Preventing falls in people with dementia: Is there any evidence?

Jacqueline CT Close

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Prince of Wales Clinical School
University of New South Wales
Fall Related Hospitalisations

- NSW Admitted Patients Data Collection (APDC), from 1 July 1998 to 30 June 2011.
- Persons aged 65 years and over
- A principal diagnosis of injury (ICD-10-AM range: S00-T75 or T79);
- A fall-related external cause code (ICD-10-AM range: W00-W19)
- Percentage annual change in incidence with 95% confidence intervals within each age group were estimated by fitting negative binomial regression models
Results – Absolute Numbers

- All fall related hospitalisations increased from 14,577 to 25,929 – (78% increase)
- Fracture related hospitalisations increased from 11,107 to 16,105 – (45% increase)
- Non-fracture related hospitalizations increased from 3,470 to 9,824 – (183% increase)
Figure 1.3: All fall-related hospitalisations by metropolitan LHDs, persons aged 65 years and over, NSW, 1998-99 to 2011-12
Figure 3a.3: Fall-related hip fracture hospitalisations by metropolitan LHDs, persons aged 65 years and over, NSW, 1998-99 to 2011-12
Fall related hospitalisation in NSW

Proportion

Year

Fracture-related hospitalisation
Non-fracture related hospitalisation

Age-specific TBI admission rates by year, persons aged 65 years and older, NSW 1998/99 to 2010/11

- 65-69 years (PAC, 5.2%; 95%CI 3.8-6.6, p<0.0001)
- 70-74 years (PAC, 5.0%; 95%CI 3.6-6.3, p<0.0001)
- 75-79 years (PAC, 7.9%; 95%CI 6.9-9.0 p<0.0001)
- 80-84 years (PAC, 8.6%; 95%CI 7.3-9.9 p<0.0001)
- 85+ years (PAC, 9.1%; 7.8-10.4 p<0.0001)
Age standardised TBI admission rates by type of injury and year, persons aged 65 years and older, NSW 1998/99-2010/11

- Traumatic subdural haemorrhage (PAC, 10.5%: 95%CI 9.6-11.4, p<0.0001)
- Concussive injury (PAC, 0.2%: 95%CI -0.8-1.4, p=0.66)
- Traumatic arachnoid haemorrhage (PAC, 16.2%: 95%CI 14.4-18.0, p<0.0001)
- Diffuse brain injury (PAC, 4.2%: 95%CI 2.2-6.1, p<0.0001)
- Focal brain injury (PAC, 9.8%: 95%CI 8.0-11.8, p<0.0001)
- Other intracranial injuries (PAC, 5.9%: 95%CI 2.6-9.2, p=0.0003)
- Unspecified intracranial injury (PAC, -7.0%: 95%CI -10.3-3.7, p<0.0001)
- Epidural haemorrhage (PAC, 2.9%: 95%CI -1.0-6.9, p=0.1499)
- Traumatic cerebral oedema *
Age-standardised TBI admission rates by faller status, persons aged 65 years and older, NSW 1998/99 to 2010/11
“There is insufficient evidence to recommend for or against multi-factorial or single interventions to prevent falls in older persons with known dementia living in the community or in long-term care facilities”.
Results from a prospective risk factor study

Falls
Older
Cognitively Impaired Subjects
Understanding the increased risk of falls in dementia

- Person with Dementia
- Multiple Falls
- Physical
- Cognitive
Falls in Cognitively Impaired Subjects

- Prospective risk factor study
- Aged 60+
- Cognitive impairment (MMSE <24 or ACE-R <82 or specialist diagnosis of dementia)
- Recruited from hospital, clinics, adverts etc
- Had to have consenting “carer”
Follow Up

- 1 year follow up
- Monthly falls calendars
- Fall defined using ProFaNE consensus definition
- Multiple faller defined as someone with 2 or more falls in the one year follow-up
<table>
<thead>
<tr>
<th>Variable</th>
<th>Median Cut Point</th>
<th>OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sway on foam</td>
<td>&gt;1907mm²</td>
<td>2.589 (1.193 – 5.615)</td>
</tr>
<tr>
<td>Coordinated Stability</td>
<td>&gt;29 errors</td>
<td>3.879 (1.707 – 8.813)</td>
</tr>
<tr>
<td>GDS</td>
<td>&gt;3</td>
<td>3.317 (1.513 – 7.272)</td>
</tr>
</tbody>
</table>

Adjusted for: age, sex, years of education, total medications and cardiac arrhythmias (all non-significant)
Explanatory Model

Person with Dementia → Sway on Foam Co-Stab → GDS → Multiple Falls

Physical

Cognitive

Model correctly classifies 75% of people
Conclusions from Prospective Study

People with cognitive impairment are at an increased risk of falls

Physiological performance is an important determinant of falls risk

Deficits identified are potentially amenable to intervention

Cognitive performance is less useful in differentiating between fallers and non-fallers

Logical step is to move on to pilot approach to intervention
i-FOCIS Pilot Study - Overview

**Recruitment**
- Baseline Measures & Randomisation

**INTERVENTION GROUP**
- 12 weeks
- Home Hazards Reduction & Exercise Program
- Monthly Falls Calendars

**CONTROL GROUP**
- Usual Care

**Re Assessment Measures**
i-FOCIS Intervention Protocol
Home Safety

- Recommendations based on Westmead Home Safety Ax
- Included reasoning to highlight hazards
- Three sections:
  - Habits to change
  - Things to buy
  - HMMS referral

Intervention to Prevent Falls in Older Adults with Memory Problems

HOME SAFETY BOOKLET

Name: ___________

Jacki Wesson
Senior Occupational Therapist
Prince of Wales Medical Research Institute
Telephone: 9389
Exercise Program

Five exercises given

- Standing balance activities
- Strength – sit to stand
- Step ups

Upgrades

- ↑ repetitions
- reduced support
- eyes closed

STEPPING on a BLOCK
WHERE: Stand next to the kitchen bench
Put the wooden block in front of you
HOW: Place one foot onto the block then remove. Now do the same with the other foot.
HOLD ON: NO! Do not hold on!
HOW MANY: ___ times each leg (___ times altogether)

Tick off the box below when you have done your exercise each day:

<table>
<thead>
<tr>
<th></th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
<th>Sunday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tick here</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Home Safety Adherence

<table>
<thead>
<tr>
<th>Total Number of Recommendations</th>
<th>207</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of recommendations per participant - mean (range)</td>
<td>20.7 (13- 29)</td>
</tr>
<tr>
<td>Number implemented – mean (range)</td>
<td>10 (3 – 24)</td>
</tr>
<tr>
<td>Percent adherence per participant</td>
<td>48.6%$^{10}$</td>
</tr>
</tbody>
</table>

**Reasons for non-adherence:**
- No perception of need or risk
- Financial considerations
All participants reported adherence 2 x week minimum

Limitations:
- Carer availability to supervise
- Illness and holidays
- Limited dynamic activities used
- Minimal challenges to base of support
Results

- No significant differences in any physical measures
  - (analysis of median change scores using Mann Whitney tests)

- Trend in the right directions for median change scores on physical activity hours/week
Results

Carer Strategy Use

<table>
<thead>
<tr>
<th></th>
<th>Intervention</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Strategies</td>
<td>8</td>
<td>6</td>
</tr>
</tbody>
</table>

Carer Burden

<table>
<thead>
<tr>
<th></th>
<th>Intervention</th>
<th>Baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zarit Score (/48)</td>
<td>18</td>
<td>10</td>
</tr>
</tbody>
</table>
## Falls Data

<table>
<thead>
<tr>
<th></th>
<th>Intervention (n=11)</th>
<th>Control (n=11)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Baseline</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Falls in prior year – mean (SD)</td>
<td>2.09 (± 2.5)</td>
<td>2.45 (± 3.17)</td>
</tr>
<tr>
<td>Range</td>
<td>0-8</td>
<td>0-11</td>
</tr>
<tr>
<td>Percent fallen</td>
<td>63%</td>
<td>81.2%</td>
</tr>
<tr>
<td>Fallen &gt; 2 times</td>
<td>45.4%</td>
<td>45.4%</td>
</tr>
<tr>
<td><strong>Follow Up</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Falls to re-Ax - mean (SD)</td>
<td>0.45 (± 0.82)</td>
<td>1.0 (± 1.48)</td>
</tr>
<tr>
<td>Range</td>
<td>0-2</td>
<td>0-4</td>
</tr>
<tr>
<td>Percent fallen</td>
<td>27.3%</td>
<td>36.4%</td>
</tr>
<tr>
<td>Fallen &gt; 2 times</td>
<td>18.2%</td>
<td>36.4%</td>
</tr>
</tbody>
</table>

**58% reduction in falls rate - IRR = 0.42 (p = 0.28)**
Lessons learnt

- Intensity / duration of exercise program
- Flexibility of intervention protocol itself
- Tailored approach accommodating both physical & cognitive abilities critical
- Important to have an understanding of cognitive “strengths”
- Strong integration & collaboration between the occupational therapist and physiotherapist crucial
THE i-FOCIS Overview

- Can a professionally prescribed, carer assisted exercise and home hazard reduction program reduce falls in people with dementia
  - Rate of falls (control 1.8 falls/yr – 30% reduction, mean follow-up 11 months)
  - Number of fallers

- Secondary aims – function, QoL, uptake and adherence, cost and cost-effectiveness
THE i-FOCIS Overview

- RCT
- 360 subjects
- Clinical diagnosis of cognitive impairment
- Community dwelling
- Carer – 3.5hrs+/ week contact
THE i-FOCIS Overview

- 1 year intervention – 10 visits in total
  - OT
  - Physiotherapy
- Also includes telephone support
- Tailored to physical and cognitive abilities
- Includes carer engagement sessions
- Reassess at 6 months and 1 year.
What do I do at this point in time
If the mechanism by which the intervention has its effect is understood and not felt to be affected by the presence of cognitive impairment / dementia then it is reasonable to extrapolate data from trials undertaken in cognitively intact populations.

Example. Treatment of osteoporosis.
Undertreatment of osteoporosis in persons with dementia?  
A population-based study

Y. Haasum - J. Fastbom - L. Fratiglioni - K. Johnell

Table 2 Odds ratios (ORs) with 95% confidence intervals (95% CIs) for use of osteoporosis drugs

<table>
<thead>
<tr>
<th></th>
<th>Crude ORs (95% CI)</th>
<th>Age- and sex-adjusted ORs (95% CI)</th>
<th>All variables in the model ORs (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole population (n=2610)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (continuous variable)</td>
<td>1.01 (0.99–1.02)</td>
<td>1.00 (0.98–1.01)</td>
<td>1.01 (0.99–1.03)</td>
</tr>
<tr>
<td>Female versus male</td>
<td>5.98 (3.88–9.20)</td>
<td>6.07 (3.93–9.37)</td>
<td>6.24 (4.04–9.64)</td>
</tr>
<tr>
<td>Presence of dementia</td>
<td>0.43 (0.27–0.70)</td>
<td>0.32 (0.19–0.53)</td>
<td>0.34 (0.19–0.59)</td>
</tr>
<tr>
<td>Any osteoporotic fracture</td>
<td>1.28 (0.87–1.89)</td>
<td>1.12 (0.75–1.68)</td>
<td>1.36 (0.90–2.06)</td>
</tr>
<tr>
<td>Living in institution versus own home</td>
<td>0.66 (0.43–1.01)</td>
<td>0.53 (0.34–0.84)</td>
<td>0.82 (0.49–1.36)</td>
</tr>
<tr>
<td>Subpopulation including only persons with MMSE≥10 (n=2,493)¹</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (continuous variable)</td>
<td>1.01 (1.00–1.03)</td>
<td>1.00 (0.99–1.02)</td>
<td>1.01 (1.00–1.03)</td>
</tr>
<tr>
<td>Female versus male</td>
<td>6.40 (4.12–9.94)</td>
<td>6.37 (4.09–9.92)</td>
<td>6.48 (4.16–10.1)</td>
</tr>
<tr>
<td>Presence of dementia</td>
<td>0.40 (0.22–0.74)</td>
<td>0.30 (0.16–0.57)</td>
<td>0.32 (0.17–0.60)</td>
</tr>
<tr>
<td>Any osteoporotic fracture</td>
<td>1.32 (0.87–2.00)</td>
<td>1.12 (0.73–1.73)</td>
<td>1.27 (0.82–1.97)</td>
</tr>
<tr>
<td>Living in institution versus own home</td>
<td>0.74 (0.45–1.21)</td>
<td>0.61 (0.36–1.02)</td>
<td>0.78 (0.46–1.34)</td>
</tr>
</tbody>
</table>

¹ Exclusion of 117 individuals with MMSE<10 (110 persons with dementia and seven persons with either MMSE <10 or missing value)
Community Setting
<table>
<thead>
<tr>
<th>Intervention - Community</th>
<th>Rate of falls</th>
<th>Risk of falling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multicomponent group exercise (16, 22)</td>
<td>RaR 0.71 (0.63-0.82)</td>
<td>RR 0.85 (0.76-0.96)</td>
</tr>
<tr>
<td>Multicomponent home exercise (7, 6)</td>
<td>RaR 0.68 (0.58-0.8)</td>
<td>RR 0.78 (0.64-0.94)</td>
</tr>
<tr>
<td>Tai Chi (5, 6)</td>
<td>RaR 0.72 (0.52-1.0)</td>
<td>RR 0.71 (0.57-0.87)</td>
</tr>
<tr>
<td>Multifactorial interventions (19, 34)</td>
<td>RaR 0.76 (0.67-0.86)</td>
<td>RR 0.93 (0.86-1.02)</td>
</tr>
<tr>
<td>Vitamin D (7, 13)</td>
<td>RaR 1.00 (0.9-1.11)</td>
<td>RR 0.96 (0.89-1.03)</td>
</tr>
<tr>
<td>OT intervention (6, 7)</td>
<td>RaR 0.81 (0.68-0.97)</td>
<td>RR 0.88 (0.8-0.96)</td>
</tr>
<tr>
<td>Vision intervention (1)</td>
<td>RaR 1.57 (1.19-2.06)</td>
<td>RR 1.54 (1.24-1.91)</td>
</tr>
<tr>
<td>Cataract extraction (1)</td>
<td>RaR 0.66 (0.45-0.95)</td>
<td>-</td>
</tr>
<tr>
<td>Bifocal / multifocal glasses (1)</td>
<td>RaR 0.92 (0.73-1.17)</td>
<td>RR 0.97 (0.85-1.11)</td>
</tr>
<tr>
<td>Psychotropic withdrawal (1)</td>
<td>RaR 0.34 (0.16-0.73)</td>
<td>×</td>
</tr>
<tr>
<td>Pharmacy detailing</td>
<td>-</td>
<td>RR 0.61 (0.41-0.91)</td>
</tr>
<tr>
<td>Pacemakers (3)</td>
<td>RaR 0.73 (0.57-0.93)</td>
<td>×</td>
</tr>
<tr>
<td>Podiatry for painful feet (1)</td>
<td>RaR 0.64 (0.45-0.91)</td>
<td>×</td>
</tr>
<tr>
<td>Anti-slip shoe (1)</td>
<td>RaR 0.4 (20.22-0.78)</td>
<td>-</td>
</tr>
<tr>
<td>Increase knowledge/educate /CBT (2,6)</td>
<td>×</td>
<td>×</td>
</tr>
</tbody>
</table>
Vitamin D

- Synthesise vitamin D in the skin
- Convert to 25-OH D in the liver
- Convert to 1,25 di-OH D in kidney

Neurocognitive performance
Nervous tissue
Cardiac benefits
Protective against malignancy
Bone health
Muscle function
Prevents falls

Daily intake – 1,000iu/day
Aim for vit D level >50nmol/L
Consider liquid form especially for people with very low vitamin D levels
Medication Interventions

The Good
- Vitamin D
- Treatments for osteoporosis

Possibly good
- ASBM
- Spironolactone
- Cholinesterase Enzyme inhibitors

The Bad
- Sedative hypnotics
- Antidepressants
- Antipsychotics
- Opiates
- Thiazide diuretics?
Hospital Setting
<table>
<thead>
<tr>
<th>Intervention - Hospitals</th>
<th>Rate of falls</th>
<th>Risk of falls</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General hospital setting</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trained nurse targeting individual fall risk factors (1)</td>
<td>_</td>
<td>RR 0.29 (0.11-0.74)</td>
</tr>
<tr>
<td>Multifactorial interventions (4, 3)</td>
<td>RaR 0.69 (0.49-0.96)</td>
<td>RR 0.71 (0.46-1.09)</td>
</tr>
<tr>
<td>Orthogeriatric MoC (1, 1)</td>
<td>RaR 0.38 (0.19-0.74)</td>
<td>RR 0.41 (0.20-0.83)</td>
</tr>
<tr>
<td><strong>Subacute setting</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exercise (1, 2)</td>
<td>RaR 0.54 (0.16-1.81)</td>
<td>RR 0.36 (0.14-0.93)</td>
</tr>
<tr>
<td>Carpet flooring (1)</td>
<td>RaR 14.73 (1.88-115.35)</td>
<td>RR 8.33 (0.95-73.97)</td>
</tr>
</tbody>
</table>
Falls/1000 OBD - POWH

POW Medical & Surgical Wards Falls/1000 bed days occupied

Falls / 1000 OBDS

Jan-06 Jan-07 Jan-08 Jan-09 Jan-10 Jan-11 Jan-12 Jan-13 Jan-14

Mar May Jul Sep Nov Jan Mar May Jul Sep Nov Jan Mar May Jul Sep Nov Jan Mar May Jul Sep Nov Jan Mar May Jul Sep Nov Jan

2 3 4 5 6 7 8 9
Hypnotic use - POWH

Number of sedatives dispensed per month - POWH

No of tablets dispensed

- Jan-06
- Mar
- May
- Jul
- Sep
- Nov
- Jan-07
- Mar
- May
- Jul
- Sep
- Nov
- Jan-08
- Mar
- May
- Jul
- Sep
- Nov
- Jan-09
- Mar
- May
- Jul
- Sep
- Nov
- Jan-10
- Mar
- May
- Jul
- Sep
- Nov
- Jan-11
- Mar
- May
- Jul
- Sep
- Nov
- Jan-12
- Mar
- May
- Jul
- Sep
- Nov
- Jan-13
- Mar
- May
- Jul
- Sep
- Nov
- Jan-14

Neuroscience Research Australia
Vit D use - POWH

Number of tablets of Vit D dispensed per month - POWH

- No of tablets dispensed
- Number of tablets of Vit D dispensed per month - POWH

Neuroscience Research Australia
Antipsychotic use - POWH

- **POW Med & Surg: mg Haloperidol / mth**
  - Chart showing the use of mg Haloperidol per month from Jan-11 to Jan-14.

- **POW Med & Surg mg Olanzapine / mth**
  - Chart showing the use of mg Olanzapine per month from Jan-11 to Jan-14.

- **POW Med & Surg mg Risperidone / mth**
  - Chart showing the use of mg Risperidone per month from Jan-11 to Jan-14.
# 6-PACK care plan

## Falls Prevention

**The Northern Hospital Modified STRATIFY (TNH-STRATIFY)**


### Risk Assessment

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Circle Scores here on admission + record daily score in-side</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fall: current admission?</td>
<td>Yes, Patient had a fall's during current admission</td>
<td>3</td>
</tr>
<tr>
<td>2. Fall: within 12-months?</td>
<td>Yes, Patient had fall/s in the last 12-months (Check pt info on admission form)</td>
<td>1</td>
</tr>
<tr>
<td>3. Mental State?</td>
<td>Yes, Patient is either confused, agitated, intellectually challenged or impulsive</td>
<td>1</td>
</tr>
<tr>
<td>4. Mobility?</td>
<td>Yes, Patient needs supervision or assistance when mobilising</td>
<td>1</td>
</tr>
<tr>
<td>5. Impaired Balance?</td>
<td>Yes, Patient has impaired balance and/or hemiplegia</td>
<td>1</td>
</tr>
<tr>
<td>6. Age?</td>
<td>Yes, Patient is 60 years or older</td>
<td>1</td>
</tr>
<tr>
<td>7. Toileting?</td>
<td>Yes, Patient is in need of frequent toileting</td>
<td>1</td>
</tr>
<tr>
<td>8. Vision?</td>
<td>Yes, Patient is visually impaired to the extent that everyday function is affected</td>
<td>1</td>
</tr>
<tr>
<td>9. Drug / Alcohol?</td>
<td>Yes, Patient presented with drug / alcohol related problems</td>
<td>1</td>
</tr>
</tbody>
</table>

**Risk Score / Level:** 3 or more = High Risk

### Prevention Strategies:

Please focus on strategies outlined in “Falls” box inside this Care Plan.

---

### Falls

Complete Riskman for each inpatient Fall

Date completed: 1) _________  
2) _________  
3) _________

(Refer to Risk Assessment tool on front page)

Risk Score __ = low / high Risk

- Alert sign above bed
- Hi-Low bed
- Bathroom: **Must** supervise pt
- Bed / Chair Alarm
- Walking aid near patient
- Adhere to toileting regime
- Fall in hosp? → Riskman

- As previous shift
- Altered, as stated below
- As previous shift
- Altered, as stated below

---

Centre of Research Excellence in Patient Safety
Residential Aged Care
### CaHFRiS - CARE HOME FALLS SCREEN

<table>
<thead>
<tr>
<th>Score - Please Circle</th>
<th>(Tick if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MMSE</strong>&lt;br&gt;(See MMSE performed by healthcare professional)</td>
<td>SCORE 16 OR LESS □</td>
</tr>
<tr>
<td><strong>IMPULSIVITY</strong>&lt;br&gt;1. Does the resident tend to be impulsive when moving around? Impulsive means “rushing to carry out an activity without thinking about it first”?&lt;br&gt;Yes = 1&lt;br&gt;No = 0</td>
<td>SCORE 2 OR MORE □</td>
</tr>
<tr>
<td>2. How often does the resident do the following?&lt;br&gt;Try to sit down before getting right up to the chair / toilet / bed&lt;br&gt;Very frequently = 4, Frequently = 3, Often = 2, Occasionally = 1, Never = 0</td>
<td></td>
</tr>
<tr>
<td>Attempt to stand before wheelchair brakes have been applied / footplates moved or walking frame placed in front of them&lt;br&gt;Very frequently = 4, Frequently = 3, Often = 2, Occasionally = 1, Never = 0</td>
<td></td>
</tr>
<tr>
<td>Tries to walk without help when asked not to&lt;br&gt;Very frequently = 4, Frequently = 3, Often = 2, Occasionally = 1, Never = 0</td>
<td></td>
</tr>
<tr>
<td>3. a. Wandering frequency in last week:&lt;br&gt;b. Wandering alterability (Wandering is defined as moving with no rational purpose, seemingly oblivious to needs or safety)&lt;br&gt;Every day = 3, 4-6 days = 2, 1-3 days = 1, not at all = 0&lt;br&gt;Easy altered/not present = 0, not easily altered = 1</td>
<td></td>
</tr>
<tr>
<td><strong>STANDING BALANCE</strong>&lt;br&gt;Please rate the resident's standing balance using the scale</td>
<td>SCORE 5 OR LESS □</td>
</tr>
<tr>
<td>Unable to stand = 1, Requires assistance of 2 to remain standing = 2, Requires assistance of 1 to remain standing = 3, Requires use of walking aid to remain standing = 4, Stands without aid / assistance but unsteady = 5, Stands without aid / assistance steady = 6.</td>
<td></td>
</tr>
<tr>
<td><strong>WALKING FRAME</strong>&lt;br&gt;Does the resident require a walking frame to mobilise?</td>
<td>YES □</td>
</tr>
<tr>
<td><strong>FALL IN THE PREVIOUS YEAR</strong>&lt;br&gt;Has the resident had a fall in the last year?</td>
<td>YES □</td>
</tr>
<tr>
<td><strong>USE OF ANTIDEPRESSANT MEDICATION?</strong>&lt;br&gt;Commonly prescribed antidepressants = Amtriptyline, Dosulepin, Doxepin, Citalopram, Fluoxetine, Paroxetine, Sertraline, Mirtazapine&lt;br&gt; If not sure ask GP for confirmation of any anti depressant prescription</td>
<td>1 OR MORE □</td>
</tr>
<tr>
<td><strong>USE OF HYPNOTIC/ANXIOLYTIC MEDICATION</strong>&lt;br&gt;Commonly prescribed hypnotics/anxiolytics = benzodiazepines such as diazepam, nitrazepam, temazepam as well as Zaleplon, Zopiclone, Zopidem&lt;br&gt;If not sure ask GP for confirmation of any hypnotic/anxiolytic prescription</td>
<td>1 OR MORE □</td>
</tr>
</tbody>
</table>

### TOTAL NUMBER OF RISK FACTORS (circle below)

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6+</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>10%</td>
<td>23%</td>
<td>45%</td>
<td>62%</td>
<td>82%</td>
<td>100%</td>
</tr>
</tbody>
</table>

**CaHFRiS**

*Sherrington et al JAGS 2008*

*Room Number:*<br> *Surname:*<br> *Date of Birth:*
<table>
<thead>
<tr>
<th>Intervention - RACFs</th>
<th>Rate of falls</th>
<th>Risk of falling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercise (8,8)</td>
<td>RaR 1.03 (0.81-1.31)</td>
<td>RR 1.07 (0.94-1.23)</td>
</tr>
<tr>
<td>Vitamin D (5,6)</td>
<td>RaR 0.63 (0.46-0.86)</td>
<td>RR 0.99 (0.90-1.08)</td>
</tr>
<tr>
<td>Multifactorial interventions (7,7)</td>
<td>RaR 0.78 (0.59-1.04)</td>
<td>RR 0.89 (0.77-1.02)</td>
</tr>
</tbody>
</table>

Post hoc analysis suggests that people in intermediate care facilities may benefit from exercise but in high level care the risk may be increased.
Conclusions

- Limited evidence exists to guide practice at present
- Must do the evidence based interventions that are not influenced by cognition
- People with dementia have physiological deficits that are potentially amenable to intervention
- More research is required to demonstrate efficacy