

Algorithm for Treating Behavioral and Psychological Symptoms of Dementia (a.k.a. Problem Behaviors and Psychosis): Assessment and Non-Drug Management

Step 1. Assess and Treat Causal and Contributing Factors

Many different types of behavioral and psychological symptoms occur in dementia. Diverse symptoms must be assessed and treated individually. Using standardized behavioral rating scales is often helpful in both quantifying symptoms and distinguishing one set of problems from another.

Describe the behavior. The first step is to **identify and describe a single problem behavior** that is the target of care and concern. Understanding factors that may cause or contribute to the problem behavior is essential. Describe the frequency, duration, intensity and characteristics of each problem behavior. Note where the problem occurs, how long it lasts, who is present, what they are doing, and what else is going on in the environment.

Once the behavior has been thoroughly described, **assess possible antecedents or triggers**. Unmet needs are common causes of problem behaviors in dementia. Think about possible needs of the person with dementia and how those might contribute to the problem behavior observed. Remember that contributing factors often interact; more than one issue may cause the problem behavior. For example, the person with dementia may strike out during a bath because of pain during movements as well as embarrassment about nudity, resentment about being touched, and feeling physically cold due to the room temperature. Responses to behaviors may also be triggers. For example, correcting misbeliefs (“You live here now; That’s not your room; Your parents are dead”) can contribute to problem behaviors.

Four main categories of antecedents, or triggers to problem behavior, are important to assess.

- Review **physical problems or needs** that may be contributing.
 - ✓ Is pain causing the person to act or respond in a negative way? (e.g., pain on movement during dressing or bathing; discomfort due to constipation and/or incontinence)
 - ✓ Are uncorrected sensory deficits (sight and/or hearing) contributing to misinterpretation of objects, events or interactions? Ensure that glasses are on if needed, hearing aids are functioning, and ear wax buildup is not contributing to hearing difficulties.
 - ✓ Is sleep disturbance causing fatigue that increases irritability?
 - ✓ Are new physical health problems, like illness, infection, dehydration, nutritional deficiencies, or medication side effects, causing delirium (acute confusion)?
- Consider the person’s **psychological needs**.
 - ✓ Is the behavior the result of being bored, and having nothing interesting to do?
 - ✓ Is the person lonely and seeking physical and social contact with others?
 - ✓ Are they afraid or worried about things going on around them (that they may not understand)?
 - ✓ Are there opportunities to interact in positive ways with others?
- Think carefully about the **physical and social environment**.

- ✓ Is the level of noise and stimulation overwhelming to the person?
- ✓ Is dim lighting or reflection contributing to misinterpretation of objects or events?
- ✓ Are caregivers approaching the person in a way that startles, confuses, or overwhelms the person?
- ✓ Do institutional routines and expectations for behavior fit the person's current level of ability and longstanding habits?
- ✓ Is the environment "understandable" to the person?
- Assess common **psychiatric problems** that occur with dementia.
 - ✓ Is depression causing the apathy, indifference, irritability or other depression-related problems?
 - ✓ Is fear, apprehension, or excessive worry the result of anxiety?
 - ✓ Are false beliefs really delusions? (a.k.a. psychotic symptoms) Or is the person misinterpreting events or objects?
 - ✓ As with physical illness, is delirium (acute confusion) causing additional symptoms that will resolve when the health problem is treated/resolved? See the ***Delirium Assessment and Management*** evidence-based review for more details.

Assessing for new physical health problems (e.g., infection, dehydration, etc.) is particularly important in the context of multiple chronic medical conditions or substantial polypharmacy. A systematic approach may involve first evaluating vital signs, blood glucose and urinalysis. Other laboratory screens such as a complete blood count and electrolytes (sodium, potassium, blood urea nitrogen and creatinine) may help identify infection, anemia and dehydration. Depending on the clinical history, a head CT (computed tomography) may be indicated if there is a question of a fall or head injury, and an oxygen saturation measure from a pulse oximeter may help detect hypoventilation from pulmonary disease that may adversely affect alertness and behavior. Other helpful measures may include a chest x-ray and electrocardiogram, depending on the clinical symptoms observed and individual medical histories.

Reducing or eliminating triggers is essential. Each trigger or antecedent should be addressed to assure that the person's needs are being met. This often requires cooperation between the facility leaders and the people who provide day-to-day care. Some adjustments are relatively simple, like offering food to reduce the risk of intrusive behaviors, like going into other people's rooms in search of something to eat. Adjustments in daily care routines that fit the person's needs may require "juggling" of responsibilities, like offering short rest periods on day shift in order to reduce confusion (sundowning) later in the day. Other adjustments require teamwork and cooperation among disciplines – like making sure evening shift nursing personnel have activities to engage, distract, and soothe residents after activity personnel are gone for the day.

If problem behaviors persist AFTER triggers have all been addressed, the next step is to use a non-drug intervention – a psychosocial approach, therapy, or activity that doesn't involve drugs. **The choice of a non-drug intervention is based on the individual's retained abilities, preferences, and resources.** Assess the following factors to help select and individualize a non-drug intervention to best fit the person's current needs:

- **Cognitive level:** How impaired is the person? What retained abilities do they have? Activities may need to be simplified to help those who are more impaired.
- **Physical function:** What other health-related problems does the person have? What are they able to do alone? With assistance? What assistive devices (glasses, hearing aids, walkers, wheelchairs) are needed to help them be successful? Is pain a factor?
- **Long-standing characteristics:** What do you know about this person? What are his/her long-standing personality traits? Coping methods? Lifestyle choices and experiences? What are the person's personal, leisure and work-related interests? What can you build upon? What should you avoid?
- **Preferred routines:** What did this person do on a day-to-day basis during most of his/her life? What daily routines may be important to consider as part of implementing an intervention? (e.g., eating, sleeping, rest, activity, socialization that may guide the selection or timing of the intervention)
- **Resources:** What personal, family or facility resources may be available to this person? Consider financial, social, interpersonal, and physical resources that may facilitate or impede using a non-drug intervention.



Step 2. Select and Apply Non-Drug Interventions

Once you have a good understanding of the person's abilities, preferences and characteristics, think again about the type of problem behavior that is targeted. Interventions fall into three main categories: a) changing caregiver approaches; b) changing the physical or social environment; and c) using a specific non-drug intervention that is personalized to the person with dementia. These categories of **interventions often overlap and are used at the same time**. Many of the same principles of care described under "Adjusting caregiver approaches" and "Changing the physical and social environment" are also a part of an individualized intervention. Optimal outcomes often rely on doing multiple things at once.

Adjusting caregiver approaches. Dementia training and staff development activities are essential to help daily caregivers understand how they can change what **THEY** do to get different results. Seemingly "simple" adjustments in communication styles, care approaches, and daily routines often result in **BIG** changes in behavior. The main ideas are to simplify tasks and communication, use the person's history as a guide, and avoid "confronting" the person with what they are unable to remember. Breaking tasks and instructions into "doable" steps, using physical and verbal cues, and accepting "misbeliefs" as real to the person (using validation vs. reality orientation) can make a huge difference.

Staff training to use multi-component dementia care management approaches (e.g., communication, daily care, attention to unmet needs) is consistently associated with lower rates of problem behaviors. A wide variety of dementia training programs are available at low and no cost and should be part of ongoing staff development, inservice, and "just in time" education programs in all dementia care settings.

Changing the physical and social environment. Reducing the risk of problem behaviors often relies on changing the environment in which persons with dementia live. As with caregiver approaches, simplifying the world around the person with dementia often doesn't require a huge

investment, and has a large “pay off.” An important first step is to reduce misinterpretation of real-life events or objects by thinking carefully about how the person with dementia “sees” and experiences the world around them. Closing drapes at night to reduce reflections, eliminating public address systems, replacing art work that is misunderstood, and playing television or radio selectively in common areas are important first steps. Partitioning large spaces into smaller segments (e.g., using low dividers or using furniture arrangements) and using simple signage and personal items (e.g., memorabilia boxes outside rooms, arrows with pictures) often promotes function and comfort. Easy access to an interesting and secure outdoor area meets needs for exercise, exploration, and outdoor activities.

Too much going on at once is just as risky as too little. Finding a healthy balance in the amount of stimulation (number and type of things going on at once) is often a challenge, but worth the investment of effort. Perhaps most important, having a wide array of individual, one-to-one, and small group activities available at all times – throughout the day, evening, and over weekends when activity staff are often not present – is KEY. Engagement in meaningful activities, things that the person with dementia enjoys and is able to do successfully, is a huge deterrent to problem behaviors. Of equal importance, specific recreational and leisure activities may be used as an intervention to reduce or eliminate a problem behavior once it has occurred. As before, staff training and development programs are critically important to using available, low/no cost approaches aimed at preventing problem behaviors in dementia.

Select and individualize non-drug interventions. Another important task is to select one or more intervention that “fits” the problem behavior identified, and then tailor that intervention to the individualized needs of the person. Use the information about the person’s cognitive level; physical function; long-standing traits, habits, and interests; preferred routines; and resources to individualize (a.k.a. personalize) the selected activity.

Non-Drug Interventions

An important consideration when reviewing non-drug interventions for problem behaviors in dementia is that many studies have been small and/or have not used a randomized controlled trial design. As a result, the level of evidence supporting various interventions may not be strong (or as strong as many medication trials). We know that some interventions work very well in some individuals, but none work in all. The main steps are to

- think about the PERSON and his/her unique characteristics, interests, and abilities,
- think about the problem behavior,
- select a type of intervention, and
- PERSONALIZE the intervention to the person and his/her needs.

For example, the timing and duration of the intervention should be adjusted to achieve the best possible outcome. Another important consideration is that interventions can be adjusted to be “activating” or “soothing” depending on the need. For example, listening to soothing music may help an agitated person relax. In contrast, playing music or singing with a group may help a withdrawn or apathetic person engage and be more active.

There are lots of different ways that problem behaviors are categorized. In this algorithm, we have grouped behaviors that tend to occur together, and often respond well to the same types of interventions. Several interventions are listed for each type of behavioral problem. The

descriptions provided are brief, and intended to provide a basic understanding of the intervention. Additional reading and/or training is needed to use the intervention to its best advantage and to personalize the intervention to the person with dementia.

Agitated and Irritable Behaviors

Perhaps the most frustrating behaviors for caregivers are agitated and irritable behaviors. In some cases, agitation can include physically striking out, combativeness, grabbing, pinching, hitting, spitting, and other behaviors that signal severe distress in the person with dementia. Interventions that calm, soothe, and distract the person from their distress are often effective.

Individualized music: Playing “preferred” music (a.k.a. individualized to the person) can be useful in reducing agitation. Knowing the person’s music preferences is key. Music can be played using a headset or aloud, but is best used in a setting that is free from other distractions (in the person’s room) and supported with other calming features (e.g., noise reduction, comfortable chair).

White noise: Low intensity, slow, continuous, rhythmic, monotonous sound (white noise) may be used as an intervention decrease agitated behaviors. Examples include audiotapes of mountain streams, ocean waves, rain or other nature sounds, and whirling fans, humming air conditioners, or other sound generators. As with music, tailored interventions using individual preferences are best.

Aromatherapy: Using selected fragrances, such as lavender and Melissa oil, can have a calming effect. Fragrance may be used in lotions or oils and used during massage, in steam dispensers, or scented bags that are placed with linens (e.g., under the pillow).

Hand massage: Gently massaging a person’s hands using lotion may help reduce distress.

Therapeutic touch: Specially trained staff may use touch-related techniques to help relax persons with dementia.

Presence therapy: Some persons with dementia respond well to audio or videotapes of family or friends who “talk with them,” reminiscing or telling a story about a pleasant event. Tapes are often recorded in “present tense” (as if the person is in the room talking to the elder).

Multisensory stimulation (Snoezelen): Specially designed rooms that contain a variety of sensory input (lights, colors, sounds, textures) may reduce agitation. The “Snoezelen” environment was developed by Dutch therapists, combines two verbs, “snuffelen” (to seek out or explore) and “doezelen” (to relax), which are primary concepts of the approach.

Simple Pleasures: This is a group of sensorimotor interventions that may be alternatively used to reduce agitation, boredom, or passivity. All can be made by volunteers and instructions are online for free. Examples include sensory wall-hangings, look-inside purses and tackle boxes, hand muffs, wave machines, and picture dominos. Details about these interventions can be found at the following website:

<http://www.health.ny.gov/diseases/conditions/dementia/edge/interventions/simple/index.htm>

Pet therapy: Animal assisted therapy includes both pet “visitors” (those who visit but do not live with the person), resident pets (those that live in the residence), and trained animals who are part of specialized therapy programs.

Individualized activity/social interaction: Small group and one-to-one interactions are structured to engage individuals in meaningful/enjoyable activities, and promote positive social exchanges. Topics, themes, and/or simple activities are based on personal history, leisure interests, and strengths/limitations of the individual or group members. Interacting around cooking, gardening, games, artistic expression like painting, or reminiscence of positive events engages the person and reduces problem behaviors.

Validation therapy: Responding to false beliefs, such as wanting to go home or see a parent who is dead, without challenging or correcting the person is often important to high quality care. Validation is sometimes called “therapeutic lying” since caregivers allow the person to continue living their reality instead of correcting them.

Physical/outdoor activities: Some individuals benefit from having structured exercise, like an “Early Morning Walking Club” that burns energy in a beneficial way and reduces the risk of agitated or restless behavior later on. Chair exercises, Tai Chi, tetherball and other programs may also be useful in reducing the risk of agitation. Access to secure outdoor areas may also be useful, as outlined under the “Wandering, Restlessness, Boredom” section.

Resistiveness to Care

Older adults who are labeled as “aggressive” are often “resisting” care. The person may push, grab, or strike out as the caregiver attempts to provide care. Pushing, grabbing, pulling away or even striking are similar to saying “Stop that! Leave me alone! Don’t touch me there! I don’t want to do this! I don’t like that!” However, language loss in dementia may keep the person from telling caregivers, in words, that they are uncomfortable and/or unwilling to cooperate. Instead, caregivers must “listen” to the behavior to understand what the problem may be.

Slow down, communicate clearly, cue: Being in a hurry and forgetting to talk with the person about cares being provided can be a trigger to problem behaviors. Slowing down, making eye contact, and explaining step-by-step often helps. Encourage the person to do as much as she/he can by providing cues and limited assistance.

Adjust routines to fit long-standing habits: Resistance to bathing, mealtimes, and other “scheduled” events may be avoided by using long-standing routines. Instead of “forcing” the person to fit into facility routines, plan care around patterns that are familiar to the person.

Give analgesics to promote comfort: Joint disease is common in later life and cause pain during movements that are part of personal cares (dressing, grooming, bathing, toileting). Giving “as needed” (prn) pain medicine before cares are provided may reduce discomfort and the problem behaviors that can be triggered by pain.

Use alternative approaches during bathing: Bathing introduces a number of “threats” that the person with dementia may “resist.” Both physical (cold, pain on movement, water in face) and psychological (embarrassed by nudity, frightened by spraying water) discomforts contribute. Adjust the bathroom décor to more inviting, homelike and comfortable. Effective comfort include room and water temperature, soft covers when not being washed, and distractions such pleasant aromas, preferred music, having a snack and singing with the person.

Wandering, Restlessness, Boredom

Wandering is sometimes defined as “pointless” walking. However, the behavior often has a point – to reduce boredom, increase exercise, or attempt to return to a familiar place. Understanding the underlying cause is essential to reducing the behavior. Distraction from walking (or exit-seeking) and engagement in meaningful activities are key approaches.

Rest stations in pacing path: Attractive, specially designed “Rest stations” break up long hallways or other spaces that tend to attract individuals who pace. Theme-based pictures, aromas, music, and furniture may distract those who pace to sit down and engage with the environment. For example, a nature scene may include wall murals of forests, valleys or vistas; artificial plants or trees; tape-recorded nature sounds; aroma-diffuser with pine scent; and an inviting bench or comfortable chairs.

Adapt the physical environment: Exit-seeking may be motivated by boredom or curiosity (nothing else to do; where does this door lead?) as an attempt to leave. Colors, textures, murals, and wall-hangings may be used to disguise exits and redirect individuals with dementia to other activities.

Physical/outdoor activities: Pacing and wandering that is motivated by a need for exercise may be diverted by offering scheduled physical activities, such as walking groups and exercise programs. Outdoor activity needs (signaled by exit-seeking) may be met by wheelchair biking or protected “wandering areas” such as courtyards or other outdoor areas that are secure and easily accessed.

Individualized activity/social interaction: As described earlier, enjoyable activities that are personalized to individualized needs may reduce boredom and restlessness that triggers wandering.

Simple Pleasures: As described earlier, a group of multi-sensory activities called “Simple Pleasures” may be used to engage those with dementia and thus reduce behaviors like pacing and wandering.

Disruptive Vocalization

Problematic vocalizations may include repetitive words or phrases, cursing or name-calling, or other use of language that is socially disruptive. Treat the person vocalizing as being distressed and possibly “communicating” unmet needs. WHAT is being said, WHERE, and WHEN? What meaning might that have? Distraction and engagement are key interventions to reduce vocalizations.

Recheck physical comfort, vision, hearing: Vocalization may be triggered by one or more unmet need or misinterpretation of the environment. Assuring appropriate sensory input (e.g., putting on glasses, hearing aid) and comfort (e.g., incontinence, pain, meaningful activity/socialization) is often key.

Individualized music: As described earlier, personally enjoyed and preferred music may distract and soothe the person, thus reducing vocalizations.

Nature sounds: Nature sounds (babbling brook, ocean waves) may also reduce verbal agitation.

Individualized activity/social interaction: Individualized time with the vocalizing person may distract and help redirect. Walking, doing an activity, looking at pictures, or talking about a favorite topic may be scheduled at “high risk” times and implemented with the assistance of family and volunteers.

Presence therapy: As described earlier, simulated presence using audio and video tapes may distract and engage the person, thus reducing repetitive calling out or other disruptive vocalizations.

Apathetic/Withdrawn

Individuals with dementia may become apathetic and socially withdraw. Their indifference and lack of caring is usually not challenging for caregivers. However, social isolation and loss of quality of life are common consequences. Stimulating activities that “liven up,” interest, and engage apathetic persons are beneficial. Many of the same approaches that are used to soothe and distract an agitated or restless person may be modified to engage and stimulate one who is withdrawn and apathetic. As before, the goal is to tailor the activity to the individual and his/her needs, strengths, and abilities.

Individualized music: Personally enjoyed and preferred music may engage and stimulate an apathetic person. Singing and making music with simple instruments such as maracas, flutes, or tambourines may assist a withdrawn person to engage and interaction with others and their environment.

Simple Pleasures: As described earlier, a group of multi-sensory activities called “Simple Pleasures” may be used to engage and stimulate those with dementia and thus reduce apathy.

Individualized activity/social interaction: As described earlier, enjoyable activities that are personalized to individualized needs may be used to engage and stimulate a person who is withdrawn and apathetic.

Repetitive Questions, Mannerisms, or Behaviors

Repetitive language and behaviors may easily frustrate caregivers. The individual may repeat words, phrases and questions, such as “Stop! Stop! Stop” or “Can I have some water? Can I have some water?” Many times the message directs the caregiver to an unmet need (e.g., resisting care; wanting a drink of water). Repetitive behaviors such as tapping, clapping, and motioning may similarly signal an unmet need and should be checked. At other times, the needs are met but the calling out continues. Reassuring and engaging the person is often the next step in reducing the behavior.

Validation therapy: As described earlier, responding to false beliefs, such as wanting to go home or see a parent who is dead, without challenging or correcting the person is often important to high quality care. Validation is sometimes called “therapeutic lying” since caregivers allow the person to continue living their reality instead of correcting them.

Simple Pleasures: As described earlier, a group of multi-sensory activities called “Simple Pleasures” may be used to engage those with dementia and thus reduce repetitive behaviors.

Individualized activities/social interactions: As described earlier, using enjoyable activities that are personalized to individualized needs may reduce boredom that triggers repetitive behaviors.

Cues, prompts, calendars: In some cases, repetitive questions may be addressed by giving the person a written “cue” or response to the question. If the person is unable to independently check the answer, the caregiver may prompt the person to “look at the calendar” [cue] which may be less frustrating than repeating the answer.

Depression and Anxiety

Depression and anxiety are common psychiatric conditions among persons with dementia. In many cases, depression may cause the person to appear more disabled than he/she really is. Depression symptoms include sadness and crying, as well as loss of interest in usual activities, fatigue/loss of energy, impaired concentration, and sleep disturbance, among other behaviors. The “excess disability” caused by depression may be reduced by using antidepressant medications and activities, although evidence does not strongly support antidepressant medications as effective for depression in people with dementia. Anxiety may accompany depression or exist alone, and includes being nervous, worried, frightened, irritable, or tense for no apparent reason, and a range of other physical and psychological symptoms. Both anxiety and depression may be treated using “antidepressant activities” that engage the person in positive ways.

Physical exercise: Considerable evidence supports the use of physical exercise to reduce anxiety and depression symptoms. Exercise options should be adapted to the capabilities of the person with dementia, such as walking, riding a stationary bicycle, dancing, exercise, or moving to music. Scheduled physical activity produces optimal outcomes.

Pleasant activities: Identifying and scheduling enjoyable activities has many antidepressant effects and may also be useful to reduce anxiety and worry. Pleasant activities should be personalized to the individual's interests and history; completed independently, one-to-one or in a small group (large group activities are not as effective); and scheduled several times per week. This is also called “behavioral activation” in the psychology literature.

Cognitive stimulation therapy: Activities that stimulate thinking (cognition) are done in small groups and may include use of orienting information (e.g., “reality orientation board,” personal names, name of group), information processing activities (e.g., “faces” activity that asks “Who look the youngest?”), and reminiscence about factual information. Some studies report reduced anxiety and depression with this therapy.

Wheelchair Biking: Specially constructed “duet bicycles” allow older adults to ride in a wheelchair that is attached on the front of the “rear” portion of a bike (i.e., all mechanisms except the front wheel including steering, peddling, and the rear wheel). Rides are associated with lower levels of depression.

In summary, daily care providers have many opportunities to adjust their approaches to care and to adapt the environment to better fit the unmet needs of the person with dementia. Knowing the person well, including lifelong habits, interests, and daily living patterns, is essential to the development of individualized interventions. Family involvement in care, when feasible, may

guide personalized approaches to daily living in congregate settings. A diverse array of non-drug interventions may be tailored to meet the individualized needs of persons with dementia, and often overlap in terms of purpose. For example, music interventions may be stimulating for those who are apathetic and withdrawn, or soothing to a person who is agitated, depending on how the intervention is applied. In light of staff turnover rates, strategies to assure ongoing training related to dementia care approaches and interventions are essential to maintaining quality of care for older adults with dementia. Finally, monitoring outcomes using behavioral rating scales to quantify the type, frequency, intensity, and duration, of behavioral problems, as well as the level of distress to the person and others, is critical to developing enduring solutions.



Step 3. Monitor Outcomes and Adjust Course as Needed

The third step in evaluating behavioral problems relies on monitoring and documenting outcomes associated with adjustments that have been made to caregiver approaches, adaptations to the environment or daily routine, and addition of individualized non-drug interventions. Resolution of behavior problems relies on identifying specific and measurable outcomes that are realistic and achievable. These outcomes include, but are not limited to, the type, frequency, intensity and duration of problem behaviors, and the level of distress to the person and others in the environment. Other outcomes may be related to health quality, such as nutrition, hydration, exercise, socialization, and engagement in meaningful activities that are a deterrent to the development of problem behaviors.

Once a plan is developed and outcomes are identified, the next step is to assure that individualized interventions and approaches are implemented *as planned* in daily care. Clear communication and team work among interdisciplinary team members (e.g., nurses, nursing assistants, social work, activity personnel, dietary, housekeeping, other ancillary staff, pharmacy, primary care providers) is needed to assure that approaches are understood and used consistently (e.g., “dose” is sufficient). Team members who spend the most time in daily contact with the person are in the best position to intervene effectively, and to recognize new problems or issues. Their success relies on having a working knowledge of the care approaches, and their comfort level in implementing the strategies. Staff training, both in large group formats and on-the-job through role modeling and “buddy systems” (pairing more experienced staff with less experienced ones), is needed to assure their full understanding and cooperation.

An important final consideration is that the intervention may work partially, but not fully. For example, an approach or intervention may work at a certain time of day, but not consistently throughout the day. Team members’ discussions of factors that influence outcomes, and possible alternatives and adjustments to the plan, are often needed to promote optimal outcomes. As before, family input and assistance may help guide the development of individualized approaches. Antipsychotic medication interventions should be used only when problem behaviors or psychosis are persistent and severe, and meet criteria for use. Use the ***Antipsychotic Prescribing Guide*** that is part of this program to facilitate decisions related to antipsychotic use. Further details are available in the ***Antipsychotic Use in Dementia*** evidence-based review.

Annotated Bibliography: Non-Drug Interventions in Dementia

The following references were used to develop the *Algorithm for Treating Behavioral and Psychological Symptoms of Dementia (aka Problem Behaviors)*. The list is not comprehensive, but reflects widely used guidelines, books, papers, and systematic reviews of literature related to non-drug interventions and approaches to care. Considerable variability exists in the literature related to the evidence base for non-drug interventions. Papers that both support and negate interventions are included. An important theme is that non-drug studies often have small sample sizes (due to funding constraints) and result in insufficient power to detect change. Research articles and reviews were not purposefully omitted. Instead, the aim was to provide a sample of key articles that contributed to and support the algorithm. Readers are urged to conduct their own reviews to best assure accuracy of information related to topics of interest. The abstracts are from the original publication when available, and short summaries are provided when an abstract was not included with the publication.

Algase, D., Beck, C., et al. (1996). Need-driven dementia-compromised behavior: An alternative view of disruptive behavior. *American Journal of Alzheimer's Disease*, 11(2), 10-19.

This article describes the development of a dementia model in which two categories of factors, background/individual and proximal/environmental, interact to cause problem behaviors. Background/individual factors include neurological, cognitive, health-related (e.g., physical abilities) and psychosocial (e.g., long-standing personality, habits/lifestyle) factors that are relatively stable. Proximal/environmental factors include unmet physical and psychological needs, and factors in the social and physical environment that tend to fluctuate and may be the target of care.

Altus, D. E., Engelman, K. K., et al. (2002). Finding a practical method to increase engagement of residents on a dementia care unit. *American Journal of Alzheimer's Disease & Other Dementias*, 17(4), 245-248.

Explored whether a simple, inexpensive recording and feedback procedure for staff, without additional training, would be sufficient to increase resident engagement in daily activities. Participants were 6 residents in a locked dementia care unit of an assisted living facility (aged 61-89 yrs) and 2 certified nursing assistants. The assistants were asked to complete a daily activity record on which they recorded the amount and quality of resident engagement. The facility's activity director was asked to read these activity records each day and give immediate, positive feedback to the nursing assistants. This procedure was evaluated by using a control series design. Results revealed baseline engagement observations with a mean of 11 percent, which increased to a mean of 44 percent during observations under treatment conditions. This study suggests that simple, inexpensive changes in institutional practices can make meaningful improvements in the level of engagement of residents with dementia.

Ayalon, L., Gum, A. M., et al. (2006). Effectiveness of nonpharmacological interventions for the management of neuropsychiatric symptoms in patients with dementia: A systematic review. *Archives of Internal Medicine*, 166(20), 2182-2188.

Background: Recent reports documenting limited evidence supporting the use of pharmacological interventions for neuropsychiatric symptoms (NPS) and increased risk of death, the black box warnings against the use of atypical antipsychotic drugs in older adults, and Omnibus Budget Reconciliation Act regulations suggest the need to evaluate the usefulness of nonpharmacological interventions in the management of NPS of dementia. Methods: To determine the evidence base of nonpharmacological interventions for the management of NPS in patients with dementia, we reviewed MEDLINE, PsycINFO, the Cochrane library, and relevant bibliographies published from January 1966 to December 2005, using the American Psychological Association Guidelines. Results: Three randomized controlled trials (RCTs) and 6 single-case designs (SCDs; N of 1 trials) met inclusion criteria. Under unmet needs interventions, 1 SCD found a moderate reduction in problem behaviors. Under behavioral interventions, based on

observational data, all 4 SCDs reported a relative reduction of 50% to 100% in neuropsychiatric symptoms. Under caregiving interventions, there were 3 RCTs. At the 6-month follow-up, 1 RCT found a reduction in 4 neuropsychiatric symptom subscales: ideation disturbance score (0.3 vs 0.5; range, 0-8; $P = .005$); irritability score (18.8 vs 23.0; range, 8-38; $P = .008$); verbal agitation, as measured by mean frequency of 20-minute outbursts (0.5 vs 0.8; $P = .005$); and physical aggression score (11.4 vs 12.9; range, 6-42; $P < .001$). Another RCT found a significant improvement in frequency (2.3 vs 3.1; range, 0-4; $P < .001$) and severity (2.2 vs 2.8; range, 0-4; $P < .001$) of target behaviors associated with the intervention arm. The third RCT found no effect. Under bright light therapy, 1 SCD found short-term improvements on the Agitated Behavior Rating Scale (9.7 vs 19.9; $P < .001$). Conclusions: The cumulative research to date on the impact of nonpharmacologic interventions for NPS among patients with dementia indicates that interventions that address behavioral issues and unmet needs and that include caregivers or bright light therapy may be efficacious. More high-quality research is necessary to confirm these findings.

Ballard, C. G., Gauthier, S., et al. (2009). Management of agitation and aggression associated with Alzheimer disease. *Nature Reviews Neurology*, 5(5), 245-255.

Agitation and aggression are frequently occurring and distressing behavioral and psychological symptoms of dementia (BPSD). These symptoms are disturbing for individuals with Alzheimer disease, commonly confer risk to the patient and others, and present a major management challenge for clinicians. The most widely prescribed pharmacological treatments for these symptoms-atypical antipsychotics-have a modest but significant beneficial effect in the short-term treatment (over 6-12 weeks) of aggression but limited benefits in longer term therapy. Benefits are less well established for other symptoms of agitation. In addition, concerns are growing over the potential for serious adverse outcomes with these treatments, including stroke and death. A detailed consideration of other pharmacological and nonpharmacological approaches to agitation and aggression in patients with Alzheimer disease is, therefore, imperative. This article reviews the increasing evidence in support of psychological interventions or alternative therapies (such as aromatherapy) as a first-line management strategy for agitation, as well as the potential pharmacological alternatives to atypical antipsychotics-preliminary evidence for memantine, carbamazepine, and citalopram is encouraging.

Ballard, C. & Corbett, A. (2010). Management of neuropsychiatric symptoms in people with dementia. *CNS Drugs*, 24(9), 729-739.

Neuropsychiatric symptoms are frequent and troublesome in people with dementia and present a major treatment challenge for clinicians. Most good practice guidelines suggest non-pharmacological treatments as the first-line therapy and there is emerging evidence, including randomized controlled trials, that a variety of psychological and training interventions, including social interaction and person-centered care training, are effective. There is evidence from meta-analyses that some atypical antipsychotic drugs, specifically risperidone and aripiprazole, confer benefit in the treatment of aggression in people with Alzheimer's disease over a period of up to 12 weeks. However, these benefits have to be considered in the context of significant adverse events, including extrapyramidal symptoms, accelerated cognitive decline, stroke and death. In addition, the limited evidence available does not indicate ongoing treatment benefits over longer periods of therapy. The evidence is limited for other pharmacological treatment approaches, but the best evidence is probably for carbamazepine, memantine and citalopram. There is very limited evidence for any therapies in non-Alzheimer dementias. In conclusion, it is important in most situations to limit the use of antipsychotic medication to short-term treatment (up to 12 weeks) of severe neuropsychiatric symptoms to limit harm. Non-pharmacological therapies offer a viable and effective alternative in many situations. Adequately powered randomized controlled trials for the treatment of clinically significant agitation are urgently needed to explore alternative pharmacological therapies.

Ballard, C., Corbett, A., et al. (2009). Management of agitation and aggression associated with Alzheimer's disease: controversies and possible solutions. *Current Opinion in Psychiatry*, 22(6), 532-540.

PURPOSE OF REVIEW: Behavioral and psychological symptoms of dementia (BPSD) are frequent among people with Alzheimer's disease and other dementias, commonly confer risk to the person and others, and present a significant management challenge for clinicians. The purpose of this review is to describe the current state of knowledge regarding management of BPSD, with a particular focus on agitation. **RECENT FINDINGS:** There is increasing evidence to support the value of simple psychological interventions and staff-training programs as a first-line management strategy for agitation prior to pharmacotherapy. The most widely prescribed pharmacological treatments - atypical antipsychotics - have a modest but significant beneficial effect in the short-term treatment of aggression (over 6-12 weeks), but limited benefits in longer term therapy. In addition, there have been increasing concerns regarding the potential for serious adverse outcomes, including stroke and death. The potential pharmacological alternatives to atypical antipsychotics with the most encouraging preliminary evidence include memantine, carbamazepine and citalopram. **SUMMARY:** Large prospective, randomized, placebo-controlled trials are needed to establish the role of agents other than neuroleptics as clinical therapies for the treatment of BPSD and studies are urgently needed to evaluate BPSD treatments in non-Alzheimer dementias.

Bolger, J. P., Carpenter, B. D., et al. (1994). Behavior and affect in Alzheimer's disease. *Clinics in Geriatric Medicine*, 10(2), 315-337.

The behavioral symptoms associated with AD are a critical aspect of the disease. They provide an additional avenue not only for understanding AD but for implementing interventions. The nature of behavioral disorders in AD is complicated by a number of factors that interact and contribute to the development of problematic behavior. It is difficult to determine whether the behavior is the result of neurodegeneration, cognitive dysfunction, previous experiences, current stressors, independently coexisting psychopathology, or a combination of these factors. In any case, behavioral disturbances need to be more clearly defined and objectively measured. To understand and treat behavioral disturbances in AD, all biopsychosocial factors must be examined simultaneously. Currently, there is little that can be done to treat the cognitive components of AD. Consequently, our most successful and beneficial interventions may focus on the remediable behavioral manifestations of the disease. The most valuable treatment approach for patients with AD and their caregivers interweaves medications, psychosocial services, environmental strategies, and caregiver education.

Buettner, L. L. (1999). Simple Pleasures: a multilevel sensorimotor intervention for nursing home residents with dementia. *American Journal of Alzheimer's Disease*, 14(1), 41-52.

The Simple Pleasures research team investigated the effects of 30 handmade recreational items on the behavior of nursing home residents with dementia. The impact on family visits, staff knowledge, and volunteer involvement also was examined during the course of this study. Twenty-three items were found therapeutically valuable and acceptable for nursing home use. Family visits, use of recreational items, and satisfaction with visits significantly improved during the intervention. Residents were significantly less agitated at one nursing home and slightly less agitated at the other nursing home. More than 540 volunteers of all ages were trained and made Simple Pleasures recreational items during this project. Simple Pleasures Intervention Retrieved May 25, 2008, from <http://www.health.state.ny.us/diseases/conditions/dementia/edge/interventions/simple/index.htm>.

Buettner, L. & Fitzsimmons, S. (2009). *N.E.S.T. Approach: Dementia Practice Guidelines for Disturbing Behavior*. State College, PA: Venture Publishing, Inc.

This book offers detailed description of a wide variety of leisure and recreational therapy interventions that have been developed and tested with persons with dementia. The NEST model addresses and combines Nneeds, Eenvironmental issues, Stimulation levels, and Techniques used by caregivers.

Buettner, L. L. & Fitzsimmons, S. (2002). Adventure program: therapeutic biking for the treatment of depression in long-term care residents with dementia. *American Journal of Alzheimer's Disease & Other Dementias*, 17(2), 121-127.

This project tested an innovative intervention in a controlled clinical investigation of a nonpharmacological treatment of depression in long-term care residents with dementia. This treatment utilized a wheelchair bicycle in a recreation therapy protocol, which combined small group activity therapy and one-to-one bike rides with a staff member. Depression levels were significantly reduced in the 2-week portion of the study with levels maintained in the 10-week maintenance period. Improvements were also found in sleep and levels of activity engagement.

Camberg, L., Woods, P. et al. (1999). Evaluation of Simulated Presence: a personalized approach to enhance well-being in persons with Alzheimer's disease. *Journal of the American Geriatrics Society*, 47(4), 446-452.

OBJECTIVE: To evaluate the efficacy of Simulated Presence, a personalized approach to enhance well-being among nursing home residents with Alzheimer's disease and related dementia's (ADRD). **DESIGN:** Latin-Square, double blinded, 3-factor design with restrictive randomization of three treatments (the study intervention, a placebo audio tape of a person reading the newspaper, and usual care). The three factors were treatment, time, and facility type. **SETTING:** Nine nursing homes in Eastern Massachusetts and Southern New Hampshire. **PARTICIPANTS:** Fifty-four subjects with documented ADRD who were aged 50 years or older, medically stable, had resided in their current nursing home for at least 3 months, and who had no planned discharge. All subjects had a history of agitated or withdrawn behaviors.

INTERVENTION: The purpose of Simulated Presence is to provide a personalized intervention for persons with moderate to severe cognitive impairment. Through a unique testing process, some of the best loved memories of the ADRD person's lifetime are identified and then those memories are introduced to the patient in the format of a telephone conversation using a continuous play audio tape system. The intervention may be used for extended periods of time because each repetition is viewed as a fresh, live telephone call as a result of the short-term memory deficit of the person with ADRD.

MEASUREMENTS: Direct observations of outcomes included using a newly developed scale, the Scale for the Observation of Agitation in Persons with Dementia, an agitation visual analog scale, the Positive Affect Rating Scale (mood and "interest"), a withdrawal visual analog scale, and facial diagrams of mood. Reported measures included daily staff observation logs of responses to interventions offered, and weekly staff surveys using the short-form Cohen-Mansfield Agitation Inventory and the Multidimensional Observation Scale for Elderly Subjects (mood and "interest"). Severity of dementia was assessed by the Mini-Mental State Exam, the Test for Severe Impairment, the Bedford Alzheimer's Nursing Scale, and the ADL Self-Performance Scale. **RESULTS:** Chi-square analysis of direct observations, using facial diagrams, revealed that Simulated Presence was equivalent to usual care ($P = .141$) and superior to placebo for producing a happy facial expression ($P = .001$). A positive effect was also documented in nursing staff observation logs using Analysis of Variance techniques (ANOVA) for subjects during Simulated Presence phases compared with the placebo phases ($P < .001$) and usual care phases ($P < .001$). According to ANOVA analyses of "interest" from weekly surveys, Simulated Presence was superior to both usual care ($P = .001$) and placebo ($P = .008$). We were unable to find evidence of significant differences ($P < .05$) among interventions for other direct observations and weekly reports of overall agitation or mood aspects of withdrawal. Subjects accepted the intervention most of the time, except for five subjects who refused it more than 50% of the time. **CONCLUSION:** This study provided evidence that Simulated Presence can be effective in enhancing well-being and decreasing problem behaviors in the nursing home setting as a substitute for or complement to usual care.

Callahan, C. M., Boustani, M. A., et al. (2006). Effectiveness of collaborative care for older adults with Alzheimer disease in primary care: a randomized controlled trial. *JAMA*, 295(18), 2148-2157.

CONTEXT: Most older adults with dementia will be cared for by primary care physicians, but the primary care practice environment presents important challenges to providing quality care. OBJECTIVE: To test the effectiveness of a collaborative care model to improve the quality of care for patients with Alzheimer disease. DESIGN, SETTING, AND PATIENTS: Controlled clinical trial of 153 older adults with Alzheimer disease and their caregivers who were randomized by physician to receive collaborative care management (n = 84) or augmented usual care (n = 69) at primary care practices within 2 US university-affiliated health care systems from January 2002 through August 2004. Eligible patients (identified via screening or medical record) met diagnostic criteria for Alzheimer disease and had a self-identified caregiver. INTERVENTION: Intervention patients received 1 year of care management by an interdisciplinary team led by an advanced practice nurse working with the patient's family caregiver and integrated within primary care. The team used standard protocols to initiate treatment and identify, monitor, and treat behavioral and psychological symptoms of dementia, stressing nonpharmacological management. MAIN OUTCOME MEASURES: Neuropsychiatric Inventory (NPI) administered at baseline and at 6, 12, and 18 months. Secondary outcomes included the Cornell Scale for Depression in Dementia (CSDD), cognition, activities of daily living, resource use, and caregiver's depression severity. RESULTS: Initiated by caregivers' reports, 89% of intervention patients triggered at least 1 protocol for behavioral and psychological symptoms of dementia with a mean of 4 per patient from a total of 8 possible protocols. Intervention patients were more likely to receive cholinesterase inhibitors (79.8% vs 55.1%; P = .002) and antidepressants (45.2% vs 27.5%; P = .03). Intervention patients had significantly fewer behavioral and psychological symptoms of dementia as measured by the total NPI score at 12 months (mean difference, -5.6; P = .01) and at 18 months (mean difference, -5.4; P = .01). Intervention caregivers also reported significant improvements in distress as measured by the caregiver NPI at 12 months; at 18 months, caregivers showed improvement in depression as measured by the Patient Health Questionnaire-9. No group differences were found on the CSDD, cognition, activities of daily living, or on rates of hospitalization, nursing home placement, or death. CONCLUSIONS: Collaborative care for the treatment of Alzheimer disease resulted in significant improvement in the quality of care and in behavioral and psychological symptoms of dementia among primary care patients and their caregivers. These improvements were achieved without significantly increasing the use of antipsychotics or sedative-hypnotics. TRIAL REGISTRATION: clinicaltrials.gov Identifier: NCT00246896.

Camp, C. J., Cohen-Mansfield, J., et al. (2002). Use of nonpharmacologic interventions among nursing home residents with dementia. *Psychiatric Services*, 53(11), 1397-1401.

The authors describe domains of nonpharmacologic interventions for residents with dementia who are receiving long-term care. Special emphasis is placed on interventions involving the domains of inappropriate behavior, restraint reduction, and cognition. Illustrations of the salubrious effects of these interventions are presented. For each domain, a review of the available information about nonpharmacologic interventions is provided, and areas in which additional information is needed are discussed. The authors conclude with a summary that emphasizes linkages and similarities among interventions across domains. The authors' major point is that effective nonpharmacologic interventions are available for a variety of behavioral problems that are commonly observed in long-term care settings.

Cohen-Mansfield, J. (2001). Nonpharmacologic interventions for inappropriate behaviors in dementia: a review, summary, and critique. *American Journal of Geriatric Psychiatry*, 9(4), 361-381.

Inappropriate behaviors are very common in dementia and impose an enormous toll both emotionally and financially. Three main psychosocial theoretical models have generally been utilized to explain inappropriate behaviors in dementia: the "unmet needs" model, a behavioral/learning model, and an environmental vulnerability/reduced stress-threshold model. A literature search yielded 83 nonpharmacological intervention studies, which utilized the following categories of interventions: sensory, social contact (real or simulated), behavior therapy, staff training, structured activities,

environmental interventions, medical/nursing care interventions, and combination therapies. The majority are reported to have a positive, albeit not always significant, impact. Better matching of the available interventions to patients' needs and capabilities may result in greater benefits to patients and their caregivers.

Cohen-Mansfield, J. & Mintzer, J. E. (2005). Time for change: the role of nonpharmacological interventions in treating behavior problems in nursing home residents with dementia. *Alzheimer Disease and Associated Disorders*, 19(1), 37-40.

This paper discusses the etiology of behavior problems in dementia and concludes that a substantial portion of such behaviors arise when care does not appropriately address the underlying causes. The needs of persons with dementia are frequently unrecognized and not addressed because of a combination of factors including communication problems, the multidimensional nature of etiologies and needs, the discounting of the needs of the patient with dementia, an environment that lacks knowledge and resources, and the improper allocation of resources on the part of policy makers, clinicians, and caregivers. The paper delineates some of the steps that are needed to move toward a more appropriate treatment of persons with dementia who manifest behavior problems.

Cohen-Mansfield, J. & Pappura-Gill, A. (2007). Bathing: a framework for intervention focusing on psychosocial, architectural and human factors considerations. *Archives of Gerontology and Geriatrics*, 45(2), 121-135.

The process of bathing is usually pleasurable and relaxing for most persons and, although it serves hygienic needs, it is often individualized to a person's preferences in order to enhance the pleasurable experience. In contrast, the bathing process for elderly people suffering from dementia is often a traumatic experience for both the persons with dementia and their caregivers. Agitated behaviors are manifested more often during bathing than at other times. Factors influencing the experience of the bathing process and resulting in agitated behaviors can be categorized into four broad groups: the needs of the person with dementia, the needs of the caregiver, the physical environment in which bathing takes place and institutional factors. A number of approaches have been employed to treat agitated behaviors during bathing; however, a comprehensive approach addressing all of the above factors has not been developed. This paper presents preliminary findings on the effectiveness of the Treatment Routes for Exploring Agitation (TREA) approach for non-pharmacological interventions within a larger framework of human factors, addressing the needs of residents and staff members, environmental factors as well as human factors analysis to improve the process of bathing. A case study demonstrates the efficacy of this approach in reducing agitated behaviors during bathing.

Cohen-Mansfield, J., Libin, A., et al. (2007). Nonpharmacological treatment of agitation: a controlled trial of systematic individualized intervention. *Journals of Gerontology: Series A, Biological Sciences and Medical Sciences*, 62(8), 908-916.

OBJECTIVE: The objective of this study was to examine the efficacy of a systematic algorithm for providing individualized, nonpharmacological interventions for reducing agitated behaviors in nursing home residents with dementia. **METHODS:** This placebo-controlled study combined nomothetic and ideographic methodologies. The study was conducted in 12 nursing home buildings in Maryland; 6 were used as treatment facilities, and 6 as control facilities. Participants were 167 elderly nursing home residents with dementia. Interventions were tailored to the individual profiles of agitated participants using a systematic algorithm that considered type of agitation and unmet needs. Interventions were then designed to fulfill the need in a manner that matched the person's cognitive, physical, and sensory abilities, and their lifelong habits and roles. Interventions were provided for 10 days during the 4 hours of greatest agitation. Direct observations of agitation were recorded by trained research assistants via the Agitated Behavior Mapping Instrument (ABMI). Evaluation of positive and negative affect was also based on direct observation and assessed via Lawton's Modified Behavior Stream. Data analysis was performed via SPSS software. **RESULTS:** The implementation of personalized, nonpharmacological

interventions resulted in statistically significant decreases in overall agitation in the intervention group relative to the control group from baseline to treatment ($F(1,164) = 10.22, p = .002$). In addition, implementation of individualized interventions for agitation resulted in statistically significant increases in pleasure and interest ($F(1,164) = 24.22, p < .001$; $F(1,164) = 20.66, p < .001$). CONCLUSIONS: The findings support the use of individualized nonpharmacological interventions to treat agitation in persons with dementia and underscore the importance for clinicians of searching for underlying reasons for agitated behaviors.

Cohen-Mansfield, J., Dakheel-Ali, M., et al. (2009). Engagement in persons with dementia: the concept and its measurement. *American Journal of Geriatric Psychiatry, 17*(4), 299-307.

PURPOSE: The aim of this article is to delineate the underlying premises of the concept of engagement in persons with dementia and present a new theoretical framework of engagement. SETTING/SUBJECTS: The sample included 193 residents of seven Maryland nursing homes. All participants had a diagnosis of dementia. METHODOLOGY: The authors describe a model of factors that affect engagement of persons with dementia. Moreover, the authors present the psychometric qualities of an assessment designed to capture the dimensions of engagement (Observational Measurement of Engagement). Finally, the authors detail plans for future research and data analyses that are currently underway. DISCUSSION: This article lays the foundation for a new theoretical framework concerning the mechanisms of interactions between persons with cognitive impairment and environmental stimuli. Additionally, the study examines what factors are associated with interest and negative and positive feelings in engagement.

Davison, T. E., Hudgson, C., et al. (2007). An individualized psychosocial approach for "treatment resistant" behavioral symptoms of dementia among aged care residents. *International Psychogeriatrics, 19*(5), 859-873.

BACKGROUND: Behavioral symptoms of dementia are common among residents in mainstream aged care settings, and have a substantial impact on residents and professional caregivers. This study evaluated the impact of individualized psychosocial interventions for behavioral symptoms through a small preliminary study. METHOD: Interventions were delivered to a patient group of 31 psychogeriatric aged care residents who presented with behavioral symptoms of dementia that had failed to respond to pharmacological treatment approaches. Outcome data on severity of behaviors, health service utilization and staff burden of care were collected. RESULTS: A modest but significant reduction in staff ratings of the severity of aggressive and verbally agitated behavioral symptoms was found, with an associated reduction in their perceptions of the burden of caring for these patients. Reduced behavioral disturbance was associated with a reduction in the requirement for primary care consultations, and all participants were able to continue to reside in mainstream aged care facilities, despite an increase in the severity of dementia. CONCLUSIONS: This study supported the use of individualized psychological strategies for behavioral symptoms at all stages of dementia. Methodological limitations of this preliminary study are discussed.

Fitzsimmons, S. (2001). Easy rider wheelchair biking. A nursing-recreation therapy clinical trial for the treatment of depression. *Journal of Gerontological Nursing, 27*(5), 14-23.

Depression is a common condition among long-term care residents with limited treatment options available. There are few nonpharmacological interventions available to this population. This study examined the use of a prescribed, therapeutic recreation-nursing intervention, wheelchair biking, for treatment of symptoms of depression in older adults in a long-term care setting. A classical experimental design was used and was guided by the Roy Adaptation Model. Forty residents were pretested for depression and randomly assigned to two groups. A 2-week trial of biking therapy was provided to the treatment group. All participants were posttested. Findings indicated there was a statistically significant improvement in depression scores for the treatment group and no significant change for the control group. This study contributes to the body of knowledge of nursing regarding options for the treatment of

depression in older adults, and is an encouraging indicator that psychosocial interventions may be effective in reducing depression.

Gitlin, L. N., Winter, L., et al. (2009). The Tailored Activity Program to reduce behavioral symptoms in individuals with dementia: feasibility, acceptability, and replication potential. *Gerontologist*, 49(3), 428-439.

PURPOSE: The Tailored Activity Program (TAP) is a home-based occupational therapy intervention shown to reduce behavioral symptoms and caregiver burden in a randomized trial. This article describes TAP, its assessments, acceptability, and replication potential. **DESIGN AND METHODS:** TAP involves 8 sessions for a period of 4 months. Interventionists identify preserved capabilities, previous roles, habits, and interests of individuals with dementia; develop activities customized to individual profiles; and train families in activity use. Interventionists documented time spent and ease conducting assessments, and observed receptivity of TAP. For each implemented prescribed activity, caregivers reported the amount of time their relative spent in activity and perceived benefits. **RESULTS:** The TAP assessment, a combination of neuropsychological tests, standardized performance-based observations, and clinical interviewing, yielded information on capabilities from which to identify and tailor activities. Assessments were easy to administer, taking an average of two 1-hr sessions. Of 170 prescribed activities, 81.5% were used, for an average of 4 times for 23 min by families between treatment sessions for a period of months. Caregivers reported high confidence in using activities, being less upset with behavioral symptoms (86%), and enhanced skills (93%) and personal control (95%). Interventionists observed enhanced engagement (100%) and pleasure (98%) in individuals with dementia during sessions. **IMPLICATIONS:** TAP offers families knowledge of their relative's capabilities and easy-to-use activities. The program was well received by caregivers. Prescribed activities appeared to be pleasurable and engaging to individuals with dementia. TAP merits further evaluation to establish efficacy with larger more diverse populations and consideration as a nonpharmacological approach to manage behavioral symptoms.

Guaita, A. & Jones, M. (2011). A "prosthetic" approach for individuals with dementia? *JAMA*, 305(4), 402-403.

This commentary reviews challenges in standard approaches to dementia care and examines Jones' model of using a "prosthetic" approach. As noted in the article, "The prosthetic model for dementia identifies deficits in function in the patient and builds a 'prosthesis of care' for each individual that is intended to compensate for the lost function(s). The main goal of the prosthesis is not to regain cognition or function, but to deal with the well-being of the person, to achieve the best status in absence of distress and pain. To potentially help brain function, a complex prosthesis is needed, made up of 3 basic elements: the individuals with whom the person with dementia interacts, the physical space in which the person lives, and the programs and activities in which the person engages." (p.402) This model is also discussed by Hall & Buckwalter (1987).

Hall, G. R. & Buckwalter, K. C. (1987). Progressively lowered stress threshold: A conceptual model for care of adults with Alzheimer's disease. *Archives of Psychiatric Nursing*, 1(6), 399-406.

This article describes a model of dementia care that is grounded in Lawton's theory of environmental press. The model suggests that problem behaviors are the result of stress that the person with dementia is unable to interpret and manage. Sources of stress include: fatigue; multiple competing stimuli such as noise, confusion, or too many people in the environment; unmet physical or psychological needs; changes in the environment, routine or caregivers; demands that exceed abilities; and negative and restrictive feedback (e.g., correcting the person when they are unable to recall accurate information such as where they live or daily routines). The model advocates for adjusting routines and approaches to keep stress at a manageable level throughout the day and acting like a "prosthetic device" to support cognitive losses will reduce the risk of problem behaviors. Six basic approaches are recommended: 1) Maximize safe function by supporting losses in a prosthetic manner; 2) Provide unconditional positive regard; 3) Use anxiety and avoidance to gauge activity; 4) "Listen" to the person with dementia (what does the behavior "tell you"?);

5) Modify the environment to support losses and enhance safety; and 6) Encourage caregivers to participate in ongoing education, support, self-care, and problem-solving.

Kolanowski, A. & Buettner, L. (2008). Prescribing activities that engage passive residents. An innovative method. *Journal of Gerontological Nursing, 34*(1), 13-18.

Individuals with dementia are often passive, which places them at risk for further cognitive and functional decline. Recreational activities have been used in research to reduce passive behaviors, but systematic reviews of these studies have found modest effect sizes for many activities. In this article, we describe the further theoretical development of an innovative method for prescribing activities that have a high likelihood of engaging nursing home residents who are passive and present examples for research application and clinical practice. This method may increase the effect size of activity interventions and encourage more widespread adoption of nonpharmacological interventions in practice.

Kolanowski, A., Fick, D., et al. (2010). It's about time: use of nonpharmacological interventions in the nursing home. *Journal of Nursing Scholarship, 42*(2), 214-222.

PURPOSE: To provide a stronger evidence base for cultural change in the nursing home, this study elicited nursing, recreational therapy, and medical staff perceptions of barriers to the implementation of nonpharmacological interventions for the behavioral and psychological symptoms of dementia (BPSD). **DESIGN:** Thirty-five staff members (registered nurses, licensed practical nurses, nurses' aides, recreational therapists, activity personnel, and medical directors) from six nursing homes located in Pennsylvania and North Carolina participated in the qualitative study. **METHODS:** A focus group methodology was used to capture discussions that were audio-recorded and transcribed verbatim. Data were analyzed using standard methods of content and thematic analysis. **FINDINGS:** Four broad themes were identified: the changing landscape; resident behaviors; reaching out to the person with dementia; and the educational needs of staff. The concept of time emerged as a key barrier to the use of nonpharmacological interventions for BPSD. **CONCLUSIONS:** Successful use of nonpharmacological interventions requires the right staff with the right education at the right time. The Vulnerability Framework is a model that helped organize these findings into a meaningful perspective. **CLINICAL RELEVANCE:** To effect change in the nursing home, the findings indicate a need for: implementation of staffing patterns that allow staff the time to make a difference in the care of residents with BPSD; development of educational programs that promote staff understanding versus control; and design of research studies that answer questions about the influence of time on the selection of interventions for BPSD.

Kolanowski, A., Fick, D. M., et al. (2009). Recreational activities to reduce behavioural symptoms in dementia. *Geriatrics & Aging, 12*(1), 37-42.

Few clinicians have an educational grounding in the use of nonpharmacological therapies for people with dementia. In this article, we explore the utility of recreational activities as one nonpharmacological intervention that has demonstrated effectiveness for reducing the behavioural symptoms of dementia. The implementation of effective recreational activities involves three components: understanding the evidence for this approach; acknowledging the need to reduce medications that have the potential to interfere with activity effectiveness; and individualizing activities so that the maximum benefit from the intervention is obtained.

Kolanowski, A. M. & Garr, M. (1999). The relation of premorbid factors to aggressive physical behavior in dementia. *Journal of Neuroscience Nursing, 31*(5), 278-284.

Aggressive physical behaviour (APB) is common in persons with dementia and often leads to negative consequences such as use of restraints and staff member burnout. For the past several years, a group of nurse researchers has collaborated to develop a model that views dementia behaviors as need-driven but dementia-compromised. The model posits that background variables of the demented person interact with proximal (or current situational) variables to produce APB. The purpose of this study was to test a part of

that model by addressing the question: Which premorbid factors predict APB in a sample of 84 demented institutionalized elders? This was a cross-sectional descriptive study that obtained measures of the following characteristics of residents: (1) aggressive behavior as assessed by nursing home staff members using the Ryden Aggression Scale, (2) premorbid personality traits as assessed by a member of the resident's family using the NEO Five Factor Inventory and (3) history of psychosocial stress as assessed by a member of the residents' family using the modified Social Readjustment Rating Scale. Of the sample of 84 residents, 44% exhibited physical aggression. Background factors in the model were not predictive of aggressive behavior in late-stage dementia, although the relation between premorbid neuroticism and physical aggression was in the predicted direction.

Kong, E. H., Evans, L. K., et al. (2009). Nonpharmacological intervention for agitation in dementia: a systematic review and meta-analysis. *Aging & Mental Health, 13*(4), 512-520.

OBJECTIVE: The purpose of this study was to systematically review the literature regarding the effectiveness of nonpharmacological interventions for agitation in older adults with dementia.

METHODS: Seven electronic databases (to 2004) were searched, and randomized clinical trials employing nonpharmacologic interventions for agitation in dementia published in English or Korean were selected. In addition, the reference lists from relevant review articles and all eligible studies were searched to identify other trials. Interventions were categorized into seven types: sensory intervention, social contact, activities, environmental modification, caregiver training, combination therapy, and behavioral therapy. Studies were abstracted, and data were pooled by intervention category. **RESULTS:** Fourteen studies (n = 586) were included. Sensory interventions were statistically significantly effective in reducing agitation (standardized mean difference: SMD -1.07; 95% confidence interval (CI) -1.76 to -0.38, p = 0.002), while social contact (SMD -0.19; CI -0.71 to 0.33), activities (SMD -0.20; CI -0.71 to 0.31), environmental modification (weighted mean difference: WMD 1.90; CI -2.82 to 6.62), caregiver training (SMD 0.21; CI -0.15 to 0.57), combination therapy (WMD 1.85; CI -1.78 to 5.48), and behavioral therapy interventions (SMD -0.27; CI -0.72 to 0.19) were not significantly effective in reducing agitation. These results were consistent among higher quality studies. **CONCLUSION:** This systematic review indicated that among the seven types of nonpharmacological interventions available for agitation in older adults with dementia, only sensory interventions had efficacy in reducing agitation. More trials are needed to confirm this finding and future research should use more rigorous methods.

Kverno, K. S., Rabins, P. V., et al. (2008). Prevalence and treatment of neuropsychiatric symptoms in advanced dementia. *Journal of Gerontological Nursing, 34*(12), 8-15; quiz 16-17.

Neuropsychiatric symptoms (NPS) are common in dementia, although little is known about their prevalence and treatment near the end of life. This study used a retrospective review of the medical records of 123 hospice-eligible nursing home residents with advanced dementia to investigate the prevalence of NPS and NPS-targeted pharmacological and non-pharmacological treatments. The most prevalent NPS were agitation or aggression (50.4%), depression (45.5%), and withdrawal/lethargy (43.1%). Of the 105 (85.4%) residents who exhibited one or more NPS, 90.5% were receiving at least one NPS-targeted treatment, yet 41.9% received no documented nonpharmacological NPS-targeted care. The majority of documented nonpharmacological care focused on safety and explanations or instructions given to residents. Given the high prevalence of comorbidities, associated risks for medication interactions or serious side effects, and potential low-risk benefits of psychobehavioral care, these findings raise concerns about how to best increase the provision and documentation of nonpharmacological care in advanced dementia.

Kverno, K. S., Black, B. S., et al. (2009). Research on treating neuropsychiatric symptoms of advanced dementia with non-pharmacological strategies, 1998-2008: a systematic literature review. *International Psychogeriatrics, 21*(5), 825-843.

BACKGROUND: Advanced dementia is characterized by severe cognitive and functional impairments that lead to almost total dependency in self-care. Neuropsychiatric symptoms (NPS) are common in

advanced dementia, diminishing quality of life and increasing the care burden. The challenge for health care providers is to find safe and effective treatments. Non-pharmacological interventions offer the potential for safer alternatives to pharmacotherapy, but little is known about their efficacy. This review evaluates the published literature on non-pharmacological interventions for treating NPS in advanced dementia. **METHODS:** A literature search was undertaken to find non-pharmacological intervention studies published between 1998 and 2008 that measured NPS outcomes in individuals diagnosed with advanced dementia. Strict inclusion criteria initially required that all study participants have severe or very severe dementia, but this range was later broadened to include moderately severe to very severe stages. **RESULTS:** Out of 215 intervention studies, 21 (9.8%) specifically focused on treatments for individuals with moderately severe to very severe dementia. The studies provide limited moderate to high quality evidence for the use of sensory-focused strategies, including aroma, preferred or live music, and multi-sensory stimulation. Emotion-oriented approaches, such as simulated presence may be more effective for individuals with preserved verbal interactive capacity. **CONCLUSIONS:** Most studies of interventions for dementia-related NPS have focused on individuals with mild to moderate cognitive impairment. Individuals with severe cognitive impairment do not necessarily respond to NPS treatments in the same manner. Future studies should be specifically designed to further explore the stage-specific efficacy of non-pharmacological therapies for patients with advanced dementia. Areas of particular need for further research include movement-based therapies, hands-on (touch) therapies, and interventions that can be provided during personal care routines. Interventions appear to work best when they are tailored to balance individual arousal patterns.

Livingston, G., Johnston, K., et al. (2005). Systematic Review of Psychological Approaches to the Management of Neuropsychiatric Symptoms of Dementia. *American Journal of Psychiatry*, 162(11), 1996-2021.

OBJECTIVE: The authors systematically reviewed the literature on psychological approaches to treating the neuropsychiatric symptoms of dementia. **METHOD:** Reports of studies that examined effects of any therapy derived from a psychological approach that satisfied prespecified criteria were reviewed. Data were extracted, the quality of each study was rated, and an overall rating was given to each study by using the Oxford Centre for Evidence-Based Medicine criteria. **RESULTS:** A total of 1,632 studies were identified, and 162 satisfied the inclusion criteria for the review. Specific types of psychoeducation for caregivers about managing neuropsychiatric symptoms were effective treatments whose benefits lasted for months, but other caregiver interventions were not. Behavioral management techniques that are centered on individual patients' behavior or on caregiver behavior had similar benefits, as did cognitive stimulation. Music therapy and Snoezelen, and possibly sensory stimulation, were useful during the treatment session but had no longer-term effects; interventions that changed the visual environment looked promising, but more research is needed. **CONCLUSIONS:** Only behavior management therapies, specific types of caregiver and residential care staff education, and possibly cognitive stimulation appear to have lasting effectiveness for the management of dementia-associated neuropsychiatric symptoms. Lack of evidence regarding other therapies is not evidence of lack of efficacy. Conclusions are limited because of the paucity of high-quality research (only nine level-1 studies were identified). More high-quality investigation is needed.

Lyketsos, C. G., Colenda, C. C., et al. (2006). Position Statement of the American Association for Geriatric Psychiatry Regarding Principles of Care for Patients With Dementia Resulting From Alzheimer Disease. *American Journal of Geriatric Psychiatry*, 14(7), 561-573.

This statement was prepared by a Task Force authorized by the AAGP Board of Directors and was then adopted by the AAGP Board at its September 14, 2005, meeting. The Task Force consisted of Constantine Lyketsos (Chair), Christopher Colenda, Cornelia Beck, Karen Blank, Murali Doriaswamy, Douglas Kalunian, and Kristine Yaffe. Christine deVries, AAGP Executive Director, was instrumental in its development. **POSITION:** There exists currently an effective, systematic care/treatment model for patients with dementia resulting from Alzheimer disease (AD). This consists of a series of therapeutic

interventions—pharmacologic and nonpharmacologic—targeted at patients with AD and their caregivers. Although these interventions do not produce a cure of the underlying disease and do not appear to stop its progression, they have been shown to produce benefits for patients and their caregivers. The aims of this care model, often referred to as "Dementia Care," are to delay disease progression, delay functional decline, improve quality of life, support dignity, control symptoms, and provide comfort at all stages of AD. This evolving model is based on scientific evidence of beneficial outcomes, with acceptable risks, and is increasingly targeted at an improving pathophysiological understanding of the biology of AD. Although the evidence is limited, the existing evidence, coupled with clinical experience and common sense, is adequate to produce a minimal set of care principles. In this context, the American Association for Geriatric Psychiatry (AAGP) affirms that there now exists a minimal set of care principles for patients with AD and their caregivers. Consequently, the detection and treatment of AD must now be considered part of the typical care practices for any physician and other licensed clinicians who interact with patients with this disease. This document articulates these principles of care.

Mahoney, E. K., Volicer, L., et al. (2000). Resistiveness to care. *Management of Challenging Behaviors in Dementia*. E. K. Mahoney, L. Volicer and A. Hurley. Baltimore, MD: Health Professions Press.

This book provides a clearly written and comprehensive review of common encountered challenging behaviors in dementia. The contextual framework for understanding behaviors and caregiver strategies to target symptom management address three main levels: core consequences, secondary symptoms and peripheral symptoms that are influenced by four areas of direct symptoms management: physical environment, social environment, medical treatment and caregiving approaches. Throughout the book, case illustrations are used to illustrate key points related to behaviors and care approaches. Chapter topics include the following: 1) Dementia and personality, 2) Functional impairment, 3) Mood disorders, 4) Delusions and hallucinations, 5) Dependence in activities of daily living, 6) Inability to initiate meaningful activities, 7) Anxiety, 8) Spatial disorientation, 9) Resistiveness to care, 10) Food refusal, 11) Insomnia, 12) Apathy and agitation, and 13) Elopement and interference with others. This book offers a wide array of practical suggestions to help daily care providers understand underlying causes of challenging behaviors and approaches to both reduce the risk of behaviors occurring, as well as methods to best respond and manage them when they do occur. The practices are based on a combination of research and clinical practice experiences on the dementia study units at the Edith Nourse Rogers Veterans Administration Hospital, Bedford, MA.

Margallo-Lana, M., Swann, A., et al. (2001). Prevalence and pharmacological management of behavioural and psychological symptoms amongst dementia sufferers living in care environments. *International Journal of Geriatric Psychiatry*, 16(1), 39-44.

Examined the prevalence of behavioural and psychological symptoms in dementia (BPSD) in care environments, their relationship with severity of dementia and the pattern of psychotropic medication. 231 elderly residents (39% living in social care facilities and 61% in nursing home care) with a mean age of 83 yrs were assessed using a range of standardised psychiatric schedules. Additional information about the residents and medication was obtained from professional carers. Overall 90% of residents had dementia, 79% of whom had clinically significant BPSD with 58% receiving psychotropic medication. There was no difference in the prevalence of BPSD between social and nursing care. Depression was most common in people with mild dementia, while delusions arose most frequently in those with moderate dementia and aberrant motor behaviour had a high prevalence in people with severe dementia. The authors conclude that BPSD are common in elderly people with dementia living in care environments. More rigorous guidelines are needed pertaining to the prescription and monitoring of medication and the need to disseminate skills regarding psychosocial management approaches to care staff. (PsycINFO Database Record (c) 2002 APA, all rights reserved).

Moore, D. H., Algase, D. L., et al. (2009). A framework for managing wandering and preventing elopement. *American Journal of Alzheimer's Disease & Other Dementias*, 24(3), 208-219. PURPOSE OF THE STUDY: A framework aids choice of interventions to manage wandering and prevent elopement in consideration of associated risks and mobility needs of wanderers. DESIGN AND METHODS: A literature review, together with research results, published wandering tools, clinical reports, author clinical experience, and consensus-based judgments was used to build a decision-making framework. RESULTS: Referencing a published definition of wandering and originating a clinical description of problematic wandering, authors introduce a framework comprising (1) wandering and related behaviors; (2) goals of wandering-specific care, (3) interpersonally, technologically, and policy-mediated wandering interventions, and (4) estimates of relative frequencies of wandering behaviors, magnitudes of elopement risk, and restrictiveness of strategies. IMPLICATIONS: Safeguarding wanderers from elopement risk is rendered person-centered and humane when goals of care guide intervention choice. Despite limitations, a reasoned, systematized approach to wandering management provides a basis for tailoring a specialized program of care. The need for framework refinement and related research is emphasized.

Norbergh, K. G., Hellzen, O., et al. (2002). The relationship between organizational climate and the content of daily life for people with dementia living in a group-dwelling. *Journal of Clinical Nursing*, 11(2), 237-246.

1. One factor influencing the outcome of care may be nursing staff's experience of the organizational work climate. The aim of the study was to investigate how people with dementia spend their time in group-dwelling units (GD) with either a creative or less creative organizational climate. 2. For the study, two GD units assessed as having a creative organizational climate and two units assessed as having a less creative climate were selected. Eighteen residents living in the units assessed as creative and 20 residents living in the units assessed as less creative participated in the study. 3. For measuring the organizational climate the Creative Climate Questionnaire was used. Observations of residents' activities were classified according to the Patient Activity Classification. For measuring residents' functional ability the Multi-Dimensional Dementia Assessment Scale was used. Their cognitive capacity was measured with the Mini Mental State Examination. 4. Residents living in the units assessed as having a creative organizational climate spent 45.2% of the time with nursing staff, while those in the less creative climate spent 25.6% ($P < 0.001$). Time spent with fellow residents in the creative climate was 13.9% and in the less creative climate 31.3% ($P < 0.001$). There was no significant difference between the units according time spent with relatives and time spent alone. 5. Since the purpose of GD is to offer care adapted to the abilities and psychosocial needs of people suffering from dementia, a less creative climate can be a threat to the aims of GD. In order to maintain these, it is important for managers to be aware of the work climate and its impact on care for people with dementia.

O'Connor, D. W., Ames, D., et al. (2009). Psychosocial treatments of psychological symptoms in dementia: a systematic review of reports meeting quality standards. *International Psychogeriatrics*, 21(02), 241-251.

Background: This paper provides a systematic review of selected experimental studies of the effectiveness of psychosocial treatments in reducing psychological symptoms in dementia (e.g., anxiety, depression, irritability and social withdrawal). Method: English language reports published or in press by February 2008 were identified by means of database searches and checks of previous reviews. Reports were appraised with respect to study design, participants' characteristics and reporting details. Because people with dementia often respond positively to personal contact, studies were included only if control conditions entailed similar levels of social attention or if one treatment was compared with another. Results: Only 12 of 48 relevant papers met every specification. Treatments proved more effective in reducing psychological symptoms than an attention control condition or another treatment in only six of the 12 selected studies. Interventions with moderate effect sizes included music and recreation therapy. Conclusions: Some psychosocial interventions appear to have specific therapeutic properties, over and

above those due to the benefits of participating in a clinical trial. Their effects were generally modest with an unknown duration of action. This limited efficacy suggests that treatments will work best in specific, time-limited situations, tailored to individuals' requirements. There is no preferred method to rate psychological symptoms.

Olazaran, J., Reisberg, B., et al. (2010). Nonpharmacological therapies in Alzheimer's disease: a systematic review of efficacy. *Dementia and Geriatric Cognitive Disorders*, 30(2), 161-178.

INTRODUCTION: Nonpharmacological therapies (NPTs) can improve the quality of life (QoL) of people with Alzheimer's disease (AD) and their carers. The objective of this study was to evaluate the best evidence on the effects of NPTs in AD and related disorders (ADRD) by performing a systematic review and meta-analysis of the entire field. METHODS: Existing reviews and major electronic databases were searched for randomized controlled trials (RCTs). The deadline for study inclusion was September 15, 2008. Intervention categories and outcome domains were predefined by consensus. Two researchers working together detected 1,313 candidate studies of which 179 RCTs belonging to 26 intervention categories were selected. Cognitive deterioration had to be documented in all participants, and degenerative etiology (indicating dementia) had to be present or presumed in at least 80% of the subjects. Evidence tables, meta-analysis and summaries of results were elaborated by the first author and reviewed by author subgroups. Methods for rating level of evidence and grading practice recommendations were adapted from the Oxford Center for Evidence-Based Medicine. RESULTS: Grade A treatment recommendation was achieved for institutionalization delay (multicomponent interventions for the caregiver, CG). Grade B recommendation was reached for the person with dementia (PWD) for: improvement in cognition (cognitive training, cognitive stimulation, multicomponent interventions for the PWD); activities of daily living (ADL) (ADL training, multicomponent interventions for the PWD); behavior (cognitive stimulation, multicomponent interventions for the PWD, behavioral interventions, professional CG training); mood (multicomponent interventions for the PWD); QoL (multicomponent interventions for PWD and CG) and restraint prevention (professional CG training); for the CG, grade B was also reached for: CG mood (CG education, CG support, multicomponent interventions for the CG); CG psychological well-being (cognitive stimulation, multicomponent interventions for the CG); CG QoL (multicomponent interventions for PWD and CG). CONCLUSION: NPTs emerge as a useful, versatile and potentially cost-effective approach to improve outcomes and QoL in ADRD for both the PWD and CG.

Rabins, P. V., Blacker, D., et al. (2007). American Psychiatric Association practice guideline for the treatment of patients with Alzheimer's disease and other dementias. Second edition. *American Journal of Psychiatry*, 164(12 Suppl), 5-56.

This 2nd edition of APA recommendation for treating older adults with dementia addresses several changes, including the addition of new drugs have become available and additional evidence to further support recommendations made in the first edition (10 years earlier). Cholinesterase inhibitors approved by the Food and Drug Administration for the treatment of Alzheimer's disease and memantine are addressed. In addition, an increasing body of evidence supports the following: use of nonpharmacologic interventions targeting the patient's emotional well-being; pharmacologic treatment of depression in patients with Alzheimer's disease; and providing caregivers with education and emotional support benefits them and the patient. The guideline also reflects increased evidence that all antipsychotic drugs, both typical and atypical ones, confer an increased mortality risk on people with dementia. For patients who have neuropsychiatric symptoms, such as agitation, delusion, hallucinations, and aggression, there is stronger evidence that nondrug treatment should be tried first and that real efforts should be made to limit the use of antipsychotics in all settings, at home and in the long-term-care setting. The 55-page guidelines include an executive summary in which recommendations are coded according to 3 levels of degree of clinical evidence. This section summarizes treatment recommendations for cognitive symptoms, psychosis, agitation, depression, and sleep disturbances and also discusses psychotherapies, psychiatric management, treatments for elderly patients, and special issues for long-term care. The section that

follows this is an extensive guide for developing and implementing a stage-specific treatment plan for the individual patient. The last section details specific clinical features influencing the treatment plan.

Robinson, L., Hutchings, D., et al. (2006). A systematic literature review of the effectiveness of non-pharmacological interventions to prevent wandering in dementia and evaluation of the ethical implications and acceptability of their use. *Health Technology Assessment*, 10(26), iii, ix-108.

OBJECTIVES: To determine the effectiveness and cost-effectiveness of non-pharmacological interventions (excluding subjective barriers) in the prevention of wandering in people with dementia, in comparison with usual care, and to evaluate through the review and a qualitative study the acceptability to stakeholders of such interventions and identify ethical issues associated with their use. **DATA SOURCES:** Major electronic databases were searched up until 31 March 2005. Specialists in the field. **REVIEW METHODS:** Selected studies were assessed and analysed. The results of two of the efficacy studies that used similar interventions, designs and outcome measures were pooled in a meta-analysis; results for other studies which reported standard deviations were presented in a forest plot. Owing to a lack of cost-effectiveness data, a modelling exercise could not be performed. Four focus groups were carried out with relevant stakeholders (n = 19) including people with dementia and formal and lay carers to explore ethical and acceptability issues in greater depth. Transcripts were coded independently by two reviewers to develop a coding frame. Analysis was via a thematic framework approach. **RESULTS:** Ten studies met the inclusion criteria (multi-sensory environment, three; music therapy, one; exercise, one; special care units, two; aromatherapy, two; behavioural intervention, one). There was no robust evidence to recommend any non-pharmacological intervention to reduce wandering in dementia. There was some evidence, albeit of poor quality, for the effectiveness of exercise and multi-sensory environment. There were no relevant studies to determine the cost-effectiveness of the interventions. Findings from the narrative review and focus groups on acceptability and ethical issues were comparable. Exercise and distraction therapies were the most acceptable interventions and raised no ethical concerns. All other interventions were considered acceptable except for physical restraints, which were considered unacceptable. Considerable ethical concerns exist with the use of electronic tagging and tracking devices and physical barriers. Existing literature ignores the perspectives of people with dementia. The small number of participants with dementia expressed caution regarding the use of unfamiliar technology. Balancing risk and risk assessment was an important theme for all carers in the management of wandering. **CONCLUSIONS:** There is no robust evidence so far to recommend the use of any non-pharmacological intervention to reduce or prevent wandering in people with dementia. High-quality studies, preferably randomised controlled trials, are needed to determine the clinical and cost-effectiveness of non-pharmacological interventions that allow safe wandering and are considered practically and ethically acceptable by carers and people with dementia. Large-scale, long-term cohort studies are needed to evaluate the morbidity and mortality associated with wandering in dementia for people both in the community and in residential care. Such data would inform future long-term cost-effectiveness studies.

Salzman, C., Jeste, D. V., et al. (2008). Elderly patients with dementia-related symptoms of severe agitation and aggression: consensus statement on treatment options, clinical trials methodology, and policy. *Journal of Clinical Psychiatry*, 69(6), 889-898.

OBJECTIVE: Atypical antipsychotic drugs have been used off label in clinical practice for treatment of serious dementia-associated agitation and aggression. Following reports of cerebrovascular adverse events associated with the use of atypical antipsychotics in elderly patients with dementia, the U.S. Food and Drug Administration (FDA) issued black box warnings for several atypical antipsychotics titled "Cerebrovascular Adverse Events, Including Stroke, in Elderly Patients With Dementia." Subsequently, the FDA initiated a metaanalysis of safety data from 17 registration trials across 6 antipsychotic drugs (5 atypical antipsychotics and haloperidol). In 2005, the FDA issued a black box warning regarding increased risk of mortality associated with the use of atypical antipsychotic drugs in this patient population. **PARTICIPANTS:** Geriatric mental health experts participating in a 2006 consensus

conference (Bethesda, Md., June 28-29) reviewed evidence on the safety and efficacy of antipsychotics, as well as nonpharmacologic approaches, in treating dementia-related symptoms of agitation and aggression. **EVIDENCE/CONSENSUS PROCESS:** The participants concluded that, while problems in clinical trial designs may have been one of the contributors to the failure to find a signal of drug efficacy, the findings related to drug safety should be taken seriously by clinicians in assessing the potential risks and benefits of treatment in a frail population, and in advising families about treatment. Information provided to patients and family members should be documented in the patient's chart. Drugs should be used only when nonpharmacologic approaches have failed to adequately control behavioral disruption. Participants also agreed that there is a need for an FDA-approved medication for the treatment of severe, persistent, or recurrent dementia-related symptoms of agitation and aggression (even in the absence of psychosis) that are unresponsive to nonpharmacologic intervention. **CONCLUSIONS:** This article outlines methodological enhancements to better evaluate treatment approaches in future registration trials and provides an algorithm for improving the treatment of these patients in nursing home and non-nursing home settings.

Selwood, A., Johnston, K., et al. (2007). Systematic review of the effect of psychological interventions on family caregivers of people with dementia. *Journal of Affective Disorders, 101*(1-3), 75-89.

BACKGROUND: Caregivers of people with dementia are at high risk of psychological morbidity and associated breakdown in care. Many psychologically based interventions have been designed to help caregivers of people with dementia. More work is needed to identify which, if any, are helpful for such caregivers. **METHOD:** We conducted a systematic review of the immediate and long term efficacy of different types of psychological interventions for the psychological health of caregivers of people with dementia, using standardized criteria, to assist clinicians in implementing rational, evidence-based management recommendations. We reviewed studies examining the effects of any therapy derived from a psychological approach that satisfied pre-specified criteria. Using the Oxford Centre for Evidence-Based Medicine criteria we rated the quality of each study, extracted data and gave overall ratings to different types of intervention. **RESULTS:** We identified 244 references in our search of which 62 met our inclusion criteria. **LIMITATIONS:** Our findings are limited by lack of good quality evidence, with only ten level 1 studies identified. **CONCLUSIONS:** We found excellent evidence for the efficacy of six or more sessions of individual behavioral management therapy centered on the care recipient's behavior in alleviating caregiver symptoms both immediately and for up to 32 months. Teaching caregivers coping strategies either individually or in a group also appeared effective in improving caregiver psychological health both immediately and for some months afterwards. Group interventions were less effective than individual interventions. Education about dementia by itself, group behavioral therapy and supportive therapy were not effective caregiver interventions.

Siders, C., Nelson, A., et al. (2004). Evidence for implementing nonpharmacological interventions for wandering. *Rehabilitation Nursing, 29*(6), 195-206.

Wandering is among the most frequent, problematic, and dangerous comorbid behaviors in dementia or head injury. To summarize the emerging literature on nonpharmacological interventions used to control negative consequences of wandering, a systematic review of the literature was performed. The review included searching multiple electronic databases and hand searches of individual articles. The search yielded 31 articles that met established criteria. These articles then were classified into six categories: Subjective barriers, walking/exercise and other activities, specialized environments, behavioral techniques, music, and alarms. The literature varied widely in terms of theoretical soundness, methodological rigor, and clarity. The level of evidence supporting these interventions and implications for future study are discussed.

Smith, M., Gerdner, L. A., et al. (2004). History, development, and future of the progressively lowered stress threshold: a conceptual model for dementia care. *Journal of the American Geriatrics Society*, 52(10), 1755-1760.

Behavioral symptoms associated with dementia are a major concern for the person who experiences them and for caregivers who supervise, support, and assist them. The knowledge and skill of formal and informal caregivers affects the quality of care they can provide and their ability to cope with the challenges of caregiving. Nurses are in an excellent position to provide training to empower caregivers with the knowledge and skills necessary to reduce and better manage behaviors. This article reviews advances in geriatric nursing theory, practice, and research based on the Progressively Lowered Stress Threshold (PLST) model that are designed to promote more adaptive and functional behavior in older adults with advancing dementia. For more than 17 years, the model has been used to train caregivers in homes, adult day programs, nursing homes, and acute care hospitals and has served as the theoretical basis for in-home and institutional studies. Care planning principles and key elements of interventions that flow from the model are set forth, and outcomes from numerous research projects using the PLST model are presented.

Snowden, M., Sato, K., et al. (2003). Assessment and treatment of nursing home residents with depression or behavioral symptoms associated with dementia: a review of the literature. *Journal of the American Geriatrics Society*, 51(9), 1305-1317.

Depression and the behavioral symptoms associated with dementia remain two of the most significant mental health issues for nursing home residents. The extensive literature on these conditions in nursing homes was reviewed to provide an expert panel with an evidence base for making recommendations on the assessment and treatment of these problems. Numerous assessment instruments have been validated for depression and for behavioral symptoms. The Minimum Data Set, as routinely collected, appears to be of limited utility as a screening instrument for depression but is useful for assessing some behavioral symptoms. Laboratory evaluations are often recommended, but no systematic study of the outcomes of these evaluations could be found. Studies of nonpharmacological interventions out-number those of pharmacological interventions, and randomized, controlled trials document the efficacy of many interventions. Antidepressants are effective for major depression, but data for minor depressive syndromes are limited. Recreational activities are effective for major and minor depression categories. Neither pharmacological nor nonpharmacological interventions totally eliminate behavioral symptoms, but both types of interventions decrease the severity of symptoms. In the absence of comparison studies, it is unclear whether one approach is more effective than another. Despite federal regulations limiting their use, antipsychotics are effective and remain the most studied medications for treating behavioral symptoms, whereas benzodiazepines and antidepressants have less support. Structured activities are effective, but training interventions for behavioral symptoms had limited results. There are sufficient data to formulate an evidenced-based approach to treatment of depression and behavioral symptoms, but more research is needed to prioritize treatments.

Vernooij-Dassen, M., Vasse, E., et al. (2010). Psychosocial interventions for dementia patients in long-term care. *International Psychogeriatrics*, 22(7), 1121-1128.

BACKGROUND: Psychosocial interventions in long-term care have the potential to improve the quality of care and quality of life of persons with dementia. Our aim is to explore the evidence and consensus on psychosocial interventions for persons with dementia in long-term care. **METHODS:** This study comprises an appraisal of research reviews and of European, U.S. and Canadian dementia guidelines. **RESULTS:** Twenty-eight reviews related to long-term care psychosocial interventions were selected. Behavioral management techniques (such as behavior therapy), cognitive stimulation, and physical activities (such as walking) were shown positively to affect behavior or physical condition, or to reduce depression. There are many other promising interventions, but methodological weaknesses did not allow conclusions to be drawn. The consensus presented in the guidelines emphasized the importance of care tailored to the needs and capabilities of persons with dementia and consideration of the individual's life

context. CONCLUSIONS: Long-term care offers the possibility for planned care through individualized care plans, and consideration of the needs of persons with dementia and the individual life context. While using recommendations based on evidence and consensus is important to shape future long-term care, further well-designed research is needed on psychosocial interventions in long-term care to strengthen the evidence base for such care.

Werezak, L. J. & Morgan, D. G. (2003). Creating a therapeutic psychosocial environment in dementia care. A preliminary framework. *Journal of Gerontological Nursing*, 29(12), 18-25.

Research in dementia care during the past few years has focused on identifying and designing therapeutic physical environments while the psychosocial environment has remained a largely unexplored domain. More recently, discussions regarding the effect of the social environment on individuals with dementia have increased in the literature. Nevertheless, the authors suggest the term "social environment" does not adequately represent the critical psychological and emotional effect social interaction has on individuals with cognitive impairment. Through an examination of the literature, three conceptual frameworks, and clinical observations of several special care units (SCUs), the authors suggest that the psychosocial environment is the most important element of institutional dementia care. A preliminary conceptualization is offered which identifies the elements necessary to facilitate a supportive psychosocial environment in long-term care. The potential benefits of implementing such a model include preservation of personhood, simple recognition of remaining abilities and a decreased focus on disabilities, and reduction of pharmacologic therapy for disruptive behavior resulting in overall improvement in quality of life. [References: 37]