Agitation/Aggression in Elderly: What works

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Background: Agitation in Dementia

- Dementia can > agitation and violent behavior
  - Also can delirium and associate problems.
- Hard to manage.
- Consider undiagnosed pain
- Some other key points from the literature,…

Scores

- **Cohen-Mansfield Agitation Inventory (CMAI):** Assesses the frequency of manifestations of agitated behaviors in elderly people.
  - 29 measures agitation behaviour, score 1 (never) to 7 (several / hour)
  - Score is 29-203. Higher worse.
  - No MCID. Score of ≥39 = agitation. *
- **Brief Psychiatric Rating Scale (BPRS):** Not specifically agitation.
  - 18 measures behaviour, score 1 (not present) to 7 (extremely severe)
  - Score is 18-126. Higher worse.
  - Mildly ill ≥31, moderate ≥41, markedly ≥53
  - MCID = 25% improvement

Scores

- **Neuropsychiatric Inventory (NPI):** measures physical & verbal aggression, hallucinatory behaviour, & abnormal thought content
  - 12 measures behaviour, Frequency/severity/disruption score 0-12
  - Scores: 0-144, higher worse.
  - Mild <20, moderate 20-50, severe ≥50
  - MCID 4 - 9 points,
- **Behave-AD:** Behavioural symptoms of dementia,
  - 25 behaviours, rated 0-3
  - Score 0-75, higher worse.
- **Clinical Global Impression Scale:** 7-point scale with scores ranging from 1 (no aggressive behaviour) to 7 (severely aggressive behaviour).
  - Can be used a Clinical Global Impression of Change. MCID=1

What happens when you give placebo?

	Baseline	3 weeks	9 weeks
Neurobehavioral Rating Scale agitation subscale (NBRS-A)	7.8 (3.0)	5.7 (3.1)	5.4 (3.2)
Cohen-Mansfield Agitation Inventory (CMAI)	28.7 (6.7)	26.9 (6.7)	26.7 (7.4)
Neuropsychiatric Inventory Agitation/ Aggression domain (NPI A/A)	8.0 (2.4)	4.9 (3.1)	4.9 (3.8)
Neuropsychiatric Inventory (NPI)-Total	37.3 (17.7)	26.1 (16.1)	28.4 (22.1)
Clinical Global Impression of Change (CGI-C)	n/a	29% "improved"	26% "improved"
Mental Status Exam (MSE)	14.4	14.9	15.7

- Biggest effect in first weeks.
- Also, more severe scores got greater benefit.

Int Psychogeriatr. 2015; 27(12): 2059–67.

10 years ago, What did we know?

- Atypical Anti-psychotic for Behavioral problems in Dementia[1]
  - Mean effect size for 7 placebo-controlled studies:
    - 0.45 (95% CI = 0.16-0.74) for atypical antipsychotics,
    - 0.32 (95% CI = 0.10-0.53) for placebo. (No difference)
- Cochrane Meta-analysis[2] (16 placebo controlled trials, 9 sufficient data for meta-analysis, 5 full published in peer reviewed journals)
  1. There was a significant improvement in aggression with risperidone and olanzapine treatment compared to placebo.
  2. There was a significant improvement in psychosis amongst risperidone treated patients.
  3. Risperidone and olanzpaine treated patients had a significantly higher incidence of serious adverse cerebrovascular events (including stroke), extra-pyramidal side effects and other important adverse outcomes.
  4. There was a significant increase in drop-outs in risperidone (2 mg) and olanzapine (5-10 mg) treated patients.
  5. The data were insufficient to examine impact upon cognitive function.

1) Psychother Psychosom. 2007;76(4):213-8. 2) Cochrane Database Syst Rev. 2006 Jan 25;(1):CD003476.

Anti-Psychotics: Benefits

- Systematic review: 16 RCTs (5050 pt)
  - median 10 weeks (range 6-26)
- Score changes (over placebo):
  - CMAI, mean diff= −1.84, (-0.67 to -3.01)
  - NPI, mean diff= −2.81 (-1.28 to −4.35)
  - BPRS, mean diff= −1.58 (-0.65 to −2.52)
  - CGI-C, mean diff= −0.32, (-0.20 to −0.44)
- All these changes are small.

J Alzheimers Dis. 2014;42(3):915-37.

Anti-Psychotics: Benefits, Other Reviews

- Cochrane:[1] Over 10-13 weeks,
  - Risperidone CMAI, Mean Diff = -1.17 [-0.32, -2.02]
  - Olanzapine NPI-NH, Mean Diff -2.46 [-5.53, 0.61]
- Quetiapine:[2] 5 RCTs (1118 pts), 6-10 weeks
  - NPI, Mean Diff = 3.05 (-0.01 to -6.10)
  - CGI-C, Mean Diff = -0.31 (-0.08 to -0.54)
- Haloperidol:[3] 5 RCTs, 3-16 weeks.
  - Any agitation SMD = -0.12 [-0.33 to 0.08], not sign.
  - Any aggression SMD = -0.31 (-0.13 to -0.49), sign
    - Clinical meaning unknown (likely small)

1) Cochrane 2006; 1: CD003476. 2) N Z Med J. 2011;124(1336):39-50. 3) Cochrane 2002; 2: CD002852.

But how many actually get better?

- Systematic Review: 16 RCTs (5110 pts), 8-12 weeks.

Drug	**50% improvement in this outcome**	**Odds Ratio**	**Treatment rate**	**Placebo Rate**	**NNT**
Aripipazole	NPI	1.50 (1.14 – 1.99)	48.5%	38.2%	10
Risperidone	BEHAVE-AD	1.79 (1.37 – 2.33)	46.3%	32.6%	8
Risperidone	CGI – C (much /very much improved)	2.01 (1.49-2.72)	64.7%	47.8%	6
Haloperidol*	CGI-C (improved)	1.50 (0.88 – 2.55)	67.4%	59%	ns

- While scales do not seem to change meaningfully, around 50% of patients will get a meaningful improvement.
- Furthermore, 1 in 6 to 1 in 10 will do meaningfully better than placebo.

Am J Geriatr Psychiatry 2006; 14:191-210. * Cochrane 2002; 2: CD002852.

What are the Adverse Events?

Outcome	RCTs	Odds Ratio	Treatment Rate	Placebo Rate	NNH
Mortality	14	1.52 (1.06-2.18)	3.6%	2.3%	77
Cerebrovascular	9	2.50 (1.36-4.60)	2.1%	0.9%	84
Extrapyramidal	12	1.74 (1.41-2.41)	15.2%	8.6%	16
Somnolence	11	2.95 (2.33-3.75)	17.0%	7.2%	11
Gait Abnormality	7	3.35 (2.06-5.46)	6.9%	1.7%	20
Agitation	**9**	**0.80 (0.65-0.98)**	**10.6%**	**13.3%**	**38 NNT**
Peripheral Edema[2]	8	1.99 (1.20 –3.30)	9%	4%	20
UTI[2]	11	1.51 (1.07 - 2.12)	13%	9.4%	28
MSE[2]	7	Mean Difference	Worse by 0.73 (0.38 to 1.09)		

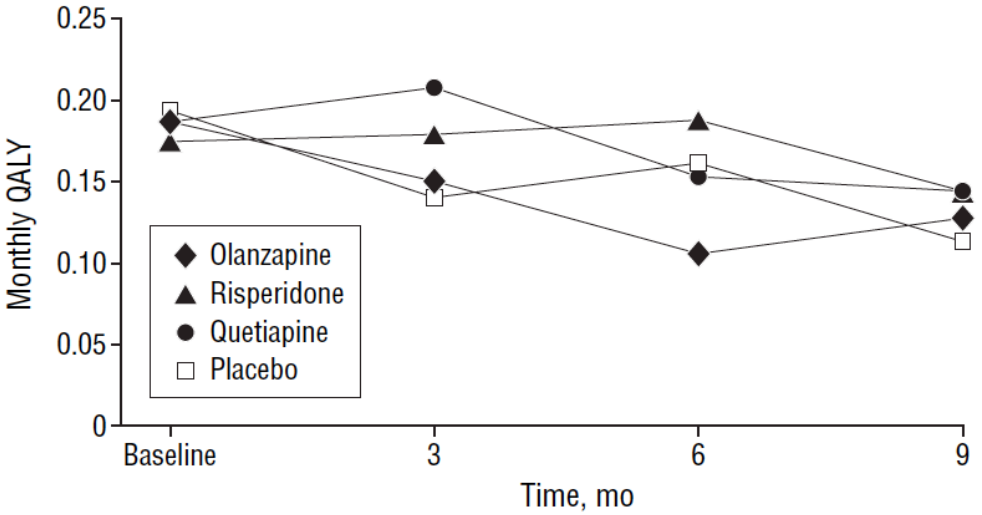
J Alzheimers Dis. 2014;42(3):915-37. 2) Am J Geriatr Psychiatry 2006; 14:191-210.

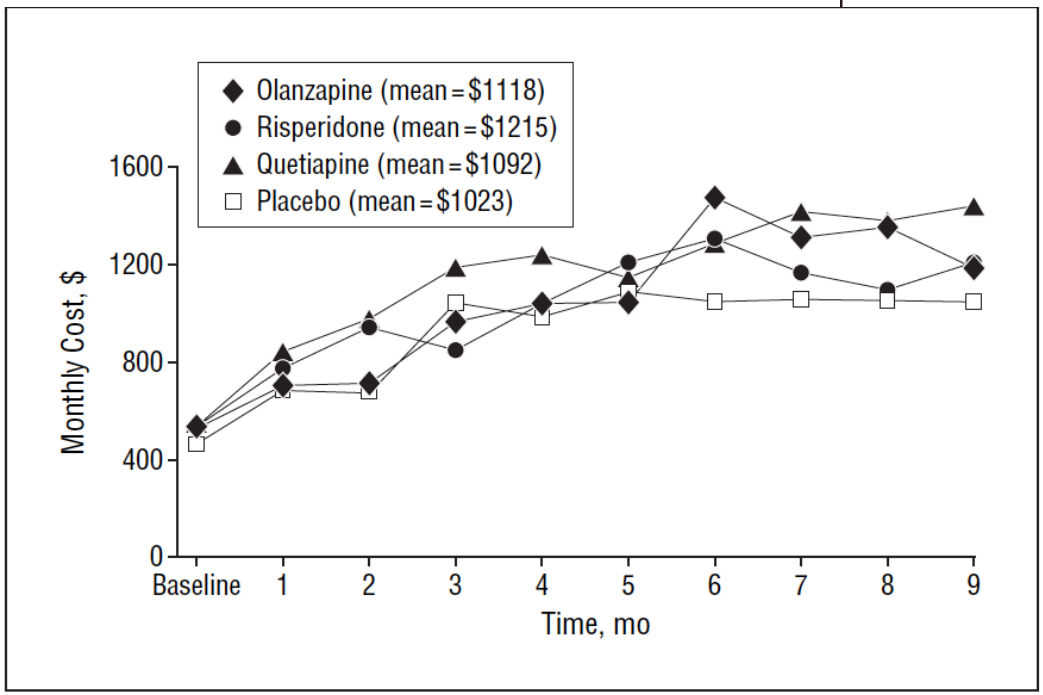
Adverse Events, Continued

- Withdrawal due to Adverse Events
  - Risperidone 1mg:[1] OR 1.43 [1.01, 2.03]. 11.8% vs 9.2%, NNH 39
  - Olanzapine 5-10mg:[1] OR 3.34 [1.69, 6.59]. 11.5% vs 3.7%, NNH 13
  - Haloperidol:[2] OR 2.52 [1.22, 5.21], 17% vs 7.2%, NNH 11
- Bottom-Line: Lots of harms, and some very concerning ones.

1) Cochrane 2006; 1: CD003476. 2) Cochrane 2002; 2: CD002852.

Are anti-psychotics cost effective?





- Bottom-line: Anti-psychotics are not cost effective because they had little effect (over placebo) but were more costly.

Arch Gen Psychiatry. 2007;64(11):1259-1268

Stopping Anti-psychotics

- DART-AD:[1] RCT, 165 patients, mean age 85, 76% female, long-term care
  - Withdraw antipsychotic (placebo) or continue
- Outcomes: Behavior,[2] None stat sign.
  - Mortality: at 2 years, 71% continued anti-psychotic vs 46% placebo, (Diff = 25%, NNT 4)
- Sys Review: 9 trials. No diff behaviour[3] except 1 RCT[4]
  - 110 pts with verified good response on Risperidone 1mg, withdrawn after 4-8 months:
    - 30% worsening of NPI: 60% placebo vs 33% risperidone, NNH 4
- **Bottom-Line**: Better to withdrawal soon unless you are sure they have had a good response and likely need it.

1) Lancet Neurol 2009; 8:151–57. 2) PLoS Med 5(4): e76.doi:10.1371/journal.pmed.0050076 3) Cochrane 2013;3: CD007726. 4) N Engl J Med 2012;367:1497-507.

Summing Up

BENEFITS

1. There was a statistically significant improvement in agitation/aggression behaviour scales with placebo.
2. There was a statistically significant but small improvement in agitation/ aggression behaviour scales from anti-psychotics, compared to placebo.
3. When looking at numbers with meaningful change, that will occur in ~50% of patients on anti-psychotic, that is ~10-15% more than placebo.

HARMS

1. Antipsychotics have lots of harms, and some are very serious (stroke and Mortality), with NNH of ~80 (in 3 months).
2. Even though agitated and dementia, Adverse events will still cause 1 in 10 to 1 in 40 to withdrawal (over placebo)
3. Anti-psychotics reduce MSE by 0.73 (in 3 months)

Withdrawal

1. Withdrawal of anti-psychotics will delay one death for every 4 withdrawn, without worsening behaviour in most cases
2. Behaviour may worsen (for one in 4 over placebo) in cases in which benefit from anti-psychotic is verified.

Benzodiazepines

- 8 RCTs, benzodiazepine vs anti-psychotics, placebos or other drugs:
  - Diazepam vs Thioridazine (40 pts x 4wks): Thioridazine statistically better[1]
    - Nurses rating of improvement: 70% Thioridazine vs 15% Diazepam. NNT=2.
  - Oxazepam vs Haloperidol vs Diphenhydramine (59 pts x 8 wks):[2] No statistical difference but Oxazepam worse behavioral scores.
  - Alprazolam vs Haloperidol (48 pts x 12 wks):[3] Both treatments worse than baseline but no statistical difference.
  - Lorazepam vs Olanzapine vs placebo (272 pts x1d):[4] Lorazepam 1mg similar to Olanzapine (5mg and 2.5mg), and all better than placebo.
    - 40% improved PANSS-EC (measures agitation) at 2 hours: Lorazepam 72%, Olanzapine 62-67%, placebo 37%. Lorazepam NNT=3.

1) South Med J. 1975;68: 719-724. 2) Am J Psychiatry. 1990;147:1640-5. 3) J Am Geriatr Soc. 1998;46:620-5. 4) Neuropsychopharmacology. 2002;26:494-504. 5) Clin Ther. 1984;6:546-59. 6) Dis Nerv Syst 1965; 26: 591-5. 7) Geriatrics. 1965 ;20:739-46. 8) Int Clin Psychopharmacol 1991; 6:141-6.

Benzodiazepines

- 8 RCTs, continued:
  - Diazepam vs Thioridazine vs placebo (610 pts x4wks):[5] Diazepam worse than Thioridazine but better than placebo on some scales.
    - 1 point improvement on one anxiety scale: 65% Diazepam, 77% Thioridazine, 42% placebo.
  - Oxazepam vs placebo (100 pts):[6] Oxazepam better.
    - "Moderate improvement" clinical response: Oxazepam NNT=2.
  - Oxazepam vs placebo (94 pts x8wks):[7] Oxazepam better.
    - "Slight improvement" or better clinical response: Oxazepam NNT=5.
  - Temazepam vs Lorazepam (11pts x 1d):[8] No statistical difference
- Harms: Poor reporting of harms.
  - Mild-moderate sedation: Lorazepam (10.3%) vs. Olanzapine 5mg (4.2%) vs Olanzapine 2.5mg (3%), placebo (3%).[4]

1) South Med J. 1975;68: 719-724. 2) Am J Psychiatry. 1990;147:1640-5. 3) J Am Geriatr Soc. 1998;46:620-5. 4) Neuropsychopharmacology. 2002;26:494-504. 5) Clin Ther. 1984;6:546-59. 6) Dis Nerv Syst 1965; 26: 591-5. 7) Geriatrics. 1965 ;20:739-46. 8) Int Clin Psychopharmacol 1991; 6:141-6.

Benzodiazepines

- Guidelines for agitation in dementia vary:[9]
  - Some (example British Columbia) discourage benzodiazepines because adverse events
  - Others (example American Psychiatric Association and NICE-UK) suggest considering short-acting benzodiazepines as needed for infrequent agitation.
- **Bottom-Line:** Many trials are old, most are short and/or small, and the results are inconsistent. Benzodiazepines appear, at best, equivalent to antipsychotics in reducing agitation in the short-term, but superior to placebo. If used, they should be stopped as soon as possible due to potential harms.

McIntosh B, Clark M, Spry C. Ottawa: Canadian Agency for Drugs and Technologies in Health; 2011. Available from: http://www.cadth.ca/media/pdf/M0022_Benzodiazepines_in_the_Elderly_L3_e.pdf

What about Anti-Cholinesterases?

- Meta-analysis of behavioral and psychological symptoms of Dementia: 12 studies (9 with enough data for analysis)
- ChEIs as a class had a beneficial effects on reducing BPSD:
  - BPSD = Behavioral and Psychiatric Symptoms of Dementia
  - SMD of -0.10 (CI; -0.18, -0.01) and
  - WMD of-1.38 neuropsychiatry inventory point (CI; -2.30, -0.46).
  - In mild AD patients, the WMD was -1.92 (CI; -3.18, -0.66);
  - In severe AD patients, the WMD was -0.06 (CI; -2.12, +0.57).
- Bottom-Line: "Clinical Relevance of this effect remains unclear"

Clin Interv Aging. 2008;3(4):719-28.

The “other” med: Memantine

- Mostly Moderate - Severe Dementia
  - ADCS -ADL score, Severe impairment battery, Functional assessment Staging, Clinician Impression of Change (CIBIC): All 0-4% change
  - Possibly <agitation (NNT= 63) - if already on
  - Well Tolerated (no diff in drop-out due to AE)
  - Other studies use SMD statistic & can’t interpret.[3]

- **Bottom-Line: Effects are small & inconsistent.**

Cochrane 2006;(2):CD003154. Health Technol Assess 2012;16(21). 3) PLoS ONE 10(4): e0123289.

Other Medications: Antidepressants

- SSRI:[1] 9 RCTs (692 patients)
  - Vs Placebo: CMAI, Mean Diff -0.89 [-0.57, -1.22]
    - No increased Withdrawal for AE.
  - Vs Haldol: CMAI, Mean Diff, 4.66 [-3.58, 12.90], favors Haldol
- Trazodone:[2] 2 RCTs (180 pts but not pooled):
  - Vs Placebo: No effect
  - Vs Haldol:[1] CMAI, Mean Diff, 3.28 [-3.28, 9.85], favors Trazodone

1) Cochrane 2011; 2: CD008191. 2) Cochrane: 2004; 3: CD004990.

Other Medications: Valproate

- Valproate: 5 RCTs (412 pts) x 6 wks
  - Outcomes
    - CMAI Mean Diff: -2.20 [-6.38, 1.99], No diff
    - BPRS Mean Diff: 0.23 [-2.14, 2.60], No diff
    - Any adverse event OR 1.99 (1.29-3.08), 75% vs 60% (NNH 7)

- **Bottom-Line**: SSRI Trazodone and Valproate likely have little to no reliable effect.

Cochrane 2009; 3: CD003945.

Remember pain

- RCT of assessing for pain
  - 920 Nursing home residents
  - 420 had moderate-severe dementia with behavioural disturbance (352 included)
  - 201 (57%) assessed as having pain (on the mobilisation-observation-behaviour-intensity-dementia-2 pain scale)
- Outcomes
  - 68% needed only acetaminophen, 32% got buprenorphine patch, pregabaline, & rarely morphine).
  - CMAI: −7.0 (−3.7 to −10.3). Others improved as well.
- Bottom-Line: Remember agitation may be from pain and as little as acetaminophen may help meaningfully.

BMJ 2011;343:d4065

Summing Up

- None of the other medicines (benzodiazepines, SSRI, trazodone, cholinesterase inhibitors, valproate) work well.
- Maybe benzo's as a back-up, but they may well work less than anti-psychotics and there is no evidence they are safer.
- Remember Pain as a possible cause of agitation.

Non-Pharmaceutical Interventions

1 Shiatsu & Acupressure
2 Aromatherapy
3 Massage therapy
4 Light (Bright) Therapy
5 Sensory Garden & Horticultural Activities
6 Music & Dance Therapy
7 Dance Therapy
8 Snoezelen Multisensory stimulation therapy
9 Transcutaneous electrical nerve stimulation.
10 Exercise therapy
11 Animal-Assisted Therapy
12 Combination of Therapies
13 Cognitive Stimulation
14 Reminiscence therapy
15 Validation Therapy
16 Simulated Presence therapy
17 Behavioral Management
18 Family care Support
19 Assisted Living Support
20 Residential Support
21 Animal-Assisted Therapy
22 Special Care Units
23 Dementia Care Map
24 Patient-Centred Care
25 Simulated Presence
26 Many variations on themes above

Abraha I, et al. BMJ Open 2017;7:e012759. Livingston et al. Health Technol Assess 2014;18(39).

Non-Pharmaceuticals: Some that May Work

1. Activities (group or individual): e.g. cooking
2. Music Therapy (protocol)
3. Sensory Interventions
4. Working thru paid caregivers for person-centred care & Communication Skills
5. Dementia Care Map
6. Behavioral Management

Most are unclear as inadequate evidence:

- Example: Pet Therapy

Some are Don't Work

- Example Aromatherapy.

Livingston et al. Health Technol Assess 2014;18(39).

Ineffective Non-Pharmaceutical: Aroma therapy Example

- Early research:[1] pooled in "sensory" gave large change (Standard mean diff=1.07)
  - Pooled too many things and stats poorly reported
- Cochrane:[2] 7 RCTs (428 pts), mostly lavender
  - 5 RCTs used 3 agitation scales, results equivocal.
  - Adverse Events: equal between groups.
- HTA:[3] 6 RCTs (276 pts)
  - good evidence from high-quality studies: no effect.
- **Bottom-Line**: Aroma therapy does not work!

1) Aging Ment Health. 2009;13:512-20 2) Cochrane: 2014; 2: CD003150. 3) Livingston. Health Technol Assess 2014;18(39).

Inadequate Nonpharmaceutical: Example Pet-Therapy

Pet Therapy

- HTA: 3 studies (non-randomized) with 26 participants total!
  - No statistical changes in agitation etc.
- 10 studies: 3 case-control or 7 time-series analysis
  - May be helpful but unclear
- Bottom-Line: Inadequate research.

Livingston. Health Technol Assess 2014;18(39).
Abraha I, et al. BMJ Open 2017;7:e012759

Simulated Presence

- Simulated Presence
- 3 RCTs (144 pts)
  - Research soup (Two were 4 arms & one was three; two used cross-over, numbers small, varying measures some positive at some points versus some comparators).
- Bottom-Line: We don't know?

Cochrane 2017; 4: CD011882.

Non-Pharmaceutical: Things that likely work

	Effect Size	**Studies (patients)**
Activities (group or individual): e.g. cooking	-0.8 to -0.6	8 RCT (587) + 2 lower
Music Therapy (protocol)	-0.8 to -0.5	6 RCT (335) + 4 lower
Sensory Interventions	-1.3 to -0.6	7 RCT (508) +6 lower
Working thru paid caregivers for Person-Centred Care & Communication Skills	-1.8 to -0.3	7 RCT (952) + 1 lower
Dementia Care Map	-1.4 to -0.6	2 RCTs (226)
Behavioral Management	Not calculated	1 RCT (31)

- Lots of overlaps.
  - Example activities or sensory might have music as part them.
  - Example DCM and PCC often overlap in same

Livingston. Health Technol Assess 2014;18(39).

Non-Pharmaceutical: Activities

- HTA: 8 RCT (587)
  - Estimated Effect: SMD: -0.6 to -0.8
- Their Summary
  - Overall, activities in care homes reduce emergent agitation and decrease symptomatic agitation in care homes during the time they are in place.
  - Individualising activities does not appear to make significant additional reductions in agitation.
  - There is no evidence for those who are severely agitated or who are not in care homes.
- Bottom-Line: Does not persist after interventions regular use (1-4 weeks later), behaviour returns. Real uncertainty if there is an effect.

Livingston. Health Technol Assess 2014;18(39).

Non-Pharmaceutical: Music

5 or more sessions with a warm-up (familiar song), then listening, then joining in. Often 2 times per week for 6 weeks or more

- **HTA**: 6 RCTs (335 pts)
  - In care homes, music therapy by protocol is effective for emergent agitation and decreasing symptomatic agitation, but has no long-term usefulness in agitation.
  - There is no evidence for people with severe agitation. There is minimal evidence outside care homes.
- **Cochrane**: 16 RCTs (620 patients)
- Findings:
  - emotional well-being & quality of life (6 RCTs, 181 pts): SMD 0.32 (-0.08 to 0.71)
  - overall behaviour problems (6 RCTs, 209 pts): SMD −0.20 (−0.56 to 0.17)
  - agitation or aggression (12 RCTs, 515 pts): SMD −0.08 (−0.29 to 0.14).

Two others more positive.

Bottom-Line: The most unbiased work raises doubt whether music therapy can improve agitation in dementia.

Livingston. Health Technol Assess 2014;18(39). Cochrane 2017; 5: CD003477.
Front Psychol. 2017 May 16;8:742. Ageing Res Rev. 2017 May;35:1-11.

Non-Pharmaceutical: Sensory

- HTA: 7 RCT (508 pts): Therapeutic touch, massage, acupressure, snoezelen. bathing with music, etc.
  - Estimated effect: SMD -0.6 to -1.3
- Their Summary
  - Sensory interventions significantly improved emergent agitation, symptomatic agitation, and severe agitation during the time the intervention took place.
  - Therapeutic touch has no added advantages.
  - There is insufficient evidence about long-term effects or in settings outside care homes.
- Cochrane: 7 possible RCTs, but only 2 used (but done 2006):
  - Too little evidence to say.
- **Bottom-Line:** Maybe but if an effect, not clear for how long.

Livingston. Health Technol Assess 2014;18(39). Cochrane 2006; 4: CD004989.

Patient-Centred Care

- HTA: 7 RCT (952)
  - Estimated Effect: SMD -0.3 to -1.8
- One of the few with consistent evidence of benefit, often from higher quality studies, and persistence of effect (even up to 20 weeks)
- Their Summary
  - There is convincing evidence that training paid caregivers in communication or person-centred care skills is effective for symptomatic and severe agitation, both immediately and up to 6 months, in the care home setting.
  - There is preliminary evidence that it helps to prevent emergent agitation.
  - Evidence for settings other than care homes is limited.
- **Bottom-Line**: This likely work. It is tangled with Dementia Care Maps and Communication/Behavioural but the combination likely very helpful.

Livingston. Health Technol Assess 2014;18(39).

Dementia Care Mapping & Communication/Behavioural Management

- HTA: 2 RCTs (226)
  - Estimated Effect: SMD -0.6 to -1.4
- Their Summary
  - There is some evidence that DCM is effective immediately and over 4 months for severe agitation in care homes.
  - There is little evidence for emergent agitation or symptomatic agitation, or in other settings.
- Bottom-line: Likely works

- HTA: 1 RCT (31)
- Their Summary:
  - There is preliminary evidence that training paid caregivers in behavioural management and communication skills is effective in reducing agitation symptoms in assisted living settings in the short term.
  - There is no evidence in this setting for the longer-term effects.
- Bottom-line: Likely works

Livingston. Health Technol Assess 2014;18(39).

Complex Tools with education: Do they reduce anti-psychotic use?

- Cochrane: 4 RCTs (69 clusters of 4337 residents)
  - Complex educational/training & meetings for psychosocial interventions to reduce anti-psychotic use

Study	Follow-up Months	Treatment		Control		Final Difference
		Baseline > Finish	Diff	Baseline > Finish	Diff	
Avorn	6	29% > 24%	5%	26% > 25%	1%	4%
Fossey	12	47% > 23%	24%	50% > 42%	8%	16%
Schmidt	13	40% > 33%	7.%	38% > 35%	3%	4%
Meador*	6	25 > 19	5.6 d	26 > 26	0.2 d	5.4 d

* Reported as antipsychotic use per 100 Patient Days

- Bottom-Line: They work!

Cochrane 2012; 12: CD008634.

Complex: Specialized Care Units

- Specialized Care Units: features of trained staffing, special programming, a modified physical environment, and family involvement
- Cochrane: No RCTs but 8 observational, at 6 months
  - NPI: 4.3 better vs placebo but others (e.g. CMAI) not statistical better.
  - Likely reduce used of restraints: Odds Ratio 0.46 [0.27, 0.80], 46% vs 61%, NNT 7
- Bottom-Line: As SCU include a lot of the features of complex interventions, they provide some benefit.

Cochrane 2009; 4: CD006470.

Summing Up

- Despite lots of great ideas, little good evidence to support non-drug measures
- Simple Interventions with possible benefit include activities, music and sensory stimulus. Sadly, there is still real uncertainty if these work reliably.
- Complex Interventions like Dementia Care Maps and trained Patient-Centred Care work but are complex and require broader system level commitment.