# Bringing Research to Life

## 14th National Conference of Emerging Researchers in Ageing

## Program & Proceedings

## 7-8 December 2015, Melbourne

**National Ageing Research Institute**
**34-54 Poplar Rd, Parkville, Melbourne**

## http://www.era.edu.au/ERA+2015

ERA Emerging Researchers in Ageing Australia

NARI NATIONAL AGEING RESEARCH INSTITUTE LTD *Bringing research to life*

cepar ARC CENTRE OF EXCELLENCE IN POPULATION AGEING RESEARCH

MONASH University

# Contents

# THE IMPACT OF SEDATIVE REDUCTION ON AGITATION AND FALLS IN AGED CARE FACILITIES: PRELIMINARY FINDINGS

**Daniel Hoyle[1], Juanita Westbury[2], Ivan Bindoff[1], Lisa Clinnick[3], Gregory Peterson[1]**

*1. Pharmacy, School of Medicine, Faculty of Health, University of Tasmania 2. Wicking Dementia Research and Education Centre, Faculty of Health, University of Tasmania 3. School of Nursing, Midwifery and Paramedicine, Australian Catholic University*

**Abstract**
Sedative medications, predominantly antipsychotics (APs) and benzodiazepines (BZs), are commonly prescribed in residential aged care facilities (RACFs). APs are often used to treat behavioural and psychological symptoms of dementia, while BZs are frequently given for insomnia and anxiety. Despite only modest efficacy for these indications, the risk of severe adverse effects, and guidelines recommending only short-term use, evidence suggests that sedative medications are not regularly reduced due to fear that the initial symptoms may deteriorate. Previous sedative reduction programs have lacked resident monitoring, impacting upon their widespread clinical acceptance and uptake for addressing barriers to sedative reduction. The aim of this research is to assess the impact that sedative reduction has on residents of RACFs involved in a multifaceted program to improve sedative use (the Reducing the Use of Sedatives project; RedUSe). We studied the effect that sedative reduction had on agitation and falls in a preliminary sample of 67 residents participating in RedUSe. Residents were classified as AP/BZ 'reducers' or 'non-reducers' based on their AP and BZ use over four months. Resident agitation was evaluated using the Cohen-Mansfield Agitation Inventory (CMAI). Nurses kept a record of falls for participating residents. Results indicate that there were no changes in agitation between BZ reducers and non-reducers ($p=0.5$), and AP reducers and non-reducers ($p=0.2$). There were also no differences in the mean number of falls between BZ reducers and non-reducers ($p=0.5$), or AP reducers and non-reducers ($p=0.2$). The preliminary results, albeit based on a small sample, suggest that sedative reduction has no impact on agitation or falls.

**Rationale**
Sedative medications, predominantly antipsychotics (APs) and benzodiazepines (BZs), are widely used in residential aged care facilities (RACFs). APs are often used to treat behavioural and psychological symptoms of dementia (BPSD), and BZs are utilised as a sleep aid and anxiolytic.

Despite limited effectiveness for these symptoms (Banerjee, 2009; Bourgeois, Elseviers, Van Bortel, Petrovic, & Vander Stichele, 2013), and an increased risk of death with APs (Schneider, Dagerman, & Insel, 2005) and falls with both APs and BZs (Bloch et al., 2011), sedative medications are not often reduced once commenced (Westbury, Jackson, & Peterson, 2010). Studies have indicated that concerns regarding the potential for deterioration in the residents' symptoms can be a significant barrier to sedative reduction in RACFs (Azermai, Stichele, Van Bortel, & Elseviers, 2014; Jolyce Bourgeois et al., 2013).
Randomised controlled trials have demonstrated that AP withdrawal in residents displaying mild BPSD does not lead to an increase in the severity or incidence of these behaviours (Declercq et al., 2013). However, residents with severe baseline BPSD are more likely to have behavioural disturbances upon AP cessation (Ballard et al., 2004).

Falls are a major source of injury in RACFs. APs and BZs have been implicated as major risk factors for falls (Bloch et al., 2011). However, studies have also reported increased falls and fractures with lower rates of sedative use (Briesacher, Soumerai, Field, Fouayzi, & Gurwitz, 2010; Hughes et al., 2000).

Despite interventions successfully reducing the use of sedatives in RACFs, there is a lack of evidence as to how this relates to resident-related outcomes, such as agitation and falls. This impacts on their suitability to address barriers to reduction (Alldred et al., 2013; Declercq et al., 2013).

To improve the review and use of APs and BZs in Australian RACFs, a multifaceted intervention (the Reducing the Use of Sedatives Project; RedUSe) has been designed (Westbury, Jackson, Gee, & Peterson, 2010). RedUSe involves auditing, benchmarking and feedback of sedative prescribing in RACFs to nursing staff, who provide the majority of resident care and strongly influence sedative prescribing (Westbury, Jackson, Gee, et al., 2010). Pharmacists and doctors also receive training. A multidisciplinary sedative review is provided for all residents taking regularly charted sedative medications. RedUSe is being rolled out over four waves to 150 Australian RACFs and includes monitoring of resident outcomes. Currently RedUSe is entering its fourth wave.

The aim of this paper is to discuss the effect that sedative reduction has on the symptoms of agitation and falls for residents involved in wave two of RedUSe.

**Methods**
Permanent residents of RACFs involved in wave two of the RedUSe project roll-out were recruited. Eligible residents were identified by a champion nurse at each RACF; Inclusion criteria: residents taking BZs or APs on a daily basis as indicated by their medication chart. Exclusion criteria: diagnosis of a severe psychiatric illness (e.g. bipolar disorder) or receiving end-stage palliative care.

Structured interviews with nursing staff at baseline and four months captured changes in resident agitation using the Cohen-Mansfield Agitation Inventory (CMAI). Additionally, the number of falls that residents had were recorded by nurses.

To enable comparison across different drug types, daily AP and BZ doses were converted to chlorpromazine (CPZ) and diazepam (DZ) equivalents, respectively (Alcohol and Drug Information Service, 2014; Danivas & Venkatasubramanian, 2013). Residents were defined as either BZ or AP 'reducers' if their daily DZ or CPZ dose equivalents had decreased between baseline and four months. The remaining residents were classified as BZ or AP 'non-reducers'.

Changes in the total CMAI median scores and mean falls were compared between BZ/AP reducers and non-reducers using non-parametric and parametric statistics, as appropriate. The SPSS statistics package version 22 was used for all statistical analyses.

**Results**
In wave two of RedUSe, 67 residents were recruited from Tasmanian (n=2) and South Australian (n=7) RACFs. There were seven deaths, two withdrawals and one resident relocation to a different RACF over the study period.

Overall, 14 residents had their BZs reduced compared to 32 non-reducers, and seven residents had their APs reduced compared to 13 non-reducers. Nine residents were taking both BZs and APs at baseline. Reducers and non-reducers did not differ significantly in their baseline characteristics (Table 1).

Table 1: Baseline characteristics for BZ and AP reducers/non-reducers.

| | BZ reducers | BZ non-reducers | p-value | AP reducers | AP non-reducers | p- value |
|---|---|---|---|---|---|---|
| Female, n (%) | 11 (78.6) | 25 (78.1) | 0.1 | 5 (71.4) | 9 (69.2) | 0.9 |
| Age (years), mean (SD), | 87.1(5.2) | 88.3 (6.9) | 0.6 | 85.6 (5.0) | 87.1(5.6) | 0.6 |
| Mean baseline DZ/CPZ equivalent daily dose, mg (SD) | 5.4 (4.7) | 5.7 (5.1) | 0.9 | 76.9 (87.0) | 49.0 (47.5) | 0.4 |
| Mean number of regular medications (SD) | 9.7 (3.5) | 11.9 (4.7) | 0.1 | 12.0 (4.0) | 9.9 (4.5) | 0.3 |
| Residents with dementia diagnosis, n (%) | 8 (57.1) | 9 (28.1) | 0.1 | 6 (85.7) | 9 (62.2) | 0.4 |
| Median baseline CMAI total score (min-max) | 51 (29-89) | 38 (29-93) | 0.2 | 36 (29-64) | 47 (29-89) | 0.4 |

**Agitation**
There were no significant changes in the total CMAI median scores between baseline and four months for BZ non-reducers (p=0.8) and reducers (p=0.5), and AP non-reducers (p=0.5). However, AP reducers had significantly increased scores at four months (p=0.04). There were no differences in the changes in total CMAI median scores between BZ reducers and non-reducers (p=0.5), or AP reducers and non-reducers (p=0.2) (Figure 1).

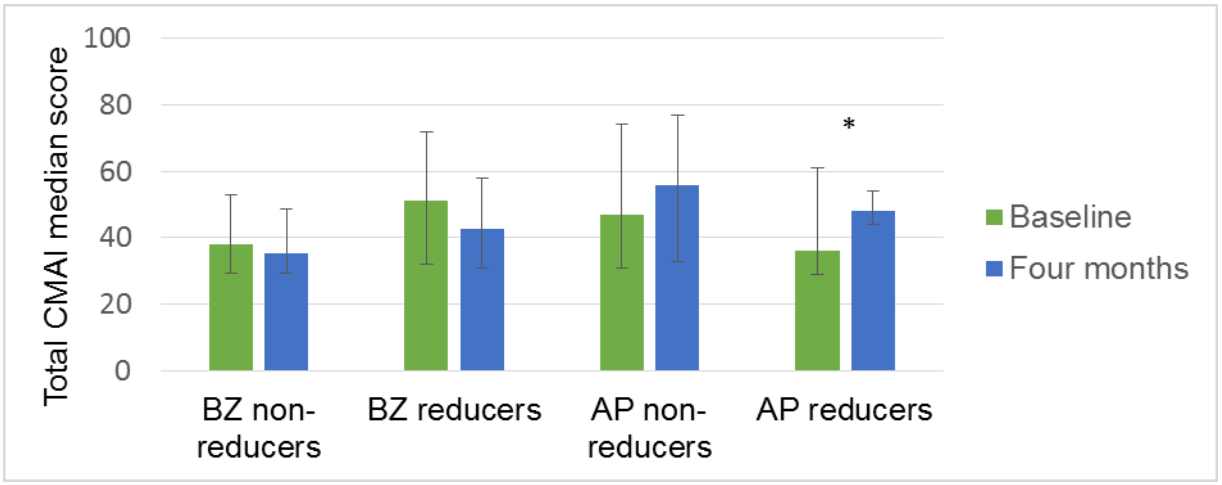


Figure 1: Mean total CMAI scores for BZ and AP reducers/non-reducers; error bars represent interquartile range. Higher score = more agitation.

**Falls**

Overall, 44% (n=25) of residents had at least one fall over the study period. The small numbers limit meaningful analyses, but differences in falls between AP non-reducers (62% of group had a fall, n=8 residents, mean falls per resident=2.0) and AP reducers (29%, n=2, mean=0.6) were not statistically different (p=0.3). Similarly, differences between BZ non-reducers (34%, n=11, mean=1.0) and BZ reducers (57%, n=8, mean=1.6) were not significant (p=0.5) (Figure 2).

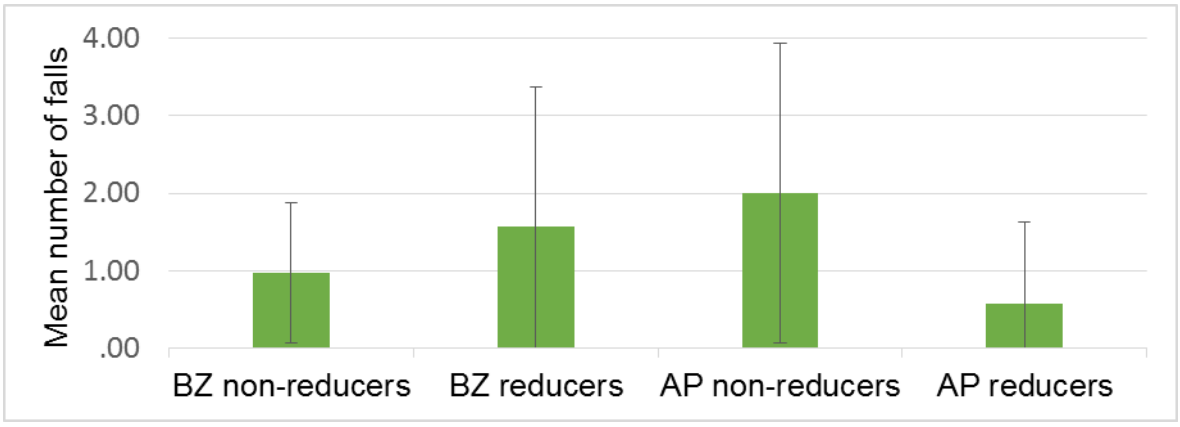


Figure 2: Mean falls in BZ and AP reducer/non-reducer groups; error bars represent 95% confidence intervals.

**Summary**

Despite variability and a small sample size, preliminary data suggests that sedative reduction does not significantly impact resident agitation, or lessen falls, when compared to non-reducers. Whilst a significant increase in agitation was reported for AP reducers, the worsening in agitation was similar in the non-reducer group and may be related to the general deterioration of the residents' conditions.

The major limitation is the use of a pseudo-control group (non-reducers). Despite reducers and non-reducers having similar characteristics, it could be argued that unmeasured factors may have influenced the decision for sedative reduction. The small sample also precludes a subanalysis by the baseline severity of BPSD.

Data collection will be finalised by March 2016 and will provide information on over 200 residents involved in the RedUSe project.

**References**

Alcohol and Drug Information Service. (2014). *Benzodiazepines: Information for GPs*. Parkside: Government of South Australia.

Alldred, D. P., Raynor, D. K., Hughes, C., Barber, N., Chen, T. F., & Spoor, P. (2013). Interventions to optimise prescribing for older people in care homes. *Cochrane Database Syst Rev, 2*. doi:10.1002/14651858.CD009095.pub2

Azermai, M., Stichele, R. R. H. V., Van Bortel, L. M., & Elseviers, M. M. (2014). Barriers to antipsychotic discontinuation in nursing homes: An exploratory study. *Aging & Mental Health, 18*(3), 346-353. doi:http://dx.doi.org/10.1080/13607863.2013.832732

Ballard, C., Thomas, A., Fossey, J., Lee, L., Jacoby, R., Lana, M. M., . . . O'Brien, J. T. (2004). A 3-month, randomized, placebo-controlled, neuroleptic discontinuation study in 100 people with dementia: the neuropsychiatric inventory median cutoff is a predictor of clinical outcome. *Journal of clinical psychiatry, 65*(1), 114-119.

Banerjee, S. (2009). The use of antipsychotic medication for people with dementia: Time for action. *London: Department of Health*.

Bloch, F., Thibaud, M., Dugué, B., Brèque, C., Rigaud, A.-S., & Kemoun, G. (2011). Psychotropic Drugs and Falls in the Elderly People: Updated Literature Review and Meta-Analysis. *Journal of Aging & Health, 23*(2), 329. Retrieved from https://login.ezproxy.utas.edu.au/login?qurl=http://search.ebscohost.com/login.aspx?direct=true&db=edb&AN=57543644&site=eds-live

Bourgeois, J., Elseviers, M., Azermai, M., Van Bortel, L., Petrovic, M., & Vander Stichele, R. (2013). Barriers to discontinuation of chronic benzodiazepine use in nursing home residents: Perceptions of general practitioners and nurses. *European Geriatric Medicine, 5*(3), 181-187.

Bourgeois, J., Elseviers, M. M., Van Bortel, L., Petrovic, M., & Vander Stichele, R. H. (2013). Sleep quality of benzodiazepine users in nursing homes: a comparative study with nonusers. *Sleep Med, 14*(7), 614-621. doi:10.1016/j.sleep.2013.03.012

Briesacher, B. A., Soumerai, S. B., Field, T. S., Fouayzi, H., & Gurwitz, J. H. (2010). Medicare part D's exclusion of benzodiazepines and fracture risk in nursing homes. *Arch Intern Med, 170*(8), 693-698. doi:10.1001/archinternmed.2010.57

Danivas, V., & Venkatasubramanian, G. (2013). Current perspectives on chlorpromazine equivalents: Comparing apples and oranges! *Indian Journal of Psychiatry, 55*(2), 207-208. doi:10.4103/0019-5545.111475

Declercq, T., Petrovic, M., Azermai, M., Vander Stichele, R., De Sutter, A. I., van Driel, M. L., & Christiaens, T. (2013). Withdrawal versus continuation of chronic antipsychotic drugs for behavioural and psychological symptoms in older people with dementia. *Cochrane Database of Systematic Reviews, 3*, CD007726. doi:10.1002/14651858.CD007726.pub2

Hughes, C. M., Lapane, K. L., Mor, V., Ikegami, N., Jonsson, P. V., Ljunggren, G., & Sgadari, A. (2000). The impact of legislation on psychotropic drug use in nursing homes: a cross-national perspective. *Journal of the American Geriatrics Society, 48*(8), 931-937.

Schneider, L. S., Dagerman, K. S., & Insel, P. (2005). Risk of death with atypical antipsychotic drug treatment for dementia: meta-analysis of randomized placebo-controlled trials. *The Journal of the American Medical Association, 294*(15), 1934-1943. doi:10.1001/jama.294.15.1934

Westbury, J., Jackson, S., Gee, P., & Peterson, G. (2010). An effective approach to decrease antipsychotic and benzodiazepine use in nursing homes: the RedUSe project. *International Psychogeriatrics, 22* (1), 26-36. doi:10.1017/s1041610209991128

Westbury, J., Jackson, S., & Peterson, G. (2010). Psycholeptic use in aged care homes in Tasmania, Australia. *Journal of Clinical Pharmacy & Therapeutics, 35*(2), 189-193. doi:10.1111/j.1365-2710.2009.01079.x