The wandering behavior of persons with dementia is a common problem in long-term care. However, in the design of interventions, the emphasis is on safety, and little consideration has been given to the meaning of the behavior for the person who wanders. This paper uses the Need-driven Dementia-compromised Behavior (NDB) model to demonstrate that the expression of wandering is unique to a given person in a particular context or situation. Elements of the model illustrate how particular patterns and amounts of wandering may reflect different bases of the behavior, such as global cognitive decline, visual spatial deficits, or perseveration. Differing bases for wandering would consequently call for different intervention strategies. Studies about wandering that examine the phenomenon in greater detail and consider more than its overall amount or related outcomes, such as eloping, are needed. Findings from such studies can help health care professionals to better detect probable causes of wandering in the clinical setting and to design appropriate interventions that target an individual’s unique wandering experience. (Annals of Long-Term Care: Clinical Care and Aging 2003;11[1]:33-39)

Wandering of a person with dementia (PWD) is a familiar behavior in long-term care settings. However, few health care professionals are concerned with more than its frequency or the occurrence of negative consequences, eg, falls and elopement. Most agree that the goal is to protect wanderers from such outcomes. Yet, beyond safety, goals for managing wandering are currently debatable. On the premise that walking is a beneficial form of exercise, some experts argue that wandering in itself is harmless, even good, and should be permitted or encouraged in secure environments. Others recognize that unchecked wandering can hinder care routines, such as eating, or interfere with the privacy of others, thus implying the need for techniques to affect the amount or kind of wandering in defined situations. Few have considered what wandering may mean or feel like for the PWD as a basis for designing an approach to care. In this article, the basis of wandering, as rooted in factors affecting PWDs, is used to illustrate the importance of adopting more refined characterizations of wandering and of targeting
management approaches based upon such characterizations in clinical practice. When available, empirical evidence supporting this stance is given.

**The Basis of Wandering Behavior**

According to the NDB model, the basis of wandering is multifactorial. In general, certain background factors that are relatively stable over the short run may forecast which PWDs are prone to wandering. A body of empirical evidence has revealed that these factors include particular cognitive deficits, health status, certain personality and behavioral patterns associated with stress, and some socio-demographic characteristics. Other, more immediate contextual factors define the conditions under which wandering emerges in PWDs who have the propensity. These factors encompass personal needs, both physical and emotional, and physical and social aspects of the environment. A smaller set of studies and substantial clinical experience implicate these contextual factors in wandering. The NDB model is under investigation in studies currently supported by the National Institutes of Nursing Research and Aging.

As described above, the NDB model suggests that predisposing background factors form a personal context, which governs the way current conditions are experienced, interpreted, and acted upon or within by PWDs. By understanding who the person was prior to dementia and is with dementia, and how certain cognitive deficits alter experience, health care professionals can better construe the probable meaning of wandering by a PWD in a given situation and, thus, set goals more appropriately and target approaches more accurately to modify the behavior. In other words, not only is the basis for wandering multifactorial, its expression is unique to an individual at a given point in time. Thus, goals and strategies for managing wandering are not a “one size fits all” matter. Nor will the goals and strategies for addressing wandering for a given PWD be the same under varying circumstances.

Despite the uniqueness of wandering episodes, empirical studies can inform approaches to care by describing dimensions of wandering in terms that are clinically relevant and by determining the most salient associated factors and outcomes. This hones the range of factors to assess and consider when interpreting particular kinds or amounts of wandering behavior and when determining intervention strategies and evaluating their effectiveness. Select background factors of the NDB model are used below to demonstrate.

**Cognitive Factors and Wandering**

A multitude of studies support the assertion that wandering is associated with severity of cognitive impairment. While not empirically validated, it also stands to reason that the association between wandering and level of cognitive loss would hold only as long as health status supported independent or mediated (e.g., per self-propelled wheelchair) mobility. However, few studies define the types and levels of wandering associated with increasing cognitive loss. Using a typology of “travel patterns” explicated by Martino-Saltzman and associates, Algase and colleagues have demonstrated that the frequency and overall proportion of time spent in random-pattern wandering (ambulation having frequent direction changes and hesitations when moving from point A to B) is linked to increased levels of global cognitive impairment. However, the lapping pattern (moving in a circuitous or looping fashion) was less clearly associated with level of cognitive impairment, and the pacing pattern (moving back and forth repeatedly between points A and B) was not significantly related to cognitive impairment. Further, over all observations, lapping and pacing were far less frequent or sustained than random-pattern wandering. These findings suggest that reasons beyond cognitive loss
should be sought to explain lapping, and especially pacing behavior, but that increasing amounts of random-pattern wandering are indicative of progressing cognitive decline.

Further, researchers in two studies, using multiple case study designs, determined that lapping was more common after periods of rest (D.L. Algase, PhD, unpublished data, 1995), and that pacing may be more an indication of agitation or anxiety than cognitive decline. Therefore, identifying the wandering pattern of a PWD is an important clinical distinction in efforts to moderate the behavior.

Also noteworthy is the finding of these researchers that direct ambulation (efficient travel from Point A to Point B), which is not a form of wandering, not only occurs at all levels of cognitive impairment but that its character changes as cognitive deficits advance. Direct ambulation episodes are shorter in duration, but no less frequent, as cognition worsens. This would suggest that direct walking, or functional nonwandering ambulation, may be facilitated by staff regularly anticipating resident needs and directing those with greater cognitive loss (to the dining room or the bathroom), or by the design of care environments and the placement of PWDs within them. When the distances to destinations, such as toilets, are short and visually accessible, even PWDs with advanced dementia can reach them more readily and achieve higher levels of independent function in their use. Conversely, destinations not intended for PWDs, such as exit doors, would be less of a problem if positioned in nonobvious locations.

Based on the knowledge gained from these studies, the following suggestions are made to aid in managing various wandering patterns. Importantly, baseline information about the pattern and amounts of wandering should be obtained on ambulatory PWDs and monitored on a regular basis, or at least when change in overall amount or pattern of wandering is noticed. This can be done through systematic observation and charted, much as vital signs are. Our work has shown that all ambulatory PWDs, even those not identified as wanderers, exhibit at least some degree of wandering when their ambulation behavior is characterized according to these patterns. Further, these patterns were shown to be relatively stable over three- and seven-day time periods.

While there have been too few studies to say for sure what various changes may mean, the following changes can be inferred from existing evidence. First, a sudden increase in the amount of random wandering or an unusually high amount of random wandering in PWDs with mild cognitive impairments may suggest a worsened cognitive functioning, most likely associated with delirium secondary to an acute medical problem or to exacerbation of a chronic one. Rather than attempt to control the random wandering, effort should be made to identify and correct any such underlying medical problem.

Second, lapping often follows rest periods and is less clearly associated with global level of cognitive impairment, it may be somewhat more functional than random wandering. This conclusion is further supported in studies of rats with hippocampal damage. Those with bilateral damage have swim patterns that resemble random wandering while those with unilateral damage have patterns more like lapping. Consequently, when a PWD shows a decrease in lapping and an increase in random wandering, as might occur in the late afternoon, it may indicate mental or physical fatigue. Thus, more frequent or better spaced rest periods would be indicated. Likewise, a calm low-stimulus environment that is less mentally taxing may better support this individual. Further, mental fatigue, even in persons without dementia, can be relieved by exposure to natural environments.
those advocated by the Eden Alternative™ (www.edenalt.com) may sustain functioning, including wandering, at a more desirable level.

Third, pacing, which is not associated with the level of cognitive impairment but is associated with agitation, likely signals a state of discomfort. Sources of physical discomfort, such as pain or fatigue, as well as emotional discomfort, such as worry, sadness, or frustration, should be sought and addressed.

Fourth, the every-day care of PWDs can be supported by capitalizing on what is known about direct ambulation. Placing PWDs within visible range of bathrooms, their own rooms, or people and activities of greatest interest to them can support their ability to “find” what they need. Conversely, destinations that are out of sight or camouflaged are less likely to be found. Therefore, exits, medication areas, or other dangers should be located in out-of-the-way places that are less likely to be noticed. Remote monitoring devices can help to detect when such areas are entered.

Knowing how global levels of cognitive impairment relate to kinds and amounts of wandering is useful. However, studies that demonstrate the connection of particular cognitive losses or preserved cognitive functions to various kinds and amounts of wandering would be even more beneficial. Studies have shown that not only memory, but attention and visuospatial skills deteriorate with advancing dementia.15,16,17 However, the rates of deterioration of specific domains of cognitive function are not uniform across cases.18,19,20,21 Knowing the extent to which specific cognitive losses or abilities relate to dimensions of wandering would further assist in determining whether a specific episode of wandering (or repeated episodes under recurring circumstances) was associated with forgetting where a particular place was located (a function of memory), losing track of one’s progress along the way (a function of attention), or being unable to see and interpret important environmental features or navigational aids en route (a function of visuospatial ability).

Ability to differentiate the underlying mechanism on the basis of observable features of wandering, such as its pattern, duration, or frequency, would enable health professionals to clarify the goal of any intervention and to improve the choice of effective approaches. In PWDs who wander it may not be so much the amount of walking that we aim to reduce as it is the level of goal attainment and the comfort of going on a walk that we aim to increase. It is no doubt uncomfortable at some level for PWDs not to know where they are or not to be able to execute a route toward a desired destination. In each case, the specific intervention may be different and the wrong intervention more confounding to the wanderer due to limits in his or her cognitive capacities. Open opportunity to walk without restriction must be of little solace if one does not know anywhere to go, cannot construct a path to a desired endpoint, even if one were identifiable; or gets lost in transit.

To illustrate, Beel-Bates and Algase22 confirmed that random wandering, but not lapping or pacing, was more frequent among PWDs with a moderate versus mild level of global cognitive impairment. Among persons at both levels of cognitive impairment, a wide range of ability across the measured visuospatial functions was found. Yet, when those with moderate cognitive impairment were contrasted with good and poor vision, a decrease in overall ambulation and wandering was observed for those with poor vision. Consequently, PWDs at a moderate level of cognitive impairment who display less than average levels of ambulation may not be just “less problematic wanderers,” they may actually be restricted in ambulation by visual limitations. Going by today’s standard practices, these persons may be receiving less attention because their ambulation is not problematic for the health care pro-
fessional, when in fact the provider should be looking to explain why the frequency of ambulation and wandering is below average for them. Therefore, PWDs (mild to moderate) with low levels of ambulation, despite adequate mobility skills, should be evaluated for correctable visual impairments and/or supported to ambulate with staff to maintain their mobility status and vary their visual stimulation.

In another illustration, certain kinds of perseveration are more frequent in wanderers and with increasing cognitive impairment.23, 24 Wanderers are less able to disengage from an activity and often walk past or beyond an intended destination. If wandering is allowed without interruption or even encouraged, care providers may actually be contributing to or abetting dysfunctional way-finding through underrecognition of a problem or, worse, by benign neglect. Further study of this phenomenon employing specific measures and dimensions of wandering can provide clues as to the pattern or amount of wandering that would indicate perseveration and, thus, signal a need for the health care professional to interrupt or redirect this kind of ambulation. Why is this important? Consider how many elopements may be due to inability to stop walking. Is it possible that fewer PWDs might require placement in a secure or locked environment if we were able to differentiate those that could be managed through redirection from those who could not on the basis of what kind of wandering they do? Thus, knowledge of underlying mechanisms in relation to specific features of wandering could truly enable the principle of safe, least restrictive environments.

In very recent work, Chiu25 demonstrated that impairment in directed attention, commonly known as ability to concentrate, contributes to getting lost in familiar and unfamiliar environments and creates difficulty in selecting direction at choice points for persons with questionable or early dementia. To the extent that getting lost and wandering overlap, attention deficits may account for some wandering patterns. Our clinical experience suggests that this pattern may be random wandering. PWDs who display random wandering appear “attracted” to activity or noise in an environment, which seems to draw them off course to a destination. Consequently, random wandering might be reduced in early dementia through techniques that support directed attention or compensate for poor attention. However, further research is needed to confirm the usefulness of such an approach.

The above examples demonstrate that the term wandering encompasses an array of walking behaviors that have different characteristics, some of which (e.g., pattern, frequency) are beginning to be defined in measurable or observable ways that can be applied in clinical practice. Further, these various characteristics of wandering could be used to infer the basis or reason for the behavior. When clarified, likely reasons for wandering can be validated in a given clinical situation, and then be employed when individualizing a goal and approach to care for the PWD in that context. Unfortunately, knowledge of wandering at that level of specificity is currently limited. Further studies are needed to elaborate our understanding of the basis of particular kinds and amounts of wandering and their meaning before the value of this approach can be fully realized.

**PERSONALITY AND BEHAVIORAL RESPONSE TO STRESS**

In terms of another background factor of the NDB model, wanderers have been characterized as having a personality that is sociable and outgoing.26-28 Yet, wanderers have been shown to have poorer language skills than nonwandering nursing home residents.29 Further, family members have described wanderers as having been likely to use motor behaviors, such as
walking, as a way to relieve stress prior to the onset of dementia.27 Together, these studies support the hypothesis that wandering may be a sign of stress when a sociable person who develops dementia loses the capacity to communicate verbally. If this is true, then unabated wandering would not be a good thing, even if exercise is healthy! Yet, how can a health care professional know the difference between wandering that is healthy and wandering that reflects a stressful state?

Again, studies that examine dimensions or aspects of wandering in relation to verbal communication or social interaction may be illuminating. In an analysis of over 2400 wandering episodes observed in 31 subjects drawn from eight nursing homes, wandering episodes were most likely to begin when subjects were alone and not engaged in any activity and less likely when subjects were engaged in social interaction.30 Further, when a wandering episode began in a social situation, but the wanderer was not engaged in that situation (ie, in an activity or conversation), episodes were longer and the lag to the next episode was shorter than with other types of starts and stops. These observations suggest that wandering is less likely to occur when a person is engaged in social interaction, so social involvement may be a means to reduce wandering. Further, if wandering does arise in a social situation, it may represent a “disconnect” between the person and the group that is stressful for the wanderer. In this case, unchecked wandering would be undesirable, and effort should be made to draw the wanderer into the group’s activities in some way.

However, not all wanderers are likely to have the same personality. If social and solitary activities were matched to one’s personality, these activities likely would be more effective in engaging that individual. Evidence to suggest particular activities for particular personalities is currently lacking, but studies investigating this approach are underway.

Further evidence for the role of communication in wandering is shown in a study by Beattie.31 This intervention study using multiple case study design described the effect of structured nurse communication behavior on wandering. Severely cognitively impaired nursing home residents (n=4; 2400 wandering episodes in total) had less than 15 episodes of conversation occur while they were ambulating. The length of sitting periods was longer in the intervention condition, suggesting that the possibility of social interaction with the researcher may have influenced the length of time residents stayed seated. Paradoxically, with severely impaired wanderers with extensive speech problems, one-on-one staff presence may impose pressure to socialize. Wandering in such a context may be an avoidance mechanism functioning to reduce social expectations of interaction, reflected in wandering patterns indicative of anxiety. Replacing words with actions, such as touching on the arm or shoulder and walking with the residents, may help them “connect” with nursing staff.

SUMMARY

Wandering is a complex behavior, and its origins are multifaceted. While keeping a wanderer safe is an appropriate goal, it is not a sufficient one when seeking to provide supportive or therapeutic care to a PWD. Long-term care has already been changed through the Omnibus Budget Reconciliation Act of 1987 (OBRA’87) to abandon general restraint of wandering as the standard of care. In response to that mandate, widespread tolerance, even support, for active wandering has been fostered. Yet, health care professionals have not come to fully appreciate that unchecked wandering may be equally as undesirable as wholesale restraint. By looking at potential meanings of wandering from the standpoint of the PWD, we have shown that at least some wandering behav-
ior itself, and not just its consequences, may call for intervention efforts. Further, we have illustrated that certain features of wandering, such as its pattern, duration, or frequency, can be useful in differentiating wandering and walking that is “healthy” from that which is not. However, further investigation is needed to expand our ability to make such differentiations and to link them to likely explanatory mechanisms for guiding design of intervention strategies. The full benefit of this approach will not be achieved until such work is conducted and its results integrated into the fabric of long-term care for PWDs. Interventions suggested in this paper are based on best evidence but have not been empirically tested.

References