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## Management of behavioural and psychological symptoms of dementia (BPSD)

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## Potential conflict of interests

- **Advisor, consultant, remunerated speaker and/or investigator:**
  - Parke-Davis, Eisai, Pfizer, Sanofi, Servier
  - Janssen, Lilly, Hoechst-Marion-Roussel
  - Lundbeck, Novartis, AstraZenica, Elan, Wyeth
  - Neotherapeutics, Cromedica, Voyager, Searle, Quintiles

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## Three questions

- **First Question:**
- **You are participating in a race. You overtake the second person. What position are you in?**

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- **Answer:**
- **If you answered that you are first, then you are absolutely wrong!**
- **If you overtake the second person and you take his place, you are second!**
- **Try not to screw up next time. Now answer the second question, but don't take as much time as you took for the first question, OK ?**

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- **Second Question:**
- **If you overtake the last person, then you are...?**

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**Answer:**

- **If you answered that you are second to last, then you are wrong again. Tell me, how can you overtake the LAST person?**
- ***You're not very good at this, are you?***

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- **Third Question:**
- **Very tricky arithmetic! Note: This must be done in your head only . Do NOT use paper and pencil or a calculator. Try it.**
- **Take 1000 and add 40 to it. Now add another 1000 . Now add 30 . Add another 1000 . Now add 20 . Now add another 1000 . Now add 10 . What is the total?**

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- **Did you get 5000 ?**
- **The correct answer is actually 4100.**
- **If you don't believe it, check it with a calculator! Today is definitely not your day, is it? Maybe you'll get the last question right... Maybe.**

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- **Fourth Question:**
- **Mary's father has five daughters:**
- **1. Nana**
- **2. Nene**
- **3. Nini**
- **4. Nono**

**What is the name of the fifth daughter?**

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**Did you Answer Nunu? NO! Of course it isn't. Her name is Mary. Read the question again!**

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**Okay, now the bonus round:**

**A mute person goes into a shop and wants to buy a toothbrush. By imitating the action of brushing his teeth he successfully expresses himself to the shopkeeper and the purchase is done. Next, a blind man comes into the shop who wants to buy a pair of sunglasses; how does HE indicate what he wants?**

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**He just has to open his mouth and ask... It's really very simple.**

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### Sources of information

- IPA BPSD Modules online for members
  - [www.ipa-online.org](http://www.ipa-online.org) and search for BPSD
- O'Connor D et al
  - 2 reviews for DCRC
  - Summary available on [www.dementia.unsw.edu.au](http://www.dementia.unsw.edu.au)

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### BPSD in the community

Cache County Study, Utah, USA<sup>1</sup>

- People with dementia up to 40X > rates of BPSD than rest of age matched population
- 61% any NPI disturbance; Mean NPI = 7
- 32% severe disturbance (NPI ≥ 6)
- Delusions: AD > VaD; Depression: VaD > AD

Rates just as high in developing countries<sup>2</sup>  
 Rates >90% in nursing homes<sup>3</sup>

<sup>1</sup>Lyketsos et al, Am.J. Psychiatry, 2000; 157:708-714;  
<sup>2</sup>Prince M et al 2004; <sup>3</sup>Brodaty H et al, 2001

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### The Sydney Nursing Home Study<sup>1</sup> (647 subjects across 11 NHs)

High rates of BPSD

- Delusions 26-69%
- Hallucinations 7 – 55%
- Depression 25 – 67%
- Aggression 52 - 88%



<sup>1</sup>Brodaty et al, *Int J Ger Psychiatry*, 2001;16:504-512

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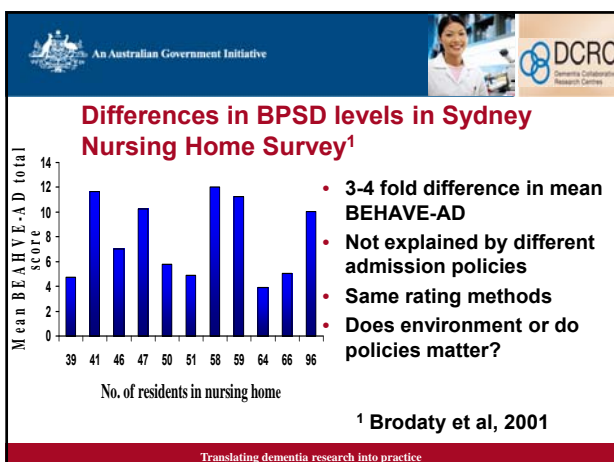
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**Aetiology of BPSD**

- Biological
- Psychological
- Interpersonal
- Environmental

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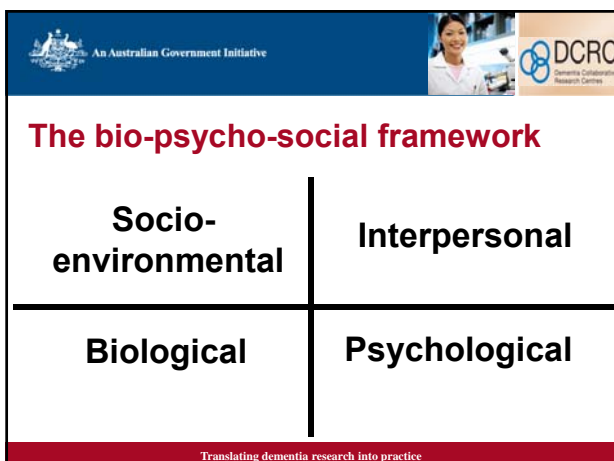
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### Biological paradigm

- **Intrinsic**
  - Changes in brain anatomy or chemistry drive behaviours
- **Extrinsic**
  - Pain, infection, medical illness
  - Drugs, sensory impairment

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### Biological causes - intrinsic

- Frontal pathology (behavioural disturbance, disinhibition, depression)
- Basal ganglia lesions (delusions)
- Temporal lobe (delusions, hallucinations)
- Locus coeruleus (psychosis, depression)
- Chemical changes – serotonin, NA, DA
- Genes – serotonin, dopamine receptors
- Family history of psychiatric disorder

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### Biological causes - extrinsic

- Acute medical illness
- Medication
- Pain syndromes
- Constipation
- Sensory impairments
- Fatigue
- Fears
- Basic needs (hunger, thirst...)
- Psychiatric syndromes

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### Three psychological paradigms

- Learning theory
  - behaviours reinforced when rewarded with attention eg calling out
  - **ABC model (Antecedents, Behaviours, Consequences)**
    - reinforce appropriate behaviours and discourage dysfunctional ones (Teri et al. 1998)

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### Unmet needs paradigm

- Inappropriate behaviors stem from normal human needs – physical, emotional and social - that carers fail to perceive or address (Cohen-Mansfield, 2001)
- Needs: freedom from pain, meaningful activity and pleasurable social interaction
- Strategies include adequate analgesia, physical exercise and recreation

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### Stress threshold model

- Dementia reduces capacity to cope with stress → inappropriate behaviors (Hall & Buckwalter, 1987).
- Stress levels can be modulated to tolerable levels by attending to signals of distress and alternating periods of rest and activity

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## Paradigms in practice

- Paradigms are not mutually exclusive
- No one paradigm works for all patients or in all situations
- Management requires analysis and creativity

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## The bio-psycho-social framework

Environmental vulnerability → ↓ threshold for stress or stimuli <sup>1</sup>	Unmet needs; unable to comprehend or make needs known <sup>2</sup>
Neurological deterioration → behavioural disinhibition <sup>4</sup>	Behavioural: triggers and feedback from others control behaviours <sup>3</sup>

<sup>1</sup>Hall and Buckwalter 1987; <sup>2</sup>Algase et al, 1996; <sup>3</sup>Teri & Logsdon 2000; <sup>4</sup>Cummings JL

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## Before intervening ...

1. Is the description accurate?
2. Identification of target behaviour
3. Does behaviour require intervention?
4. Careful diary of behaviours
5. Exclude non-dementia causes
6. Correct sensory impairment - hearing, vision

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## The bio-psycho-social framework

<b>Socio-environmental</b>	<b>Interpersonal</b>
<b>Biological</b>	<b>Psychological</b>

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## How to intervene: *Environment*

- **Modify environment rather than person**
- **Avoid too much or too little stimulation**
- **Adequate space**
- **Privacy available**

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## How to intervene: *Environment*

- **Secure grounds**
- **Personalised space**
- **Non-institutionalised environment**
- **Home-like**
- **Colour, furnishings, architecture**
- **Lighting**
- **Resident mix**
- **Size of residential facility**

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## Environmental interventions

- Visual barriers to doors → ↓ exiting<sup>1,2</sup>
- “Nature” and “home and people” corridor enhancement<sup>3</sup>
- Nature sounds & large bright pictures in bathrooms → ↓ agitation and aggression<sup>4</sup>
- preferred music → ↓ verbal agitation<sup>5</sup>, ↓ bath-time aggression<sup>6</sup>, ↓ agitation<sup>7</sup>
- SCU → ↓ BPSD<sup>8,9</sup>

<sup>1</sup>Dickinson et al, 1995; <sup>2</sup>Namazi et al, 1994; <sup>3</sup>Cohen-Mansfield & Werner, 1998; <sup>4</sup>Whall et al, 1997; <sup>5</sup>Burgio et al, 1996; <sup>6</sup>Clark et al, 1998; <sup>7</sup>Gerdner et al, 1997;

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## Enhanced Environment

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## Other environmental therapies

- Bright light therapy → sleep better
- Aroma therapy (lemon balm; lavender oil) → agitation ↓
- Snoezelen → stimulation, agitation ↓
- Visual barriers → exit ↓
- Pet therapy

Multi-sensory stimulation

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## Snoezelen: multisensory stimulation<sup>1</sup>

- Significant treatment effect
  - Apathetic behaviour ↓
  - Loss of decorum ↓
  - Rebellious behaviour ↓
  - Aggressive behaviour ↓
  - Depression ↓
  - Significant changes in well-being during morning care ↑

<sup>1</sup> Van Weert et al. (2005) J Am Geriatr Soc 53; 24–33

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## “Person-centred” bathing

- Meeting residents’ preferences, minimising discomfort, speaking calmly
- PC bed baths vs PC tub baths vs usual care = conventional showers (UC)
- Agitation and aggression ↓ in both PC conditions (32 - 37%) vs 8% in UC (p<0.02)
- Neither PC condition better than other
- Bed baths caused less discomfort, took no more time and removed as much skin debris and pathogenic bacteria as showers

Dunn et al. (2002)

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## Light therapy for sleep, mood & behaviour disturbances <sup>1</sup>

- Five studies met criteria; only 3 able to be included
- No adequate evidence of effectiveness of BLT in managing sleep, behaviour, cognitive or mood disturbances
- Available studies poor quality, more research required

Forbes D, Morgan DG, Bangma J et al; Cochrane Review 2004, updated 2006

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## Review on animal-assisted therapy (AAT)<sup>1</sup>

- 11 papers examining the impact of AAT on BPSD regarding their ability to
  - Reduce agitation and/or aggression
  - Promote social behaviour
  - Improve nutrition
  - Role of pet substitutes



<sup>1</sup>Filan & Llewellyn-Jones (2006) *Int. Psychogeriatr*; 18:4, 597-611

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## Review on animal-assisted therapy (AAT) - Results<sup>1</sup>

- Dogs: ↓ agitation and/or aggression
- Dogs/cats: ↑ social behaviour
- Fish tanks in dining rooms:
  - ↑ nutrition, ↑ food intake and ↑ weight <sup>2</sup>
- Pet substitutes (=robotic pets): may provide pleasure and interest

<sup>1</sup>Filan & Llewellyn-Jones (2006) *Inter Psychogeriatr*; 18:4, 597-611, <sup>2</sup>Edwards & Beck (2002) *West J Nurs Research*; 24, 697-712

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## Review on animal-assisted therapy (AAT) - limitations

- only a few articles
- small sample sizes
- short duration of AAT
- no long-term improvements



<sup>1</sup>Filan & Llewellyn-Jones (2006) *Inter Psychogeriatr*; 18:4, 597-611, <sup>2</sup>Edwards & Beck (2002) *West J Nurs Research*; 24, 697-712

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## The bio-psycho-social framework

<b>Socio-environmental</b>	<b>Interpersonal</b>
<b>Biological</b>	<b>Psychological</b>

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### CGs administer behavioural treatments for depression to patients with AD <sup>1</sup>

- Behaviour therapies (pleasurable events schedule or problem solving techniques) → pt depression Sx & Dx better than did control conditions
- Improvements maintained @ 6 mnths
- **Bonus:** CGs' depression better

<sup>1</sup>Teri et al, J. Gerontol. 1997; 52B:159-166

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### CGs as behaviour therapists Teri et al. (2000)

- 148 people with AD + agitation ≥ wkly
- RCT 11 comprehensive behavior training sessions for family CGs vs haloperidol (mean final dose 1.8mg daily) vs trazodone, mean final dose 200mg daily) vs placebo
- Attrition rate high (39%) over 16wks due to adverse effects with haloperidol and ↑ agitation with BM and trazadone
- Rates of improvement = 31- 41%

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## Dementia Care Mapping



- Prospective RCT comparing
  - DCM
  - Person-centred care (PCC)
  - Usual care (UC)
- Primary outcome = CMAI
- PCC > DCM > UC

Professor  
Lynn Chenoweth

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## Kitwood PCC

- Care systems
  - support needs for love, attachment, comfort, identity, occupation & inclusion
  - enhance global sense of self-worth & feeling valued
  - reduce BPSD

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## Person-Centred Care

- Individualised care planning
  - not only clinical history
  - social & functional history, needs and preferences
  - care staff sensitised to person's unique personality & preferences
  - interpret responses & behaviours
  - adjust care practices accordingly

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## Dementia Care Mapping

- Derives from PCC
- Detailed, systematic observations of residents' experiences of well-being and ill-being
- Feedback to staff
- Assists staff to identify & address factors that affect the well-being of the person with dementia
- Care plans - change & improve care practices & environments

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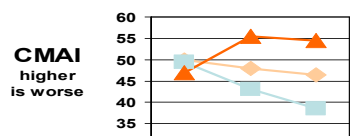
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## Effects on Agitation: CMAI

Adjusted Model



	PRE	POST	FU
DCM	49.9	47.9	46.5
PCC	49.5	43	38.6
UC	47	55.5	54.5

P values: Tmt x time 0.0013; Time trends: PCC=0.0037; DCM=0.026. Full scale range: 29-203; Obs range: 29 - 119. SE (means) ~ 5.2, CI +/- ~10

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## Costs per CMAI point averted...

	After intervention	At Follow-up
PCC	\$ 8.01	\$ 6.43
DCM	\$ 48.95	\$ 46.89

Chenoweth et al. Lancet Neurology 2009

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## The bio-psycho-social framework

Socio-environmental	Interpersonal
Biological	Psychological

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## Psychological Mx approaches to BPSD

Livingston G et al Am J Psychiatry 2005; 162:1996-2021

- 1632 studies identified → 162 met inclusion criteria → 9 studies with Level 1 evidence
- Psycho-education for CGs effective
- Benefits lasted months
- Other CG interventions not effective
- Behaviour Mx techniques centering on individual pts' or CG behaviours → similar benefits
- Residential care staff education beneficial
- Cognitive stimulation similar effects

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## Conclusions: Psychological approaches to BPSD

- Music therapy
- Snoezelen
- ? Sensory stimulation

} Useful during treatment but not long term

- Interventions that changed visual environment looked promising, but ...
- ... ⇒ research required

<sup>1</sup>Livingston G et al Am J Psychiatry 2005; 162:1996-2021

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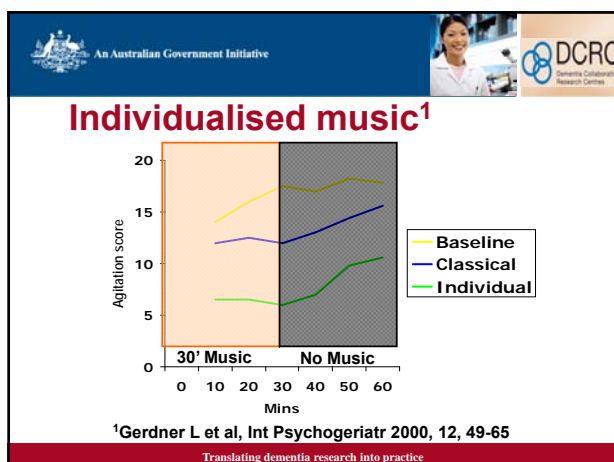
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**Psychological therapies**

- Contingency reinforcement → ↓ disruptive vocalisation<sup>1</sup>
- Reminiscence groups → ↓ problem behaviours<sup>2,3</sup> and depression<sup>4</sup>
- Relaxation training → ↓ BPSD<sup>5</sup>
- Predominantly psychosocial approach → ↑ staff attitudes towards residents compared to pharmacological approach<sup>6</sup>

<sup>1</sup>Doyle et al, 1997; <sup>2</sup>Baines et al, 1987; <sup>3</sup>Gibson, 1994; <sup>4</sup>Goldwasser et al, 1987; <sup>5</sup>Welden & Yesavage, 1982; <sup>6</sup>Bird et al, 2002

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## The bio-psycho-social framework

Socio-environmental	Interpersonal
<b>Biological</b>	Psychological

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## Developments in drug treatments for BPSD

- Cholinesterase inhibitors
- Memantine
- Antidepressants – citalopram, sertraline, venlafaxine, mirtazapine
- Risperidone 0.5 - 2mg/day; modal = 1mg
- Olanzapine 5mg/day, up to 10mg/day
- Valproate, carbamazepine – titrate dose against response, SEs and blood level

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## Proposed Model of Service Delivery for BPSD




Mark Philippoussis & Maria Sharapova serve

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## 7-tiered model

- 7 tiers based on severity of symptoms
- Tier 1 = no dementia; most frequent
- Tier 7 = v severe BPSD; most rare
- Each tier = different model of intervention
- Persons move up & down tiers depending on symptoms & intervention
- Intervention cumulative from bottom up

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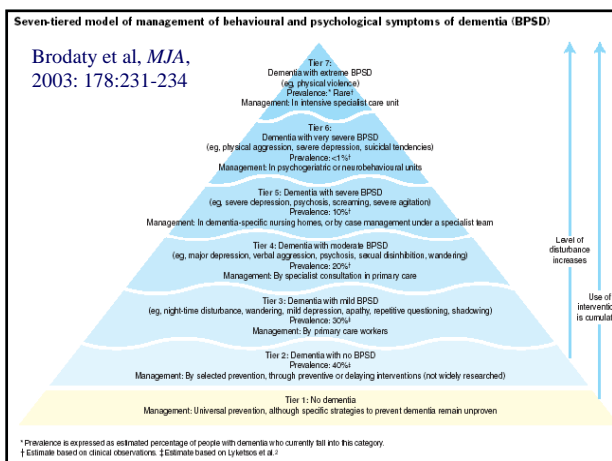
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## Prevention of BPSD

- Person centred approach
- Right level of stimulation
- Attention to environment
- Treat physical disorders quickly

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### Conclusions I

1. Prevent BPSD
2. Determine cause
3. Correct reversible factors
4. 1<sup>st</sup> psychological & environmental management, except if urgent or sometimes concurrent
5. Pharmacotherapy modestly effective for BPSD
6. Prescribe medications judiciously
7. Need medico-legal consent
8. *Start low and go slow*
9. Review medication regularly, at least 3 monthly

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### II: Understand the person - Don't just label the behaviour

- Why is this person behaving this way *now*?
- Construct aetiological map
- → devise management plan
- Different approaches often together
- Be creative
- Document, consent for Rx
- Monitor outcome

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## National Dementia Research Forum

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Australian Government Dementia: A Health Priority Initiative

24/25 Sept 2009  
[www.dementia.unsw.edu.au](http://www.dementia.unsw.edu.au)

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