Evidence-Based Protocol

Wandering behavior of individuals with dementia causes management problems for caregivers if the behavior becomes unsafe, for example, if the individual elopes from home and becomes lost. Algase (1999a) states “knowledge generated through research remains insufficient to fully explain why or how wandering occurs” (p. 11). She further states, “studies are beginning to clarify the connection between the neurocognitive impairments of individuals with dementia and their wandering behavior (p. 11)” but caregivers continue to have difficulty identifying appropriate interventions for these individuals.

This article provides an overview of an evidence-based practice protocol to manage problem wandering behavior in older adults (Futrell & Melillo, 2002). This protocol is pertinent to caregivers who are working with older adults who have problem wandering behavior either in the community or in long-term care institutions. It suggests assessment tools and instruments, discusses interventions to manage wandering, and offers caregivers an evaluation process. (The complete evidence-based practice protocol is available from the Research Dissemination Core Office.) The authors of this evidence-based protocol suggest a variety of approaches that are available, but remind caregivers that interventions must be individualized. “There is no single cause for wandering and no single solution,” according to Peatfield, Futrell, and Cox (2002, p. 45). Research on wandering must continue, with particular emphasis on safety and caregiver support.

PURPOSE

The purpose of this wandering evidence-based protocol is to assist formal caregivers of older adults with dementia who wander, by providing a guideline for dealing with problem wandering behavior.

DEFINITION OF KEY TERMS

According to the Alzheimer’s Disease and Related Disorders Association (2002), dementia is the loss of intellectual functions (such as thinking, remembering, and reasoning) of sufficient severity to interfere with a person’s daily functioning. Dementia is not a disease itself but rather a group of symptoms that may accompany certain diseases or conditions. Symptoms may also include changes in personality, mood, and behavior. Dementia is irreversible when caused by disease or injury but may be reversible when caused by drugs, alcohol, hormone or vitamin imbalances, or depression ...Alzheimer’s disease (AD) is the most common cause of dementia.

Wandering is a behavioral problem of patients with AD that involves cognitive impairment, including abstract thinking, language, judgment, and spatial skills (Algase, 1992); disorientation and difficulty relating to the environment (Roberts & Algase, 1988); and low social interaction, pacing, or increased motor activity and aimless or purposeful motor activity that causes a social problem such as getting lost, leaving a safe environment, or intruding in inappropriate places (Morishita, 1990, p.157).

Wandering is also defined as “Meandering, aimless, or repetitive...”
lomotion that exposes the individual to harm; frequently incongruent with boundaries, limits, or obstacles" (NANDA Nursing Diagnoses, 2001, p. 206-207).

INDIVIDUALS AND PATIENTS AT RISK FOR WANDERING

Individuals at risk for wandering behavior include community-residing or institutionalized older adults with dementia, generally in the early to mid-stage AD (end-stage AD clients are non-ambulatory and, thus, not at risk for wandering). A Mini-Mental State Examination (MMSE) score between 10 and 19 is considered middle-stage AD; a score of 9 or less is considered late-stage AD (Folstein, Folstein, & McHugh, 1975).

Defining Characteristics of Wandering

NANDA Nursing Diagnoses (2001) has identified defining characteristics of wandering and related factors that put individuals at risk for wandering in their Nursing Diagnosis: Definitions and Classification 2001-2002.

These include:
- Frequent or continuous movement from place to place, often revisiting the same destinations.
- Persistent locomotion in search of “missing” or unattainable people or places.
- Haphazard locomotion.
- Locomotion into unauthorized private spaces.
- Locomotion resulting in unintended leaving of premises.
- Long periods of locomotion without an apparent destination.
- Fretful locomotion or pacing.
- Inability to locate significant landmarks in a familiar setting.
- Locomotion that cannot be easily dissuaded or redirected.
- Following behind or shadowing a caregiver’s locomotion.
- Trespassing.
- Hyperactivity.
- Scanning, seeking, or searching behaviors.
- Periods of locomotion interspersed with periods of nonlocomotion (e.g., sitting, standing, sleeping).
- Getting lost.

Related factors include:
- Cognitive impairment, specifically memory and recall deficits, disorientation, poor visuoconstructive (or visuospatial) ability, language (primarily expressive) defects.
- Cortical atrophy.
- Premorbid behavior (e.g., outgoing, sociable personality; premorbid dementia).
- Separation from familiar people and places.
- Sedation.
- Emotional state, especially frustration, anxiety, boredom, or depression (agitation).
- Over- or under-stimulating social or physical environment.
- Physiological state or need (e.g., hunger or thirst, pain, urination, constipation).
- Time of day.

ASSESSMENT

The first step in managing wandering is to assess for risk of wandering behavior. This should include the following:
- Assess for cognitive decline using MMSE (Folstein et al., 1975).
- Assess for neurocognitive deficits and wandering patterns using the Algase Wandering Scale (AWS) (Algase, Beattie, Bogue, & Yao, 2001). The AWS is developed to quantify wandering in several domains as reported by caregivers. It does not measure wandering directly, but it can be a useful adjunct tool for clinical assessment purposes.
- Assess for depressive symptomatology with the Short Geriatric Depression Scale (SGDS) (Sheikh & Yesavage, 1986). Wandering tends to occur more in depressed patients with AD (Lyketsos et al., 1997).
- Assess for anxiety and agitation. In assessing these symptoms, it is critical to conduct a careful evaluation for a general medical, psychiatric, or psychosocial problem that may underlie the disturbance (American Psychiatric Association [APA], 1997). The Cohen-Mansfield Agitation Inventory: Long Form with Expanded Descriptions of Behaviors (Cohen-Mansfield, 1999; Cohen-Mansfield, Marx, & Rosenthal, 1989) is useful in conducting this assessment.
- Assess the frequency with which memory and behavior problems occur, including wandering, and to what degree the behavior upsets the caregiver. The Zarit and Zarit (1983) Memory and Behavior Problems Checklist-1990R (MBPC) is useful for this assessment.
- Assess for factors associated with wandering, such as lack of activity, cognitive impairment, and greater impairment in activities of daily living (ADL) functioning (Logsdon et al., 1998).
- Assess what environmental strategies are currently used by formal and informal caregivers in dealing with problem wandering (i.e., latches and alarms on doors, barring or disguising exits, visual cues such as “stop” signs, constant personal supervision, or restriction of caregiver’s own activities because of concerns about care recipient’s wandering in other settings, such as shopping malls or community outings) and evaluate their effectiveness.
- Assess wandering patterns, to help determine treatment.
### TABLE 1

A DESCRIPTIVE TYPOLOGY OF WANDERING IN DEMENTIA*

1. **Checking or trailing.** In checking, the participant repeatedly seeks the whereabouts of the caregiver (or occasionally another person). Trailing appears to be an extreme form of checking in which the participant tends to follow the caregiver (or another person) around excessively, walking closely behind as he or she walks around.

2. **Pottering.** The participant walks around the house or garden apparently trying, but ineffectively, to carry out task (e.g., washing or drying up, cleaning, weeding) of own accord.

3. **Aimless walking.** The participant walks around (either within the house or outside) without there being any evidence of a purpose. This category is not used either if there appears to be a purpose, however bizarre, or if the walking meets the criteria for either checking or trailing.

4. **Walking directed towards inappropriate purpose.** The participant's walking appears to be directed towards a purpose, but that purpose is inappropriate (e.g., the participant is searching for a deceased relative). Some definitive evidence for the purpose must be available (e.g., from what the participant says or does). If the purpose is inappropriate only because of excessive repetition of an appropriate purpose (e.g., participant goes shopping many times a day), then it is rated in the next category below.

5. **Walking directed towards an appropriate purpose, inappropriately frequently.** The participant's walking is directed towards an appropriate purpose (e.g., shopping), but is repeated with inappropriate frequency (e.g., goes to the greengrocers six times a day).

6. **Excessive activity.** The participant is on the move for an abnormally large proportion of the time while awake. In the extreme form, the participant does not sit for more than a few minutes at a time. Participants who rate here will normally rate also under one of the preceding categories.

7. **Night-time walking.** The participant walks around inappropriately at night. This category is not used if the participant gets up only to go to the toilet.

8. **Needs to be brought back home.** Participants have been brought back to their place of residence on at least one occasion. This may be because the participant has been unable to get home without help, but not necessarily so. Others may be concerned and have brought the participant home even though the participant would have been able to get home alone. Often it is not possible to know whether or not the participant could have returned home unaided.

9. **Attempts to leave home.** The participant makes attempts to leave place of residence, but these attempts are prevented by the carers. The purpose of this category is to include those whose behavior might fall into one of the other categories, were it not that their movements were restricted. In most cases, the carers restrict the participant's movements because of previous problems associated with one of the other types of wandering.


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Additional areas of assessment include identifying the consequences of wandering, such as staff attention, access to items (e.g., sweet foods), and sensory stimulation. This knowledge may then be applied when patients are not wandering, thus reducing their impetus to wander (Heard & Watson, 1999). Also, identify the travel patterns of patients who wander, such as (Algase et al., 2001; Martino-Saltzman, Blasch, Morris, & McNeal, 1991):

- Direct travel—travel from one location to another without diversion.
- Random travel—roundabout or haphazard travel to many locations within an area without repetition, no obvious route to stopping point.
- Pacing—repetitive back and forth movement within a limited area.
- Lapping—repetitive travel characterized by circling large areas.

Direct travel is most efficient. Other methods, described above, are inefficient. Travel inefficiency is inversely related to cognitive status. Patients with severe dementia travel inefficiently throughout the day. Less cognitively impaired patients travel more inefficiently near the end of the day, perhaps caused by effects of fatigue.

Assessment should also incorporate notation of the types of wandering behaviors (Snyder, Rupprecht, Pyrek, Brekhus, & Moss, 1978). These may include:

- Overtly goal-directed or searching behavior—searching for some-
thing often unattainable, often associated with calling out repeatedly or approaching others in pursuit of a goal.
- Overtly goal directed or industrious behavior—inexhaustible drive to do things or remain busy, often commenting on need to perform a stated task or gesturing as if performing work.
- Apparently non-goal-directed behavior—aimlessly drawn to one stimulus after another.

Pre-morbid lifestyle should be assessed to help identify those likely to wander. These include having an active interest, physically and mentally, in music (e.g., singing, playing an instrument, having a recognized love of music) (Thomas, 1999), and demonstrating extroverted personality characteristics, such as warmth, gregariousness, activity, positive emotion, and altruism (e.g., being continually active in daily activities, demonstrating social-seeking behavior, demonstrating positive regard toward oneself and others) (Thomas, 1997).

Additional important pre-morbid lifestyles to assess include having been physically active in social and leisure activities, experiencing a number of stressful events throughout a lifetime, responding to stress with psychomotor activity rather than emotional reactions, and demonstrating more motoric behavioral styles in earlier years (Monsour & Robb, 1982). A Descriptive Typology of Wandering in Dementia (Hope & Fairburn, 1990) also is helpful in determining individuals who may benefit from this protocol. This typology is listed in Table 1.

**DESCRIPTIVE OF THE PRACTICE**

The Need-Driven Dementia Compromised Behavior Model (NDB) (Algase et al., 1996) is an excellent model to use for conceptualizing behaviors and identifying individuals at risk. Algase (1999a) suggests there is an interplay of background and proximal factors that might explain reasons for wandering and offers this NDB model to design management strategies. She suggests possible clinical strategies for neurocognitive deficits and wandering patterns, but cautions that no testing for effectiveness has been conducted and evaluation of outcomes is needed.

**TABLE 2**

GUIDELINES FOR USE OF LOW COST PATIENT LOCATOR SYSTEM FOR GERIATRIC WANDERING

**I. Considerations in using the Patient Locator System**

A. Address caregiver concerns related to financing, return of device when no longer needed, and mechanical integrity of device.
B. Make available highly individualized versions of the device (e.g., watch, jewelry, belt buckle); avoid necklace for safety reasons.
C. Device ought to be small, able to be sewn into clothing, and lightweight.
D. Determine conditions for which device is most effective (daytime, evening).

**II. Introduce Device to the Caretaker and Client Based on:**

A. Professional nurse assessment of client’s hearing, vision, mobility, and cognitive status (Mini-Mental State Examination), and the environment.
B. Professional nurse assessment of caregiver’s knowledge about device, how to place device on client, how to care for device.
C. Assessment of caregiver’s knowledge of when and how to activate search involving search and rescue personnel.
D. Individualized training in device placement and use.
E. Care recipient acceptance.
F. Training in how to handle a potential catastrophic reaction.

**III. Protocol Guideline for Wearing of Device Based on Results of Evaluation of Mock Device**

A. Individual diagnosed with progressive memory loss (i.e., clinical diagnosis established using criteria from the National Institute of Neurological and Communicative Disorders and the Alzheimer’s Disease and Related Disorders Association (McKhan et al., 1984); MMSE test scores 10 to 19 considered middle stage Alzheimer’s Disease, and 9 or less is considered late stage (Folstein, 1997).
B. Caregiver reports one or more wandering episodes in past 6 months.
C. Following assessment of client and caregiver by professional nurse regarding knowledge of device and acceptance, place device on individual.
D. Evaluate pros and cons encountered with wearing device.
E. Evaluate type and number, if any, of wandering episodes after placing device on individual.

*(Gitlin & Corcoran, 1996; Logsdon, Teri, McCurry, Gibbons, Kukull, & Larson, 1998; Melillo & Futrell, 1995; Melillo & Futrell, 1998).*

This Table is a final report for National Institutes of Health project by Melillo and Futrell (1999). For further information, please contact the authors. Reprinted and modified with permission from Signatron Technology.
**TABLE 3**

**PROCESS EVALUATION MONITOR**

**Administration:** Once the caregivers who are using the protocol complete this Process Evaluation Monitor, the individual in charge of implementing the protocol should provide feedback to each caregiver who completed a form and offer further education or support as needed. For the nine questions, please tally up the responses provided by adding up the numbers circled. For example, if Question 1 is answered “2” and Question 2 is answered “3” and Question 3 is answered “4” the caregiver’s score for those three questions ($2 + 3 + 4$) equals 9. The total score possible on this monitor is 36, and the lowest score possible is 9. Caregivers who have higher scores on this monitor are indicating they are well equipped to implement the protocol, and understand its use and purpose. On the other hand, caregivers who have relatively low scores are in need of more training in the use of the protocol.

**Directions:** Please circle the number that best communicates your perception about your use of the Wandering protocol.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

1. I feel knowledgeable enough to implement the wandering protocol.
2. Implementing the wandering protocol enhances the quality of patient care.
3. I feel supported in my efforts to implement the wandering protocol.
4. I feel well prepared to implement the wandering protocol with the assistance from others who are knowledgeable about the protocol.
5. I am able to identify wandering behaviors.
6. I am able to identify and implement the essential activities of the wandering intervention.
7. I had enough time to learn about the wandering protocol before I needed to implement it.
8. We are managing wandering better with the use of this protocol.
9. The protocol enables me to meet wandering needs of most patients.

“little consistency within and across disciplines about effective interventions to manage wandering” (p. 45). Algase (1999b) states, “intervention studies for wandering are generally weak, suffering conceptually from imprecise thinking about goals of intervention and appropriateness of the theory (if any) behind it” (p. 209). Furthermore, she states, “the impact of wandering on weight and nutritional status has not been studied, although a potential connection is logical (p. 209).

Based on studies, practices to manage wandering are grouped into four areas:

- Environmental modification.
- Technology and safety.
- Physical and psychosocial interventions.
- Caregiving support and education.

"No firm conclusions may be drawn with respect to the efficacy of any single intervention strategy" according to Peatfield et al. (2002, p. 49), but a wide variety of approaches such as music therapy, social intervention, environmental modifications, and environmental and technical devices can be used alone or in combination. Intervention studies that take into consideration a multi-factorial approach to wandering are needed.

**Environmental Modifications**

Caregivers should provide a secure place for clients to wander, such as a wanderer's lounge or a large, safe walking area (Allen-Burge, Stevens & Burgio, 1999; APA, 1997; McGrowder-Lin & Bhatt, 1988). Enhancing the environment by increasing visual appeal, such as tactile boards or three-dimensional wall art, is also helpful (Allen-Burge et al., 1999; Cohen-Mansfield & Werner, 1998; Dickinson & McLain-Kark, 1998; Richter, Roberto, & Bottenberg, 1995). Gridlines should be placed in front of doors to decrease exit seeking (Forbes, 1998; Hussian & Brown,
**TABLE 4**  
**WANDERING QUALITY MANAGEMENT MONITOR**

For each patient receiving the Wandering protocol, please complete this Wandering Quality Management Monitor on at least a weekly basis throughout the Wandering program. For each patient receiving this intervention, please keep a record of the changes observed in the patient's records.

**Criteria Key**  
Y = Yes—met criteria  
N = No—criteria not met  
J = Justified Variation—patient not included in the monitor (Note why patient is not included)

<table>
<thead>
<tr>
<th>Outcome 1: Wandering frequency, duration, and pattern*</th>
<th>Week 1</th>
<th>Week 2</th>
<th>Week 3</th>
<th>Week 4</th>
<th>Week 5</th>
<th>Week 6</th>
<th>Week 7</th>
<th>Week 8</th>
</tr>
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<tbody>
<tr>
<td>Patient Observation reveals a direct pattern and a decrease in frequency and duration of wandering each day.</td>
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<td></td>
<td></td>
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<tr>
<td>Patient Medical Record reveals a direct pattern and a decrease in frequency and duration of wandering each day.</td>
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<tr>
<td>Patient Family Member report reveals a direct pattern and a decrease in frequency and duration of wandering each day</td>
<td></td>
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</tbody>
</table>

**Outcome 2: Safety of the individual†**

| Patient Medical Record reveals a decrease in the number of episodes of elopement. |       |       |       |       |       |       |       |       |
| Patient Observation reveals a decrease in the number of episodes of elopement. |       |       |       |       |       |       |       |       |
| Patient Family Member reports a decrease in the number of episodes of elopement. |       |       |       |       |       |       |       |       |

**Outcome 3: Increase in way finding; Reduced disorientation‡**

| Patient Medical Record reveals a decrease in difficulty reaching and returning from a destination; aimless wandering. |       |       |       |       |       |       |       |       |
| Patient Observation reveals a decrease in difficulty reaching and returning from a destination; aimless wandering. |       |       |       |       |       |       |       |       |
| Patient Family Member reports a decrease in difficulty reaching and returning from a destination; aimless wandering. |       |       |       |       |       |       |       |       |

**Comments**

Week 1:

Week 2:

Week 3:

Week 4:

Week 5:

Week 6:

Week 7:

Week 8:

*Use the Cohen-Mansfield Agitation Inventory: Long Form with Expanded Descriptions of Behaviors; Algase, Wandering Scale; Memory and Behavior Checklist (available in the full protocol).

†There are no tools to assess safety—it is simple observation of individual elopement.

‡Use Algase Wandering Scale; Memory and Behavior Checklist (available in the full protocol).
1987). Exits can be made less accessible by covering the panic bar with a cloth, and by allowing walking where doors are not in the path. Also, providing safety locks and complex, less accessible door latches can be helpful (APA, 1997; Dickinson & McLain-Kark, 1998). Caregivers can maintain safety by removing clutter, disabling appliances, and using safety locks (Gitlin & Corcoran, 1996).

Providing stimulation clues, such as pictures and signs, is also helpful (Allen-Burge et al., 1999; Gitlin & Corcoran, 1996). This can be achieved by using a combination of large-print signs and portrait-like photographs to aid in way finding (Namazi, Rosner, & Rechlin, 1991; Nolan, Mathews, & Harrison, 2001). The use of a multifaceted approach to environmental modifications is likely to be more effective than singular modifications (Bair, Toth, Johnson, Rosenberg, & Hurdle, 1999; Dickinson & McLain-Kark, 1998).

Technology and Safety

Several technology and safety practices are recommended to assist with managing wandering. Technological devices should be used to locate and monitor clients who wander (Algase, Kupferschmid, Beal-Bates, & Beattie, 1997; Cohen-Mansfield, Werner, Culpepper, Wollson, & Bickel, 1997). A verbal alarm system is preferred because it is more effective than an aversive alarm system (Connell & Sanford, 1998). Mobile locator devices can be used to quickly locate wanderers (Altus, Mathews, Xaverius, Engelman, & Nolan, 2000; McShane et al., 1998; Melillo & Futrell, 1998). Table 2 includes specific information on a Low-Cost Patient Locator System for Geriatric Wandering (Melillo & Futrell, 1999).

Physical and Psychosocial Interventions

Several physical and psychosocial interventions are helpful. Those who wander should be assessed for depression and treated accordingly (Lyketsos et al., 1997). Wandering during structured activities can be decreased by using social interaction of staff and visitors, or music (Cohen-Mansfield & Werner, 1995; Holmberg, 1997a; Matteson & Linton, 1996).

Music sessions are more effective than reading sessions in decreasing wandering behavior (see the Evidence-Based Protocol: Individualized Music by Gerder [2001], available at the Research Dissemination Core Office) (Bright, 1986; Fitzgerald-Cloutier, 1993; Groene, 1993). Risky situations can be prevented with adequate supervision (APA, 1997; Aspinall, 1994). Wandering can also be decreased by eliminating stressors from the environment, such as cold temperatures at night, changes in daily routines, and extra people at holidays (Hall & Laloudakis, 1999). Another strategy to decrease wandering is to provide regular exercise (Holmberg, 1997a; Holmberg, 1997b) and refrain from unnecessary limitations on walking (APA, 1997; Burngardt, 1994).

Caregiving Support & Education

A facility-based approach should include identification of the problem, a wandering prevention program, interactions with staff, and staff education and mobilization around the problem (Heard & Watson, 1999; Rader, 1987). Caregivers should be educated to assist in the ability to care for wanderers (Cohen-Mansfield, Werner, Culpepper, & Barkley, 1997; Dodds, 1994).

EVALUATION OF PROCESS AND OUTCOMES

To monitor the use and effectiveness of the evidence-based practices for patients at risk for wandering, both process and outcome factors can be evaluated. Approximately 1 month following caregivers’ use of the protocol, the Process Evaluation Monitor (Table 3) may be used to evaluate perceived understanding and support of each caregiver in using the protocol. The Wandering Quality Management Monitor (Table 4) is to be used for monitoring and evaluating the usefulness of the wandering protocol in improving outcomes of patients who wander. The major outcome indicators to be monitored over time include:

- Problem wandering should decrease.
- Safety of the individual should increase.
- Increase in way finding and reduced disorientation.

These outcome measures should be performed frequently throughout the use of the protocol as outlined on the forms.

REFERENCES

Key: (R) = Research  (L) = Literature  
(N) = National Guidelines


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