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The Role of the Occupational Therapist in the Management of Neuropsychiatric Symptoms of Dementia in Clinical Settings

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Abstract

Neuropsychiatric symptoms (NPS) of dementia include aggression, agitation, depression, anxiety, delusions, hallucinations, apathy, and disinhibition. NPS affect dementia patients nearly universally across dementia stages and etiologies. They are associated with poor patient and caregiver outcomes including increased health care utilization, excess morbidity and mortality, and earlier nursing home placement, as well as caregiver stress, depression and reduced employment. There are no FDA-approved medications for NPS, but it is common clinical practice to use psychotropic medications such as antipsychotics to control symptoms; however, antipsychotics show only modest efficacy in improving NPS and have significant risks for patients, including side effects and mortality. Non-pharmacologic treatments are considered first-line by multiple medical bodies and expert consensus, show evidence for efficacy and have limited potential for adverse effects. Ideally, non-pharmacological management of NPS in clinical settings occurs in multidisciplinary teams where occupational therapists (OTs) play an important collaborative role in the care of the person with dementia. Our group has articulated an evidence-informed structured approach to the management of NPS that can be integrated into diverse practice settings and used by providers of various disciplines. The “DICE” (Describe, Investigate, Create, and Evaluate) approach is inherently patient- and caregiver- centered as patient and caregiver concerns are integral to each step of the process. DICE offers a clinical reasoning approach through which providers can more efficiently and effectively choose optimal treatment plans. The purpose of this paper is to describe the role of the OT in using the DICE approach for NPS management.

Introduction

While cognitive impairment is the clinical hallmark of dementia, non-cognitive neuropsychiatric symptoms (NPS) are very common and often dominate the clinical presentation (Sink, Holden, & Yaffe, 2005). NPS are universal, affecting 98% of individuals at some point in disease course (Lyketsos et al., 2011). NPS occur in dementia of all types; they tend to appear in clusters identified as depression, psychosis, agitation, aggression, apathy, sleep disturbances, and disinhibition (Lyketsos et al., 2011). NPS appear to be a consequence of interacting factors internal and external to persons with dementia. They are closely linked to the underlying brain disease causing cognitive symptoms, and result in part from heightened vulnerability to the physical and social environment as cognitive ability declines.

Relative to core cognitive symptoms, NPS tend to create the most difficulties for patients, caregivers and providers, and often lead to earlier nursing home placement (Kales, Chen, Blow, Welsh, & Mellow, 2005; Yaffe et al., 2002), excess morbidity, mortality and hospital stays (Wancata, Windhaber, Krautgartner, & Alexandrowicz, 2003), caregiver stress and depression, and reduced caregiver employment income (Borson & Raskind, 1997; Clyburn, Stones, Hadjistavropoulos, & Tuokko, 2000). Those caring for individuals with NPS are more distressed and depressed than those not managing NPS (de Vugt et al., 2004), and these symptoms can even pose threats to caregivers' own health and quality of life (Van Den Wijngaart, Vernooij-Dassen, & Felling, 2007). If untreated, clinically significant NPS are associated with more rapid dementia progression than in the absence of such symptoms (P. Rabins et al., 2011). Thus, effective treatments may potentially modify disease course, lower costs and improve quality of life for people with dementia and their caregivers.

Unfortunately, few well-proven treatment options for NPS are currently available in real-world clinical settings. While there are no FDA-approved medications for NPS, it is common clinical practice to use psychotropic medications such as antipsychotics to control symptoms; however, antipsychotics show only modest efficacy in improving NPS (Sink et al., 2005) and introduce significant risks for side effects and mortality (Kales et al., 2007).

Management of NPS using non-pharmacologic strategies is becoming increasingly recognized as an integral part of comprehensive, gold-standard dementia care (Physician Consortium for Performance Improvement, 2010; P. V. Rabins, Lyketsos, & Steele, 2006). Multiple medical organizations and expert groups (including the American Geriatrics Society, the American Psychiatric Society and the American Association for Geriatric Psychiatry) recommend non-pharmacologic strategies as the preferred first-line treatment approach to NPS (American Psychiatric Association, 2013; Royal College of Nursing, 2012; Ouslander et al., 2003; American Geriatrics Society, 2013), except in emergency situations when NPS could lead to imminent harm or otherwise jeopardize safety. In the latter cases, the standard of care supports psychotropic use in the absence of data, but only for brief periods of time and accompanied by careful monitoring. Non-pharmacologic approaches tend to conceptualize behaviors as stemming from unmet needs, environmental overload and the interaction of patient, caregiver and environmental factors. The goals of non-

pharmacologic treatment are prevention, symptom relief and reduction of caregiver distress (L. N. Gitlin, Kales, & Lyketsos, 2012).

Ideally, non-pharmacological management of NPS in clinical settings occurs in multidisciplinary teams. Within treatment teams, occupational therapists (OTs) can play an important collaborative role in the care of the person with dementia. Occupational therapists are expert at understanding the intricate relationships between person, environment and occupation that is required for successful task performance. Further, there are now multiple successful research interventions supporting the integral role of the OT in dementia care and more specifically for NPS prevention and management (Arbesman & Lieberman, 2011; L.N. Gitlin et al., 2003; Laura N. Gitlin, Corcoran, Winter, Boyce, & Hauck, 2001; Laura N. Gitlin, Hauck, Dennis, & Winter, 2005; L.N. Gitlin et al., 2008; Laura N Gitlin et al., 2009; Graff, Vernooij-Dassen, Hoefnagels, Dekker, & de Witte, 2003; Graff et al., 2007; Graff, Vernooij-Dassen, Thijssen, et al., 2006; Graff, Vernooij-Dassen, Zajec, et al., 2006)).

Our group has articulated an evidence-informed structured approach to the management of NPS that can be integrated into diverse practice settings and used by providers of various disciplines. The four-step DICE (Describe, Investigate, Create and Evaluate) approach is inherently patient- and caregiver- centered as their individual concerns, treatment goals and preferences are integral to each step of the process. DICE enables providers to consider conjointly the role of non-pharmacologic, medical and pharmacologic treatment; it offers a systematic clinical reasoning approach through which providers can more efficiently and effectively choose optimal treatment plans. The purpose of this paper is to describe the role of the OT in using the DICE approach for NPS management.

The Role of the OT in Dementia Care

Occupational therapists are concerned with the entire range of human occupation, encompassing eight main areas: 1) activities of daily living (ADLs; eating, hygiene, dressing, mobility and sexual activity); 2) instrumental activities of daily living (IADLs; e.g. care of others, household management, safety maintenance); 3) rest and sleep; 4) education; 5) work; 6) play; 7) leisure; and 8) social participation (Roley, Delany, & Barrows, 2008). Of these, five are directly relevant to people with dementia, most of whom are older adults and retired: ADLs; IADLs; rest and sleep; leisure; and social participation (Letts et al., 2011). Throughout the trajectory of the disease, the OT's foci are on supporting the best functioning of the person with dementia, and providing education and skills training (e.g. communicating effectively, simplifying activities) and support to caregivers (Letts et al., 2011).

Occupational performance reflects the dynamic relationship between the person, his or her roles, and the environment (Law et al., 1996). The person is the most important and complex consideration. For persons with dementia, the OT examines patient factors such as performance skills, performance patterns, previous interests, hobbies, work roles and current daily routines. This is an especially important role as depending on the stage of dementia, actions, activities and role performances may be normal in some ways but not in others. The

OT is instrumental in determining the best ways to support the person with dementia at each disease stage (C. Allen & Blue, 1998).

The DICE Approach

In the fall of 2011, a one-day panel attended by 12 national experts in dementia care was convened, organized by the University of Michigan Program for Positive Aging. The multidisciplinary group included representatives of geriatric psychiatry, geriatric medicine, behavioral science, psychology, pharmacy, and nursing. The group was tasked with constructing a descriptive model of the sequential and iterative steps of managing NPS in real-world clinical settings in order to standardize behavioral assessment and management and integrate non-pharmacologic and pharmacologic approaches. The resulting approach was called “DICE”, a mnemonic for the four steps of a systematic process: Describe, Investigate, Create and Evaluate. Given its focus on the person with dementia, the caregiver, and the environment, the DICE approach is ideally suited for use by OTs in clinical practice such as home care, hospital, rehabilitation, nursing home, assisted living or outpatient settings. The DICE approach assumes that a problem NPS has been identified and brought to the provider’s attention (Figure 1).

To illustrate each step of the approach, we use a case example of an 80 year-old woman with moderate dementia named Dorothy who strikes out at her caregiver daughter (Jennifer) during bathing.

Step 1–Describe

To derive an accurate characterization of the NPS and the context in which it occurs, treatment team providers first need to seek further description of the presenting behavior through discussion with the caregiver and where possible, the person with dementia. Asking caregivers to play back the NPS event “as if in a movie” may be a helpful strategy. A basic problem-solving approach is then employed to identify antecedents, describe the specifics of the NPS, and detail consequences in order to uncover the context and potential underlying modifiable patterns or contributory factors. Optimally, the person with dementia’s perspective should be elicited and clinicians should probe to determine what he/she can describe about the NPS, except in the case of severe dementia and/or where communication may be problematic. Understanding what aspect of the symptom is most distressing or problematic for the person with dementia and caregiver and her/his treatment goal is critical; this information helps to evaluate the caregiver’s knowledge of dementia and NPS and identify specific treatment goals.

OT Role in DESCRIBE—In describing the behavioral event(s), an occupational performance analysis may include a review of the person’s abilities, environmental setting, caregiver communications and interactions, and demands imposed by an activity. The activity demands take into account required actions, performance skills, body functions, body structures and environmental context. In addition to in-person evaluation, caregivers can be encouraged to record NPS and the context in which they occur (see Table 1) in diaries at home for later review by the OT.

The DESCRIBE step reveals that the caregiver, Jennifer, used the term “agitated” to refer to Dorothy becoming physically and verbally aggressive at bath time. Dorothy expresses that bathing “hurts” (i.e. she experienced pain when Jennifer put her in the bath). Jennifer indicates that while she is not afraid for her own safety, she believes Dorothy is “doing this on purpose”. As the caregiver, Jennifer’s goal is to have Dorothy bathe daily. There are no symptoms to suggest psychosis or depression. The actions needed to bathe rely on sensory, perceptual, motor, praxis and cognitive skills; because of Dorothy’s dementia, Jennifer’s involvement, social and communication skills are also required. An occupational therapy home visit would be beneficial to gain a better understanding of the environmental set-up of the bathroom, the ability of Dorothy to get into and out of the tub or shower, as well as to observe the interaction and communication between the Dorothy and Jennifer around bath time.

Step 2-Investigate

The next step for the treatment team is to identify, examine, and rule out possible underlying and modifiable causes for the presenting behavior (Table 1). The key to managing NPS is a thorough assessment of underlying causes. Individuals with dementia commonly suffer from undiagnosed medical conditions such as pain, urinary tract infection and anemia disproportionately more frequently than those without cognitive impairment (N. Hodgson, Gitlin, Dennis, Winter, & Hauck, In Press; N. A. Hodgson, Gitlin, Winter, & Czekanski, 2011)

Patient considerations—These include evaluating the current medication profile and presence of undetected illness or pain. A list of patient medications, including prescription, over-the-counter and supplements should be compiled. The contribution of medication side effects and possible drug interactions should be assessed, particularly for those with anticholinergic properties. Medical conditions such as urinary tract and other infections, constipation, dehydration, and pain should also be assessed. Laboratory work such as chemistries (including blood glucose and electrolytes), complete blood count with differential and a urinalysis may be helpful. The compounding impact of underlying prior psychiatric comorbidity (e.g., lifelong major depressive or anxiety disorder), limitations in functional abilities, cognitive impairment severity, poor sleep hygiene, sensory changes, and boredom should also be considered. Feelings of inadequacy, helplessness or fear of “being a burden” to the family may play a role in the development and exacerbation of NPS.

Caregiver Considerations—The historical and current quality of the relationship between the patient and caregiver is important to take into consideration. Caregivers may not understand the link between dementia and NPS and believe the patient is “doing this to them on purpose”. Inadvertently, caregivers may exacerbate behaviors via inappropriate and ineffective communication styles, unrealistic expectations, over and/or underestimation of patient abilities, and through their own stress and depression. Understanding the family cultural context is also important as beliefs will differentially impact caregiver and patient behaviors. Nursing home placement may not be acceptable in some families, and tremendous effort and strain may be exerted in attempting to keep a person with severe

limitations at home. Discussing NPS may be difficult, and viewed as “airing dirty laundry” to “outsiders.”

Environmental Considerations—An environment that presents way-finding challenges, is over- or under-stimulating, or lacks predictable routines and pleasurable activities can also impact NPS. Home safety is critical. Assessment should include whether the patient can easily leave home unattended, if the patient has access to dangerous objects (knives, guns), if the patient can navigate safely from one room to the next, and if there are grab bars, other equipment and adaptations (e.g., use of labels, adequate task lighting) that compensate for patient functional difficulties.

OT Role in INVESTIGATE—For this step, the occupational therapist would assess the patient’s cognitive level using OT-based standardized assessments such as the Allen Cognitive Level Screen (ACLS; (C. Allen, 1996)) followed by other Allen batteries to learn the patient’s roles, routines and preferences, and to determine musculoskeletal limitations. In mild to moderate cognitive impairment, the Executive Function Performance Test (EFPT; (Baum, Morrison, Hahn, & Edwards, 2003) might be used to measure cognitive components related to executive function, including planning, organization, judgment, sequencing and initiation. In instances of more severe cognitive impairment, other assessments such as the Routine Task Inventory (RTI) can be used to determine the patient’s cognitive level as it can be based on a caregiver’s report and/or observation. The occupational therapist would also interview the caregiver to understand the patient’s past roles including other occupations or hobbies, participation in religious or other organization, and role in the family. The OT could further inquire as to what was motivating for the patient in both the past and present, and review daily routines with the caregiver, including times of the day the patient is more active and alert. The therapist would also evaluate range of motion, strength, and mobility, including fall risk. The OT also contributes to the INVESTIGATE step by assessing the environment in which NPS occur using, for example, a standardized instrument such as the Home Environmental Assessment Protocol (HEAP; (L. Gitlin et al., 2002)). The HEAP, grounded in the competence-environmental press framework, consists of 192 items that are summed into separate indices representing the number of hazards, adaptations and level of clutter and comfort in up to eight areas of the home that is used by the person with dementia. It relies on both structured observation and self-reports from family members to derive ratings.

In our case, several potentially contributing factors are identified. The provider learns that the Dorothy has a diagnosis of arthritis, but is not taking pain medications or receiving any other treatment. When Jennifer moves Dorothy’s limbs quickly it causes pain; her aggression may represent an attempt to stop it. Jennifer’s communication is determined to be overly complex for Dorothy’s dementia stage. Jennifer appears to lack an understanding of the link between dementia and behaviors (“she is doing this on purpose”). Jennifer’s tone with Dorothy when frustrated is harsh and confrontational (“I can’t have you acting like this. I have to give you a bath now!”). Jennifer also rushes through the bathing process, contributing to her mother’s anxiety and confusion. Jennifer’s goal to bathe Dorothy daily

reflects her own values and preferences and intent to maintain daily life as it was prior to dementia onset.

The likely cognitive level for Dorothy is the stage where she begins to experience a fear reaction associated with falling, experiences fight or flight reaction, needs more than visual cues or verbal prompts to dress/undress and needs assistance for safe transfers (Pollard, 2005). The environment is Jennifer's home and the OT finds that the bathroom floor is hard tiled, with a shower curtain inside the tub and no supporting fixtures. The lack of grab bar, bath mat or transfer bench may be contributing to Dorothy's fear of getting into and out of the tub. Dorothy may not be able to determine the bottom of the tub, and thus, is fearful of falling into an open space. The lighting might be considered harsh, and sounds may magnify and echo off the bathroom tiles. Of benefit, the space is roomy enough for two people. The social environment consists of the relationship Dorothy has with her daughter as well as their social and personal expectations. The personal context is that Dorothy is an 80-year-old woman of a middle class background with a high school education. Cultural context for Dorothy and Jennifer includes being part of a close-knit Italian-American Catholic family who are regular parishioners at a local church. The temporal context includes both the developmental stage—an elderly woman who is now dependent upon her daughter—and the temporal rhythms of the environment—the daily routine or the time of day that is quiet.

Step 3 - CREATE

Here, the treatment team, caregiver, and if possible, the person with dementia, collaborate to create and implement a treatment plan (Table 1). The physician will need to respond to physical problems detected in the INVESTIGATE step (e.g. prescribing antibiotics for a UTI, giving fluids to a dehydrated patient, managing constipation). This could also include discontinuing medications with the potential to cause behavioral changes and evaluating whether other medication side effects may be contributing to NPS. Effective pain management can also lead to reducing unnecessary psychotropic prescriptions (Husebo, Ballard, Sandvik, Nilsen, & Aarsland, 2011).

In patients with an underlying psychiatric condition that predates the dementia (such as schizophrenia or bipolar disorder), the psychotropic regimen for the disorder should be optimized with close monitoring. Medications that are ineffective or not tolerated should be discontinued. Sleep hygiene measures should be introduced. Providers should also address sensory impairments (hearing, vision).

Brainstorming possible interventions with the caregiver, the person with dementia when possible, and other team members (physicians, occupational therapists, visiting nurses, social workers) requires creativity, but is critical to addressing an active problem, to modeling problem-solving, and obtaining buy-in for recommendations. Strategies aimed at modifying behaviors or the environment can be categorized as generalized or targeted (Tables 2a and b). Generalized strategies are non-behavior specific and involve enriching the environment and improving caregiver skills and well-being. Targeted strategies are directed at eliminating a specific NPS (e.g., aggression at bath time) (L. N. Gitlin et al., 2012). While there are multiple potentially effective strategies depending upon behavior, person, caregiver and environmental considerations, four key domains of generalized strategies are most likely

to yield expeditious results: 1) providing caregiver education; 2) enhancing effective communication between caregiver and patient; 3) assisting the caregiver in creating meaningful activities for the patient; and 4) helping the caregiver to simplify tasks and establish structured routines for the patient. Problem-solving to simplify and enhance the environment to ensure safety is also important. Caregivers can provide important information regarding “what has worked and what has not,” patient interests, and a view into life-long personality and care styles.

OT Role in CREATE—In creating the intervention plan, the OT has an important role in educating the caregiver about dementia and behavioral symptoms, building skills in effective communication and modifying the environment to reduce or minimize external contributors to the behavior. The OT can help the caregiver to understand the patient’s functional level, including limitations and abilities, how to improve communication, and how to introduce and use activities as a way to prevent and minimize NPS. The occupational therapist can also recommend ways to simplify the environment to support the best functioning of the person with dementia and minimize confusion in use of objects or way finding in the home.

In our case, the physician prescribes pain medication and makes a referral to physical therapy to further assess and address Dorothy’s arthritic pain. The OT suggests ways: 1) to improve communication with the patient, such as using calmer tones, simpler single-step commands, or light, reassuring touch; and 2) to avoid negative interactions such as harsh tone of voice, complex multi-step commands, open ended questioning, or screaming. Jennifer may feel less stressed if she understands her mother’s limitations as well as abilities. A person at this cognitive level begins to have difficulty with balance; fear of falling and the instinctual need for self-preservation will drive behavior that may be viewed as aggressive (Pollard, 2005). Jennifer is goal-directed in wanting to ensure her mother is clean and fresh, smells nice, and has good skin integrity. Dorothy has no sense of these goals, and has no motivation to be undressed and made to climb into a tub. The person at this cognitive level will require two to three times the normal time to perform an occupation. The therapist will provide additional information that could help in other occupations—description of Dorothy’s visual field, what she is likely to attend to, how to cue, use of singing, use of objects for stability and mutual “three” count technique are some examples (C. K. Allen, Blue, & Earhart, 1997). The OT can assist Jennifer in establishing a “new normal” routine that promotes patient safety and wellbeing, such as using sponge baths or having patient bathe less frequently, and when taking a bath, using a tub bench and grab bar for safety. Examples of environmental modification include: 1) warming the bathroom and tub in advance by running hot water to create some steam; 2) placing soft, stable bath mats on the floor; 3) providing a tub bench that allows Dorothy to sit on the outside of the tub, then lift legs and slide to the inside of the tub; and 4) using a gown that can be worn and removed while in the shower. If the bathroom has an echo Jennifer could try using a softer voice and short simple phrases of encouragement. Modifying the occupation will ensure that there is a good fit between the demands of the task and Dorothy’s cognitive ability. Interventions Jennifer could try include: 1) using a gown that opens in the back (convert an old gown by cutting open the back and placing a snap or tie like a hospital gown); 2)

changing Dorothy into the gown in a comfortable place such as the bedroom; 3) providing a large soft sponge for Dorothy to hold with both hands (having something in her hands makes it harder for her to strike); 4) avoiding water on the face; 5) after a soothing shampoo, gently removing the wet gown; and 6) directing the warm spray on tight muscles and gently massage or rub with the sponge. The therapist will enlist Jennifer's ideas during this discussion; using her mother's favorite scent, and singing a familiar song may be calming. An OT can also help Jennifer to modify the routine by: 1) conducting the weekly shower during Dorothy's most relaxed time of day; 2) dressing Dorothy into the shower gown in her bedroom at the usual time to dress; 3) showering Dorothy no more than once a week; 4) between showers, using the same time of day to gently sponge Dorothy's body and extremities as needed (if she has dry skin, Jennifer may need to clean only the face, hands and feet; and 5) for perineal care, using a portable bidet and a commode over a towel (remove the pan; if this does not work, Jennifer can try using the bidet with Dorothy while she is standing on a towel).

Step 4 - EVALUATE

In the final step, the treatment team examines whether recommended strategies were attempted and effective. If an intervention was attempted, providers should evaluate if the strategy was implemented effectively, whether or not the NPS improved, and if the caregiver's distress was reduced. The patient's reaction to the intervention(s) is important to assess, as are any unintended side effects or consequences; at times, a behavioral intervention may make a behavior worse. Providers should seek to understand if the negative outcome is a consequence of the intervention or whether the intervention had not been implemented as intended. If the caregiver did not implement an intervention, it is important to understand why and brainstorm solutions. If psychotropic medications were judged to be necessary, a trial of dose reduction or discontinuation to determine whether the medication continues to be necessary should be considered. Ongoing monitoring of behaviors is essential because NPS change and fluctuate over the course of dementia; removal of interventions, especially medications, should at times be considered.

OT Role in EVALUATE—In evaluating the strategies that are recommended, the occupational therapist consults with the caregiver to determine the outcome: what strategies were implemented, what worked, what did not, and unexpected results both positive and negative. The OT can help to differentiate and evaluate reasons why strategies are not working: 1) did the caregiver implement the strategy incorrectly?; 2) was there a change in the patient's status that made implementation difficult?; or 3) was it not the right strategy for this particular caregiver-patient dyad? The occupational therapist will also consult and coordinate with other team members. Symptoms of worsening cognition need to be reported to the physician or increased home services and resources may need to be explored.

In our case, several strategies addressing pain (medication, physical therapy), caregiver education, communication, personal preferences and values, and the environment (bath safety measures) are recommended to the family. The OT follows up with Jennifer regarding which were deployed; if she chose not to deploy some, why? Of those she did use, which were effective and judged helpful? Jennifer may need encouragement to try strategies more

than once, to establish stable routines that reflect the time of day Dorothy is alert and to incorporate activities that are meaningful and calming when Dorothy is tired and stressed. It is important to understand and validate Jennifer's role as the member of the team who is most knowledgeable regarding her mother. Encouraging Jennifer to contribute her ideas and experiences will increase her role as the primary stakeholder on the treatment team.

Conclusion

Because NPS are the consequence of interacting factors both internal and external to persons with dementia, they are among the most significant challenges in dementia care and remain under- or mistreated. Despite sub-optimal risk-benefit profiles, psychotropic medications are currently the most commonly deployed management strategies in real-world settings. Medications may not impact some of the most frequently occurring symptoms that are most distressing to families and that trigger hospitalizations or nursing home placement. Despite a substantial evidence-base, non-pharmacologic techniques are currently under-utilized in standard care. Occupational therapists possess the expertise in understanding the intricate relationship between person, environment and occupation that is required for successful task performance. For persons with dementia, cognitive impairment impacts sensory processing and motor planning, resulting in decreased ability to function in daily living activities. The role of the occupational therapist is to find the best or just-right fit between the environmental and task demands, and the cognitive ability of the patient. A patient-centered plan will consider meaningful and realistic occupations for the person with dementia, strategies for maintaining the person's safety, as well as strategies that enhance the caregiver's support while easing some of the stress of caregiving. The DICE approach offers occupational therapists and other clinicians an evidence-informed, structured approach that can be integrated into diverse practice settings. The approach is inherently patient- and caregiver- centered as the concerns of the person with dementia and their caregiver are integral to each step of the process. DICE enables the treatment team to consider conjointly the role of non-pharmacologic, medical and pharmacologic treatment; occupational therapists working with the DICE model can play a critical role in evaluating and managing NPS.

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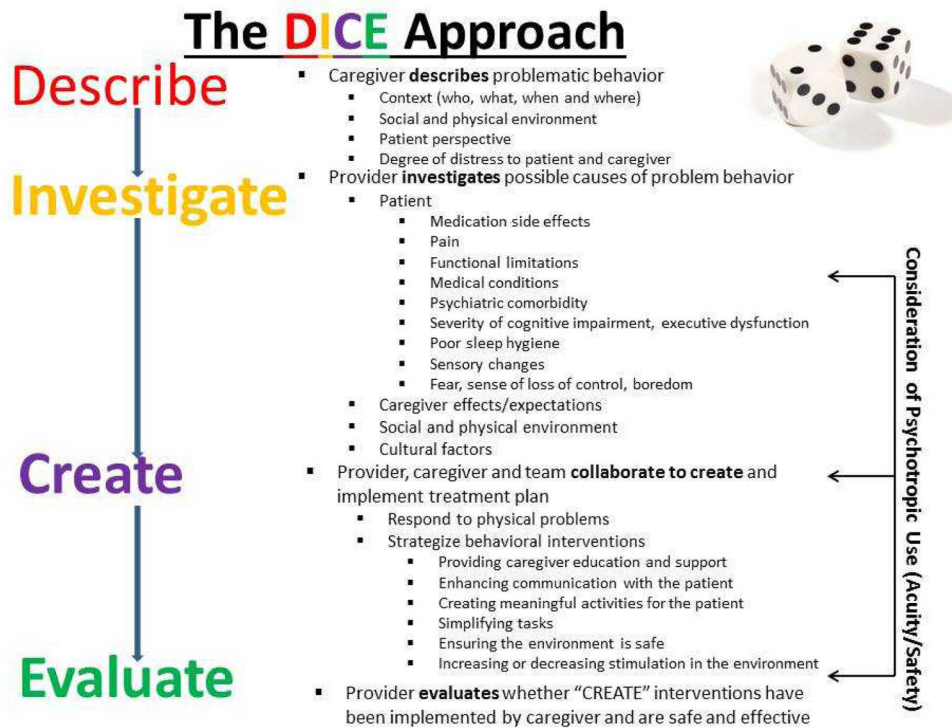


Figure 1.
The DICE Approach

Table 1

DICE Steps: Considerations and Potential Interventions

DICE STEP	Patient Considerations	Caregiver Considerations	Environmental Considerations	Possible Occupational Therapist Interventions
Describe	<ul style="list-style-type: none"> What behavior did the patient exhibit? How did the patient perceive what occurred? How did the patient feel about it? Is the patient's safety at risk? 	<ul style="list-style-type: none"> How much distress did the behavior generate for the caregiver? Does the caregiver feel their safety is threatened by the behavior? What about the behavior is distressing to the caregiver? What did the caregiver do during and after the behavior occurred? 	<ul style="list-style-type: none"> Who was there when behavior occurred? When did the behavior occur (time of day) and how did this relate to other events (e.g. while bathing or at mealtime)? Where did the behavior occur (e.g. home, daycare, restaurant)? What happened before and after the behavior occurred? 	<ul style="list-style-type: none"> Perform a home visit where possible. Conduct an occupational performance analysis. Observe the interaction and communication between the person with dementia and caregiver. Gain an understanding of the environmental set-up.
Investigate Could the behavior be caused by/ contributed to by:	<ul style="list-style-type: none"> Recent change in medications? Untreated or undertreated pain? Limitations in functional abilities? Medical conditions (e.g. infection)? Underlying psychiatric comorbidity? Severity of cognitive impairment? Poor sleep hygiene? Sensory changes (vision, hearing)? Fear, loss of control, boredom? 	<ul style="list-style-type: none"> Caregiver's lack of understanding of dementia (e.g. patient is "doing this to" them "on purpose")? Caregiver's negative communication style? Caregiver's expectations of the person Caregiver's own stress or depression Family/Cultural context 	<ul style="list-style-type: none"> Over- or under- stimulating environment? Difficulty navigating or finding way? Lack of comforting and predictable daily routines? Lack of pleasurable activities tapping into preserved capabilities and previous interests? 	<ul style="list-style-type: none"> Assess the person with dementia's cognitive level including executive function. Gain an understanding of the person with dementia's past and current roles and motivations. Evaluate range of motion. Review daily routines. Assess the environmental contributions to the NPS.
Create	<ul style="list-style-type: none"> Respond to physical problems: Discontinue medications causing behavioral side effects if possible Manage pain 	<ul style="list-style-type: none"> Work collaboratively with caregiver/ other team members to institute nonpharmacologic interventions including (see Tables 3a and b for detail): <ul style="list-style-type: none"> Provide caregiver education & support 	<ul style="list-style-type: none"> Work collaboratively with caregiver/other team members to institute nonpharmacologic interventions including (see Tables 3a and b for detail): <ul style="list-style-type: none"> Ensuring the environment is safe 	<ul style="list-style-type: none"> Educate the caregiver about dementia and behavioral symptoms, and functional levels. Help the caregiver to build communication skills and use activities to prevent and minimize NPS.

DICE STEP	Patient Considerations	Caregiver Considerations	Environmental Considerations	Possible Occupational Therapist Interventions
Evaluate	<ul style="list-style-type: none"> • Treat infections, dehydration, constipation • Optimize regimen for underlying psychiatric conditions • Sleep hygiene measures • Deal with sensory impairments • Has the intervention(s) been effective for the problem behavior? • Have there been any unintended consequences or “side effects”? 	<ul style="list-style-type: none"> • Enhancing communication with patient • Creating meaningful activities • Simplifying tasks • Which interventions did the caregiver implement? • If the caregiver did not implement the interventions, why? 	<ul style="list-style-type: none"> • Simplifying/enhancing the environment • What changes in the environment have been made? 	<ul style="list-style-type: none"> • Modify the environmental contributions to NPS. • Follow up with caregiver about which strategies were used and what worked and what did not. • Validate the caregiver as a valuable member of the team.

Table 2a

Behavioral and Environmental Modification Strategies for Managing NPS

Domain	Generalized Strategy (non-behavior specific)
Activity	<ul style="list-style-type: none"> • Tap into preserved capabilities and previous interests • Encourage activities involving repetitive motion (folding towels, sorting buttons) • Set up activity and help patient initiate participation
Caregiver education and support	<ul style="list-style-type: none"> • Convey that behaviors are not intentional • Relax the rules (e.g. baths do not have to occur every day) • Provide knowledge that with disease progression, patient will have difficulty with executive function and completing tasks without guidance and cueing • Avoid confrontation or trying to reason and convince • Self-care; finding and taking opportunities for respite • Identify and utilize a support network
Communication	<ul style="list-style-type: none"> • Allow patient sufficient time to respond to questions • Provide 1- to 2-step simple verbal commands • Use a calm, reassuring voice • Offer simple choices (no more than 2 at a time) • Avoid harsh tone and negative words • Lightly touch to reassure, calm, direct or redirect • Identify self/other for patients who are unable to remember names • Help patient find words for self-expression
Environment	<ul style="list-style-type: none"> • Remove clutter • Use labeling and visual cues (e.g. arrows pointing to bathroom) • Eliminate noise and distractions whenever possible • Enhance environment if it is bland and lacking interest
Simplifying tasks	<ul style="list-style-type: none"> • Break tasks into simple steps • Use verbal or tactile prompts at each step • Create/provide structured daily routines that are predictable for patient

Table 2b

Behavioral and Environmental Modification Strategies for Managing NPS

Examples of Specific Behavioral Targets	Possible Targeted Strategies
Hearing voices	<ul style="list-style-type: none"> • Evaluate hearing or adjust amplification of hearing aids • Assess quality and severity of symptoms • Determine whether they present an actual threat to safety or function
Wandering/Elopement	<ul style="list-style-type: none"> • Identify triggers for elopement and modify them • Notify neighbors and police of patient's condition and potential for elopement • Outfit with ID (e.g. Alzheimer's Association Safe Return program)
Nighttime wakefulness	<ul style="list-style-type: none"> • Evaluate sleep routines and sleep hygiene • Assess environment for possible contributions (e.g. temperature, noise, light, shadows) • Eliminate caffeine • Create a structure that includes daily activity and exercise and a quiet routine for bedtime (e.g. calming activity or music) • Limit daytime napping • Use a nightlight • Nighttime respite for caregiver
Repetitive questioning	<ul style="list-style-type: none"> • Respond with a calm reassuring voice • Use of calm touch for reassurance • Inform patient of events only as they occur • Structure with daily routines • Use of distraction and meaningful activities
Aggression	<ul style="list-style-type: none"> • Determine and modify underlying cause of aggression (e.g. psychosis, pain, particular caregiver interaction), evaluate triggers and patterns • Warn caregiver not to confront or return physicality • Discuss other self-protection strategies with caregiver (e.g. distract, backing away from patient, leaving patient alone if they are safe, and seeking help) • Limit access to or remove dangerous items • Create a calmer, more soothing environment