




## Non-pharmacological Management of Behavioral and Psychological Symptoms of Dementia (BPSD)

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PAMDA 2011 Annual Educational Symposium  
October 21, 2011



## Objectives

- Define and quantify BPSD and it's impact on long term care.
- Review the initial evaluation and assessment of the patient with BPSD
- Review the current evidence on non-pharmacological management of BPSD.
- Review the role of the caregiver, practitioner and LTC staff in managing BPSD
- Compare the data between the literature and our own practice



## Outline


- Definition of BPSD
- Classification
- Epidemiology
- Clinical Approach
- Non-pharmacologic interventions (NPIs)
  - Background
  - Evidence
- Management
- Caregiver issues
- Survey Data

## Definition of BPSD


- "A heterogeneous range of psychological reactions, psychiatric symptoms, and behaviors occurring in people with dementia of any etiology."
  - Include disturbed thought/perception, mood symptoms, aberrant motor behaviors, and inappropriate behaviors
- "Inappropriate verbal, vocal, or motor activity that is not judged by an outside observer to be an obvious outcome of the needs or confusion of the individual."

Kalapatapu et al Geriatrics April 2009; Consensus Int Psychogeriatr 1996; Livingston et al 2005 ; Cohen-Mansfield 2001



Jost BC, Grossberg GT. The evolution of psychiatric symptoms in Alzheimer's disease: a natural history study. *J Am Geriatr Soc.* 1996;44(9):1078-1081.


- 100 patients with autopsy-confirmed AD
- Hallucinations, paranoia, accusatory behavior, and delusions in 45% of persons 0.1 month after diagnosis.
- Irritability, agitation, and aggression in 81% of persons an average of 10 months after diagnosis.
- Depression, changes in mood, social withdrawal, and suicidal ideation in 72% of persons 26.4 months before diagnosis.
- Anatomical and biochemical changes within the brain.
- BPSD likely heritable
- BPSD symptoms fluctuate whereas cognitive features of dementia decline progressively over time



## Classification

<ul style="list-style-type: none"> <li>• Mood                             <ul style="list-style-type: none"> <li>– Anxiety (24-65%)</li> <li>– Apathy (48%-92%)</li> <li>– Depression</li> <li>– Irritability (35%-54%)</li> <li>– Lability</li> </ul> </li> <li>• Psychosis                             <ul style="list-style-type: none"> <li>– Delusions (22-36%)</li> <li>– Hallucinations (7-33%)</li> <li>– Appetite changes</li> <li>– Sleep disturbances (25%)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Motor (12% to 84%)                             <ul style="list-style-type: none"> <li>– Pacing</li> <li>– Wandering</li> <li>– Purposeless/stereotyped</li> <li>– Physically aggressive</li> </ul> </li> <li>• Inappropriate behavior                             <ul style="list-style-type: none"> <li>– Agitation (60%)</li> <li>– Sexual disinhibition (15-25%)</li> <li>– Disinhibition (36%)</li> <li>– Dysphoria (38%)</li> <li>– Euphoria (3.5%-8%)</li> </ul> </li> </ul>
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Tampi et al. Clinical Geriatrics. 2011; Mega MS et al Neurology 1996



## Epidemiology

- Prevalence
  - Up to 80% NH residents
  - BPSD more prominent as disease progresses
- Cost
  - Beeri et al 2002- annual indirect cost of managing BPSD in a patient with AD was about \$2665, which is over 25% of the total annual indirect cost (\$10,520).
  - The annual direct cost of BPSD was approximately \$1450, which is over 35% of the total annual direct cost (\$3900).
- Outcomes
  - Shortens time to NH institutionalization by ≈2 years
  - Increased rates of injury to self or other residents
  - ↓ quality of life, ↑rate of cognitive decline
  - ↑caregiver burden, ↑mortality (conflicting data)


Margallo-Lana et al Int J Geriatr Psychiatry 2001;  
Beeri MS et al Int J Geriatr Psychiatry 2002



## Approach to the patient with BPSD

- Identify factors that may contribute to behaviors
  - Cognitive impairment
    - amnesia, aphasia, visual-spatial, agnosia, executive function
- Compensate for impaired domains and support preserved domains
- Not all behavioral changes in dementia problematic
- Symptoms may be effected by intrinsic as well as extrinsic factors
- Modify what you can up front →

Streim PMDA 2008



- Physical- nutrition, hygiene, hydration, toileting, activity, rest
- Psychological- safety, autonomy, affection, self-worth, isolation, loneliness
- Sensory- Optimize visual or hearing deficits
- Psychiatric- delirium, depression, personality disorder, substance abuse/withdrawal
- Medical- adverse drug reactions, chronic conditions, discomfort
- Environmental- noise, lighting, temperature, familiarity
- Social- avoid variability, provocative interactions

Kalapatapu et al Geriatrics April 2009; Streim PMDA 2008



## Sample Algorithm





Figure 1. Algorithm for the assessment of BPSD.  
Abbreviations: BEHAVE-AD, Behavior Pathway in Alzheimer's Disease Rating Scale; BPSD, behavioral and psychological symptoms of dementia; CERAD-BPSD, Consortium to Establish a Registry for Alzheimer's Disease Behavior Rating Scale for Dementia; CMAI, Consortium-Standardized Apathy Inventory; NPI, Neuropsychiatric Inventory.  
Copyright information from references 30, 40-45

Assess for :  
Pain  
Fever  
Anxiety  
New drugs  
Withdrawal

Tampi et al. Clinical Geriatrics. 2011




## General principles for interaction

- Accept present level of functioning
- Non-confrontational approach
- Respect and optimize autonomy
- Simplify environment
- Provide instruction one step at a time
- Structure activities/daily routine
- Acknowledge patient preferences
- Multiple external cueing
- Repetition/reinforcement
- Demonstrate verbal commands
- Immediate, positive feedback
- Limit choices
- Optimize stimulation level
- Utilize over-learned skills
- Limit activities that require new learning
- Redirect as needed

• "The 3 Rs"- REPEAT, REASSURE, REDIRECT

Weiner et al 2003; Zec et al 2008




## What are "non-pharmacologic interventions" (NPIs)?

- Psychosocial and behavioral treatments with the potential for improving functioning in cognitive, self-maintenance, affective, as well as behavioral domains.
- Provides an opportunity for constructive and meaningful interaction
- Current guidelines

• Cognitive stimulation therapy
• Behavioral management techniques - Three P's (repeat, reassure, redirect), ABC's (antecedents, behaviors, consequences)
• Nursing home staff education
• Caregiver education - Savvy Caregiver, Staff Training in Assisted-Living Residences-Caregivers, Resources for Enhancing Alzheimer's Caregiver Health
• Music therapy
• Electronic device that sounds an alarm
• Sewing or printing identifying information on clothes
• Filing photographs with local police departments
• Medical-alert bracelet
• Safe Return Program of the Alzheimer's Association or similar program

Created for Geriatrics by authors  
Data derived from Robinson PR, et al<sup>30</sup>; Livingston G, et al<sup>40</sup>; Ray WA, et al<sup>41</sup>; Finkel J, et al<sup>42</sup>  
Duc NR, et al<sup>43</sup>

Jeste et al 2007; Livingston 2005; Kalapatapu Geriatrics April 2009



## Consensus Statement on Improving the Quality of Mental Health Care in U.S. Nursing Homes: Management of Depression and Behavioral Symptoms Associated with Dementia

The American Geriatrics Society and American Association for Geriatric Psychiatry Expert Panel on Quality Mental Health Care in Nursing Homes  
JAGS 51:1287-1298, 2003

“The initial approach to behavioral symptoms that do NOT present immediate danger to the resident or others should be non-pharmacological.”



## Advantages of NPIs

- Addresses the psychosocial/environmental underlying reason for the behavior
- Avoids adverse side effects, drug interactions, and limited efficacy
- Medication mask the need for intervention
- Preserves patient communication and caregiver’s ability to properly care for him or her
- Creates an opportunity for attention and care



## Paucity of evidence

- Livingston et al 2005- only 162 of 1632 possible references met criteria for scientific rigor based on the Oxford Centre for Evidence-Based Medicine guidelines
- Ayalon et al 2006- only 3 high quality RCTs that merit evidence of efficacy based on APA guidelines
- Challenges in standardizing interventions, evaluating end points and determining/reporting adverse outcomes



## Theoretical construct

- Unmet needs model
  - Many NH pts suffer from sensory deprivation, boredom, and loneliness
  - Provide stimulation and/or prevent need
- Behavioral/Learning model
  - Antecedents, behaviors, consequences (ABC)
- Environmental vulnerability/Reduced stress threshold model
  - Determine optimal stimulation level
- Models are not mutually exclusive

Cohen-Mansfield 2001



## Modalities

- Cognitive stimulation therapy
- Behavior oriented interventions
- Emotion oriented interventions
- Stimulation oriented interventions

TABLE 1  
Nonpharmacological Treatments for BPSD\*

Type of Intervention	Aim of Intervention	Individual/Group Setting	Level of Effectiveness
Psychoeducation	Change caregiver's behavior	Individual	Effective
Instruction for staff	Improve staff's communication skills and enhance staff's knowledge of dementia	Individual or group	Effective
Behavior therapy	Modify patient's behaviors	Individual or group	May be effective
Cognitive stimulation therapy	Stimulate cognition in patient	Individual or group	May be effective
Multisensory therapy	Expose patient to a soothing and stimulating environment	Individual or group	May be effective
Therapeutic activities	Increase patient's goal-directed activities	Individual or group	May be effective
Specialized dementia unit	Locked self-contained units provide a higher level of supervision to treat patients who are agitated and wandering	Group	Not consistently effective

\* Contains information from references 4 and 5.

Tampi et al. *Clinical Geriatrics*, 2011



## Cognitive Stimulation Therapy (CST)

- Impairment in basic orientation inhibits normal function in pts with dementia
- CST- Reality orientation + skills training= restore cognitive deficits
- 3 of 4 RCTS showed positive results
- Most effect in mild dementia (MMSE>20)
- Spector et al 2003- 14 45 min sessions of themed activities over 7 weeks.
- Significant benefits in people's cognitive functioning (MMSE and ADAS-COG).
- Benefit similar to acetyl cholinesterase inhibitors.
- Popular with the participants, and conducted in a variety of settings.




**Table 2** Change from baseline in measures of efficacy at follow-up: intention-to-treat analysis

Efficacy measure <sup>1</sup>	Change from baseline		Group difference		ANCOVA: between-group difference	ANCOVA: other significant differences <sup>2</sup>
	Treatment Mean (s.d.)	Control Mean (s.d.)	Mean (s.e.)	95% CI		
MMSE	+0.9 (3.5)	-0.4 (3.5)	+1.14 (0.09)	0.57 to 2.27	F=4.14, P=0.044	None
ADAS-Cog	+1.9 (6.2) <sup>3</sup>	-0.3 (5.5) <sup>3</sup>	+2.27 (0.87)	0.64 to 4.09	F=6.18, P=0.014	C: P=0.006
QoL-AD	+1.3 (5.1)	-0.8 (5.4)	+1.64 (0.78)	0.09 to 3.18	F=4.95, P=0.028	G: P=0.010
Holmes	+0.2 (6.1)	-3.2 (6.3)	+2.3 (0.93)	-0.45 to 4.15	F=2.92, P=0.090	C: P=0.009 G: P<0.001
CAPE-BRS	-0.2 (6.7)	-0.7 (5.5)	+0.49 (0.65)	-0.9 to 1.69	F=0.58, P=0.449	C: P<0.001 G: P<0.001
RAID	-0.5 (10.2)	-0.7 (10.3)	-1.30 (1.10)	-3.48 to 0.87	P=0.200	C: P<0.001
Cornell	0 (6.3)	-0.5 (7.0)	+0.12 (0.72)	-1.56 to 1.31	P=0.648	C: P<0.001

ADAS-Cog, Alzheimer's Disease Assessment Scale - Cognitive; ANCOVA, analysis of covariance; CAPE-BRS, Cognition Assessment Procedures for the Elderly - Behaviour Rating Scale; Cornell, Cornell Scale for Depression in Dementia; Holmes, Holmes Communication Scale; QoL-AD, Quality of Life - Alzheimer's Disease; RAID, Rating Activity in Dementia.

1. Primary outcome measure: MMSE; secondary outcome measures: ADAS-Cog and QoL-AD.  
2. C, differences between controls; G, differences between genders.  
3. Zero or more points improvement: n=34 (50%); 4 or more points improvement: n=34 (51%).  
4. Zero or more points improvement: n=32 (57%); 4 or more points improvement: n=10 (33%).

Spector et al BJP 2003



## Cognitive Stimulation Therapy

- Some data to support transient improvements in verbal orientation, function, behavior and social interaction
- Case reports of paradoxical anger, frustration and depression related to CST
- Δ short-lived gains in cognition and behavior ultimately return to baseline behavior



## Behavior oriented interventions

- Withhold positive reinforcement during inappropriate behavior (extinction), reinforce positive or quiet behavior (differential reinforcement), and teach an association between a cue and behavior (stimulus control).
- ↓ mood and disruptive behaviors but do not persist
- Proctor 1999- 12 NH, 6 month behavior oriented training and education intervention vs. usual care.
  - Slight improvement in cognition; no difference in behavior
- Δ Not been shown to improve overall function in patients with dementia

Kalapatapu Geriatrics April 2009; Zec Neurorehab 2008; Livingston AJP 2005



## Emotion oriented interventions

- Improves emotional and social functioning, by supporting them in coping with the cognitive, emotional and social consequences.
- Reminiscence therapy
  - Stimulate memory/mood
  - Share and validate experience
  - 3 small RCTs- modest, short lived gains in mood, behavior and cognition. 2 showed no benefit
- Validation therapy
  - Restore self worth and reduce stress by validating emotional ties to the past.
  - Resolve unfinished conflicts
  - 1 RCT- no improvement. 1 case study (5 pts)- no improvement

Rabins APA guideline 2010



## Emotion oriented interventions

- Supportive psychotherapy
  - No scientific data
  - Some anecdotal data to suggest helps patient adjust to illness

Rabins APA guideline 2010; Chung Cochrane Database 2002



## Stimulation oriented interventions


- Recreational activities
  - Crafts, games, pets
  - Rovner et al 1999- reduced behavioral issues, restraints and drug use when combined with drug use guidelines and education rounds
- Art therapy
  - Music, dance, art
    - Music- 6 RCTs
    - Improvements in disruptive behaviors

Rabins APA guideline 2010




## Stimulation oriented interventions

- Exercise
  - 5 studies- 4 showed ↑ in function and mood, 1 no benefit
  - Montessori activities- use rehab principles and external cues to progress from simple to complex activities. No change in depression and agitation
- Aromatherapy
  - Limited quality data
  - Ballard et al 2008- ↓ agitation, ↑ QoL; Snow et al 2004- no benefit
- Simulated presence
  - Audio-taped autobiographical telephone conversation consisting of recollections.
  - Camberg et al 1999- severe AD- reduced rates of agitation and increased social interaction compared to control.

Rabins APA guideline 2010 


## Stimulation oriented interventions

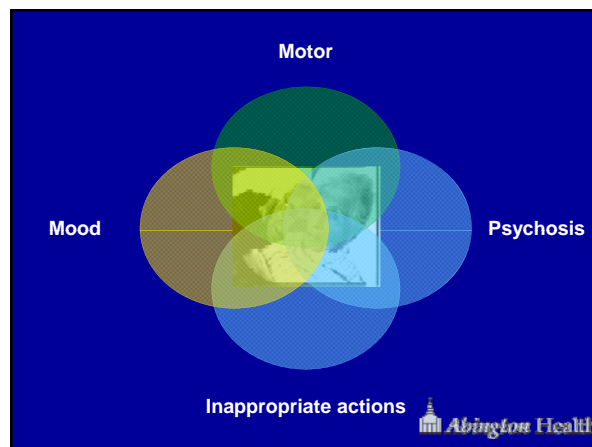
- Sensory integration/Snoezelen (controlled multisensory stimulation)
  - provides sensory stimuli to stimulate the primary senses through the use of lighting effects, tactile surfaces, meditative music and essential oils. 30-60 minute sessions
  - Capitalizes on their residual sensorimotor abilities.
  - 3 RCTs- short-lived improvements in mood, attention and behavior.

Rabins APA guideline 2010 

## Summary of interventions


<ul style="list-style-type: none"> <li>• Reminiscence therapy</li> <li>• Caregiver training</li> <li>• Therapeutic activities</li> <li>• Specialized dementia units</li> <li>• Simulated presence</li> <li>• Reduced stimulation units</li> </ul>	<ul style="list-style-type: none"> <li>• Merit further study due to little or no convincing evidence, inconsistent outcomes, mixed evidence, and contradictory or inconclusive findings.</li> </ul>
<ul style="list-style-type: none"> <li>• Simple repetitive exercise</li> <li>• Reality orientation therapy</li> <li>• Validation therapy</li> <li>• "Admiral" nurses</li> <li>• Montessori activities</li> </ul>	<ul style="list-style-type: none"> <li>• No effect on neuropsychiatric symptoms.</li> </ul>
<ul style="list-style-type: none"> <li>• Behavior management therapies</li> <li>• Staff education</li> <li>• Cognitive stimulation</li> </ul>	<ul style="list-style-type: none"> <li>• Appear to have a lasting effect in the management of BPSD (cognition).</li> </ul>






## Management- Mood

- Apathy, sleep impairment, and social withdrawal that suggest depression, but that are entirely due to cognitive deficits.
- Anxiety, anger, phobias- fear of being left alone\*, tearfulness, thoughts of death, suicidal ideation or threats of harm
- Redirection effective for managing mood by interrupting self-perpetuating emotional cycles
- CST successful in mild AD by challenging negative thought patterns and reducing cognitive distortions
- Behavioral Therapy successful in moderate and severe AD by ↑ positive activity and ↓ decreasing negative activities
- Snoezelen- decreased apathy in severe AD but not sustained

Zec NeuroRehab 2008; Weiner 2003; Teri JAMA 2003 

## Management- Psychosis

- Delusion- firmly held, implausible, false belief or idea, unresponsive to corrective efforts
  - house invaded, burglary, Capgras syndrome, or infidelity
- "The ABCs"- antecedents, behaviors, consequences
  - identifying antecedent conditions and consequences of a behavior
  - Modify environment to improve behavior
  - Decrease sensory stimulation- quiet environment, no fast movements.
    - 1 study showed immediate reduction in agitation, 1 study showed no decrease in BPSD
  - Break down a multistep task to component parts and walk the patient through them.

Press et al UTD 2011 




## Caregiver Techniques

- Develop daily schedule for patient
- Set aside personal time
- Make time for some relaxing activity every day
- Coordinate care-giving- may need professional help
- Attend a support group/obtain individual counseling
- Activity-focused care- Give patient the opportunity to engage in activities that are suitable for his/her cognitive level and interests
- Maintain log of behaviors- Document intensity, frequency, precipitants, consequences
  - Treatment planning
  - Treatment effectiveness




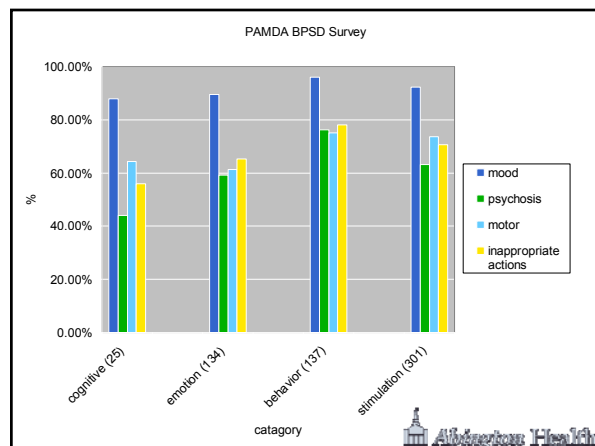
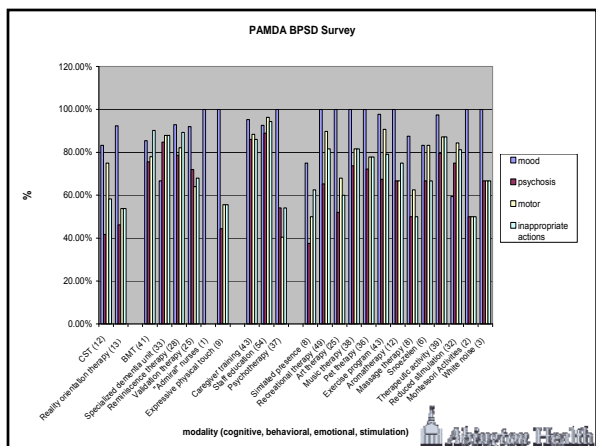
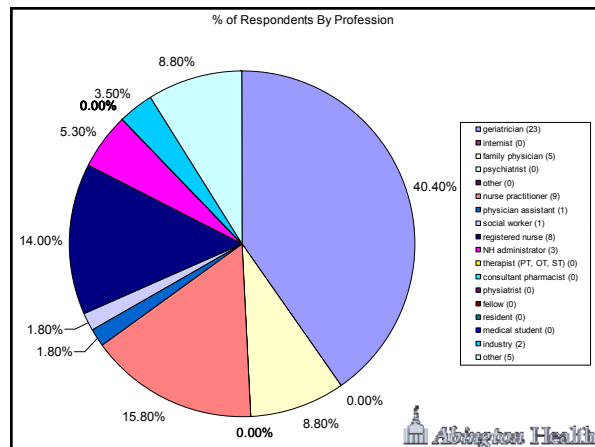
## PAMDA BPSD Survey

- “1. Please check all non-pharmacologic modalities (rows) you utilize for treatment of the following behavioral and psychological symptoms of dementia (columns) encountered in nursing home patients.”
- “2. Please indicate your role in long term care.”
- Sent to PAMDA symposium participants, EPGS list serve/website and SE PA LTC interest group list serve
- Objective- compare medical evidence with our own practice



	Mood	Psychosis	Motor	Inappropriate actions	Response Count
• Caregiver training	95.3% (41)	86.0% (37)	88.4% (38)	86.0% (37)	43
• Staff education/training	92.6% (50)	88.9% (48)	96.3% (52)	94.4% (51)	54
• Psychotherapy	100.0% (37)	54.1% (20)	40.5% (15)	54.1% (20)	37
• Cognitive stimulation therapy	83.3% (10)	41.7% (5)	75.0% (9)	58.3% (7)	12
• Behavior management therapy	85.4% (35)	75.0% (31)	78.0% (32)	90.2% (37)	41
• Simulated presence	75.0% (6)	37.5% (3)	50.0% (4)	62.5% (5)	8
• Recreational therapy	100.0% (49)	65.3% (32)	89.6% (44)	81.6% (40)	49
• Art therapy	100.0% (25)	52.0% (13)	68.0% (17)	60.0% (15)	25
• Music therapy	100.0% (38)	73.7% (28)	81.6% (31)	81.6% (31)	38
• Pet therapy	100.0% (36)	72.2% (26)	77.8% (28)	77.8% (28)	36
• Exercise program	97.7% (42)	67.4% (29)	90.7% (39)	79.1% (34)	43
• Aromatherapy	100.0% (12)	66.7% (8)	66.7% (8)	75.0% (9)	12
• Massage therapy	87.5% (7)	50.0% (4)	62.5% (5)	50.0% (4)	8
• Snoezelen	83.3% (5)	66.7% (4)	83.3% (5)	66.7% (4)	6
• Therapeutic activity	97.4% (38)	79.5% (31)	87.2% (34)	87.2% (34)	39
• Specialized dementia unit	66.7% (22)	84.8% (28)	87.9% (29)	87.9% (29)	33
• Reminiscence therapy	92.9% (26)	78.6% (22)	82.1% (23)	89.3% (25)	28
• Reduced stimulation	59.4% (19)	75.0% (24)	84.4% (27)	81.3% (26)	32
• Reality orientation therapy	92.3% (12)	46.2% (6)	53.8% (7)	53.8% (7)	13
• Validation therapy	92.0% (23)	72.0% (18)	64.0% (16)	68.0% (17)	25
• "Admiral" nurses	100.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	1
• Montessori activities	100.0% (2)	50.0% (1)	50.0% (1)	50.0% (1)	2
• Expressive physical touch	100.0% (8)	44.4% (4)	55.6% (5)	55.6% (5)	9
• White noise	100.0% (3)	66.7% (2)	66.7% (2)	66.7% (2)	3

↑ most  
↓ least

## Summary of results

- Goal of most interventions was to improve mood
- Behavioral oriented modalities (staff training, caregiver education, psychotherapy) most utilized
- Lowest used for psychosis- ineffective vs not expected to be effective?
- Do your experiences agree with the medical literature?
- Do we utilize NPIs without even realizing it?
- How successful was each intervention that you utilized?
- Limitations- frequency of use, duration of use, efficacy, adverse events, opportunity costs



## Summary

- Individualized, behavioral and psychological management techniques may improve quality of life above and beyond quantifiable reductions in BPSD.
- The effects of these interventions may last for months, despite qualitative disparity.
- Lack of evidence is not the same as evidence of lack of efficacy for non-pharmacological/psychosocial treatments of BPSD.
- Statistical significance and limitations in methodology should not deter us from attempting to improve the quality of care and ensuing quality of life in our patients with BPSD.
- There is clearly a need for conducting well-designed RCTs of behavioral and psychosocial interventions in patients with dementia.

Jeste et al 2007; Cohen-Mansfield JAGP 2001

