1998).

  Provide occupational therapy services in the group home to help Martina organize her belongings; establish a routine for daily self-care and weekly household tasks; and ensure her success in using the available stove, washer, dryer, and vacuum.
  - Coach Martina to access online bus schedules, match the bus

  Provide occupational therapy services in the group home to help Martina organize her belongings; establish a routine for daily self-care and weekly household tasks; and ensure her success in using the available stove, washer, dryer, and vacuum.
  - Coach Martina to access online bus schedules, match the bus

  Facilitate T. J.’s enrollment in an existing on campus support group of other college students with Asperger disorder.
  - Initially provide occupational therapy services in the therapist’s office to address Sanjaya’s poor processing of tactile, vestibular, and proprioceptive input.
  - Develop a sensory diet for Sanjaya to implement on a daily basis in his natural environment.
  - Consult with and train Sanjaya and his wife in the Alert Program (Williams & Shellenberger, 1996) to recognize when his arousal level is high and to provide a language to aid in their communication.
  - Perform video analysis (Bellini & Akullian, 2007) and role playing to help develop an awareness of non-verbal communication through facial expression and body language as well as practice pragmatic skills.
  - Train Sanjaya and his wife in the use of deep tactile pressure and proprioceptive input to diminish tactile defensiveness.
• She works at a local bookstore where she shelves books and organizes incoming orders.

• She has funding for services through the Department of Developmental Disabilities and a small amount of private resources.

• Martina becomes anxious when her routine is disturbed, demands are placed on her, or her desires are not granted.

• Her parents arranged for contract occupational therapy services to facilitate her transition to the group home, with a focus on establishing routines for self-care and household chores, understanding and using transportation services to and from work, and regulatory difficulties that are known to affect her sleep cycles when substantial transitions occur.

• Conduct clinical observations of behavior during self-care, cooking activities, laundry, and cleaning tasks, as well as path finding and skills for using public transportation.

• Profile (Brown & Dunn, 2002), and Test of Grocery Shopping Skills (Brown, Rempfer, & Hamera, 2009).

• Conduct staff training regarding environmental accommodations and environmental supports.

• Collaborate with Martina to develop an evening routine that includes making a phone call or sending email to her parents, preparing for the next day’s activities, and enjoying soothing music in preparation for sleep (Reed et al., 2009). Martina will use a sleep chart each morning to record which strategies she used the night before, whether he felt anxious or relaxed at bedtime, and how late she remembers being awake. The occupational therapist monitors the sleep chart weekly and makes needed adjustments to her evening routine until it reflects a successful return to a regular and effective sleep cycle.

• Teach residential program staff to implement educational strategies, such as forward and backward chaining, visual supports, and environmental structure to support success during intervention (Horner et al., 2002; Hwang & Hughes, 2000) and during everyday activities.

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Autism Statement
The American Occupational Therapy Association

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Adopted by the Representative Assembly Coordinating Council (RACC) for the Representative Assembly.
Revised by the Commission on Practice 2010

Note: This document replaces the 2005 “The Scope of Occupational Therapy Service for Individuals with Autism Spectrum Disorders Across the Life Span.” (previously published and copyrighted in 2005 by the American Journal of Occupational Therapy, 59, 680-683).

To be published and copyrighted in 2010 by the American Occupational Therapy Association in the American Journal of Occupational Therapy, 64 (November/December).