

**Title Page:**

IMPLEMENTATION OF SUSTAINABLE EVIDENCE-BASED PRACTICE FOR THE  
ASSESSMENT AND MANAGEMENT OF PAIN IN RESIDENTIAL AGED CARE  
FACILITIES

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# **IMPLEMENTATION OF SUSTAINABLE EVIDENCE-BASED PRACTICE FOR THE ASSESSMENT AND MANAGEMENT OF PAIN IN RESIDENTIAL AGED CARE FACILITIES**

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Pain is common in residential aged care facilities (RACFs). In 2005, the Australian Pain Society developed 27 recommendations for good practice in the identification, assessment and management of pain in these settings. This study aimed to address implementation of the standards and evaluate outcomes. Five facilities in Australia participated in a comprehensive evaluation of RACF pain practice and outcomes. Pre-existing pain management practices were compared with the 27 recommendations, before an evidence based pain management program was introduced that included training and education for staff, and revised in-house pain-management procedures. Post-implementation audits evaluated the program's success. Aged care staff teams were also assessed on their reports of self-efficacy in pain management. The results show that prior to the implementation program, the RACFs demonstrated full compliance on 6 to 12 standards. By the project's completion, RACFs demonstrated full compliance with 10 to 23 standards, and major improvements towards compliance in the remaining standards. After implementation, the staff also reported better understanding of the standards ( $p < 0.001$ ) or of facility pain management guidelines ( $p < 0.001$ ), increased confidence in therapies for pain management ( $p < 0.001$ ), and increased confidence in their training to assess pain ( $p < 0.001$ ) and recognise pain in residents with dementia who are non-verbal ( $p = 0.003$ ). The results demonstrate that improved evidence

based practice in RACFs can be achieved with appropriate training and education. Investing resources in the aged care workforce via this implementation program has shown improvements in staff self-efficacy and practice.

**Keywords:** Pain management, residential care, long-term care, staff

## INTRODUCTION

In Australia, older people with significant care needs may receive care in Residential Aged Care Facilities (RACFs). Recent figures confirm the frail health status of residents, with over 90% of RACF placements ending with death, 25% within 6 months (Australian Institute of Health and Welfare, 2012). Though prevalence may vary substantially, pain is also common in such settings (Takai, Yamamoto-Mitani, Okamoto, Koyama, & Honda, 2010). Historical research shows that pain has generally been undertreated in RACFs (Husebo et al., 2008), and though research has increasingly highlighted the need for better pain assessment (especially in those with dementia) (Herr, Bjoro, & Decker, 2006), high quality pain recognition and assessment in aged care remains a challenge. Certainly the number of observational pain assessment tools available has increased substantially in the last few years (Lints-Martindale, Hadjistavropoulos, Lix, & Thorpe, 2012).

Pain management in frail elderly can be complicated. Persistent pain management in younger cohorts is acknowledged as challenging and may need a multidisciplinary approach (Main & Spanswick, 2000; Gallagher, 2004). Older populations in RACFs are frailer (Romero-Ortuno & O'Shea, 2013), have more co-morbidities, more complex medication regimes due to other disease processes, and are more prone to certain conditions that have dramatic impact on pain assessment (especially dementia). Therefore it is not surprising that the assessment and management of pain in the elderly is particularly difficult. As such, the involvement and co-ordination of a range of aged care staff are needed for best implementation. Pain management is the responsibility of all aged care staff, from the personal care worker, nurses, to allied health professionals and general practitioners.

To address the additional complexity of pain management in older people living in residential aged care, the Australian Pain Society (APS) developed 27 key recommendations (Gouke et al., 2005). Based on best available evidence, these recommendations encompassed comprehensive good practice in the identification, assessment and management of pain in aged care facilities. Reframed into 27 standards (see Table 1), the recommendations could be used as a framework to assess the level of adherence of RACFs to these standards.

Furthermore, the recommendations were supported with a toolkit that was provided to all Australian RACFs by the Australian Government (Edith Cowan University, 2007; McConigley, Toye, Goucke, & Kristjanson, 2008) and the standards could be used as a basis of an evidence based training and education program that could be deployed in RACFs, improving the knowledge and competency of RACF staff in delivering appropriate and timely pain management.

This project aimed to address implementation of the 27 standards and evaluate outcomes. An audit of pre-existing pain management practices at a number of Australian RACFs was conducted to identify gaps in training and organisational changes needed to implement APS best practice guidelines. An implementation program that included education and training programs was then conducted to improve existing pain management practices and develop new organisational procedures to facilitate improved pain management. Finally a post-implementation audit evaluated the success of the program.

## **METHOD**

This study included the collection of baseline measures, implementation of an intervention to enhance pain management practice, and a repeat of the baseline measures. Ethical approval for the study was obtained from the Alfred Hospital Ethics Committee (VIC), Curtin

University Ethics Committee (WA), Edith Cowan University Ethics Committee (WA), and Queensland University of Technology Ethics Committee (QLD).

## **Subjects**

RACF providers across three Australian states (Queensland, Victoria, Western Australia) were invited to participate in the program during 2008 - 2009. Five facilities were selected to represent a spectrum of RACFs in Australia (high, low or dementia-specific care, small or large bed size facilities, culturally diverse, metropolitan or regional facilities).

## **Procedure**

The first baseline audit involved a comprehensive evaluation of RACF pain practice and outcomes. This evaluation included:

1. Documentation of existing pain management protocols, documented observations of how these were implemented over a four week period, summaries of analgesic use [Medication Quantification Scale (Harden et al., 2005)] and non-pharmacological interventions, and focus group data collected from residents, families, and the staff about existing practices and outcomes.
2. Pain assessments of residents using, when possible, a self-report tool, the Resident's Verbal Brief Pain Inventory (Auret et al., 2008), plus an observational tool [ABBEY Pain scale (Abbey et al., 2004), PAINAD Pain Scale (Warden, Hurley, & Volicer, 2003)], or Non-communicative Patient's Pain Assessment Instrument (Snow et al., 2004).
3. Evaluations of outcomes for residents that were likely to be associated with pain using [measures with well-established satisfactory psychometric properties [Geriatric Depression Scale (Brink et al., 1982), Cohen-Mansfield Agitation Inventory (Cohen-Mansfield, 1991),

Barthel Index (Mahoney & Barthel, 1965), and the Short Form 36 Health Survey (Ware & Gandek, 1994)].

4. A survey of staff self-efficacy in pain management, using a Pain Management Staff Survey developed for the project.

From this evaluation, compliance with the 27 APS recommendations could be assessed. As well as serving as a baseline, this audit also identified evidence based practice gaps to be addressed by the implementation program. Each RACF then underwent the implementation program using a general framework based on the Awareness Desire Knowledge Ability Reinforcement (ADKAR) Change Management Model (Hiatt, 2006) to facilitate changes in practice and policy. The ADKAR is a goal-oriented model that allows change management teams to focus their activities on specific organisational results and can be used to diagnose failure, develop corrective actions and facilitate communication within an organisation. The implementation program aimed to improve the 27 key areas and encompassed four main categories of activities: staff education and training; the establishment of a regular evidence-based pain assessment procedure; the appointment of pain champions / pain team; and the co-ordination of available resources for pain-management. The staff education and training program aimed to provide staff at all levels with the knowledge, understanding, resources and skills needed to sustainably implement evidence-based changes in pain management. The program was tailored to meet the needs identified by the baseline audit and to address staff roles. For example, training for personal care workers emphasised pain assessment methods, training for registered nurses emphasised refining pharmacological pain management strategies, and allied health and other staff received expert training in non-pharmacological approaches to pain management. Though the program was tailored to specific staff roles, all staff received at least some training in all sections of the APS guidelines. The staff also attended lectures / workshops (four x three-hour sessions) and one-on-one ‘on the job’

training sessions (two x half-day sessions), although this was dependent on staff capacity at the time at each facility. The lectures / workshops included content on (i) pain, ageing and dementia, current evidence, and APS guidelines; (ii) usage of pain assessment tools with scenario role-play and / or video examples; (iii) practical application of pain assessment tools and scoring inconsistencies; (iv) pain management practice and treatment options, and (v) summary of changes to pain management practice and staff roles. The Resident's Verbal Brief Pain Inventory (Auret et al., 2008), and either the ABBEY (Abbey et al., 2004) or PAINAD (Warden et al., 2003) for non-verbal residents, were introduced as the recommended tools for evidence-based pain assessment procedures. It was recommended that pain assessments be completed at least every 3 months or more regularly if a problem was detected. Facilities changed policy and procedures to reflect this new practice. 'Pain champions' were appointed at all facilities and received additional training and support. The majority of facilities also established 'pain teams' typically staffed by a combination of clinical managers, pain champions, nurse unit managers, and allied health staff. These teams helped implement the program in practice and performed quality assurance checks. Co-ordination of available pain-management resources included collating pain management articles and resources, developing a list of external pain management contacts, commissioning pain specialists for selected residents with severe, intractable pain, and making available a multidisciplinary pain clinic for individual treatments. A post-program audit was conducted one year after the initial audit and evaluated the effectiveness of the implementation. Likewise, the staff survey was repeated at this time.

### **Data Analysis**

The Staff-self efficacy surveys were recoded from four-point likert items (Strongly Agree, Agree, Disagree, Strongly Disagree) to two-point items (Agree, Disagree). Mann-U non-



parametric tests (2 independent samples) then assessed changing staff attitudes after the implementation program at  $p < 0.05$ .

Table 1 around here

## RESULTS

### **Participation rates**

The audits were exhaustive, with only a minority of residents (or the person responsible on their behalf) refusing to participate. The project achieved a 92% recruitment rate with 365 residents assessed at pre-audit, and 330 residents assessed post-audit. Approximately 250 aged care staff were involved in the implementation program, with 171 staff interviews conducted at pre-audit, and 143 conducted at post-audit.

### **Compliance with APS Guidelines**

As two facilities were co-located, they were treated as one facility for the purposes of the audits. Table 2 shows the level of complete compliance at each facility (A-D) before and after the implementation of the program. All facilities showed an increase in complete compliance, post-implementation (see column: additional compliance). For standards that did not meet complete compliance after the program, facilities still showed significant improvements in approaching the expectations of those standards (see column: approached compliance). Finally, a number of standards showed no improvements after the program (4% to 26% of the standards, based on facility). Three standards that failed to improve and were common to all facilities were: using the Resident's Verbal Brief Pain Inventory for assessment of residents

with cognitive ability, residents not responsive to pharmacotherapy and non-pharmacotherapy should be referred to a pain specialist / clinic, and having an explicit pain management education program for residents and families.

Table 2 around here

### **Staff Efficacy**

Staff were trained in pain identification, assessment and management during the implementation program and interviewed both pre-implementation and post-implementation to determine the effectiveness of the program on staff knowledge and skills. Table 3 outlines the questions that showed the most improvement in self-efficacy and indicates that after implementation of the program, there were significantly better outcomes in pain identification, assessment and management.

Mann-U non-parametric tests showed that Q3: Able to recognise pain in those with dementia or non-verbal residents (Mann U = 11047, p = 0.003) , Q4: Know and understand the Australian Pain Society Guidelines for Pain Management in Residential Care Facilities (Mann U = 7668, p < 0.001), Q5: Know and understand the facility procedures for dealing with pain (Mann U = 10779, p < 0.001), Q6: Happy with the current facility procedures for dealing with pain (Mann U = 11272, p = 0.027), Q9: Have had adequate training to enable me to assess if a resident is in pain (Mann U = 10422, p < 0.001), Q10: Regularly involved in providing treatment for pain (Mann U = 10332, p < 0.006), and Q11: Confident in using a wide range of pharmacological and non-pharmacological therapies for pain management

(Mann U = 8970,  $p < 0.001$ ) were significantly improved after the post-implementation program.

Table 3 around here

## DISCUSSION

### **Compliance with APS Guidelines**

All facilities showed an increase in the number of standards meeting full compliance after the implementation program, with most facilities showing a modest increase (range 7% - 19%). However one facility increased complete compliance by 63%, illustrating that the program can demonstrate impressive improvements in compliancy. Though most facilities did not show such dramatic increases in complete compliance after the program, they did show significant improvements in meeting the expectations of each standard (ranging from 22% to 41%). By the project's completion, all RACFs demonstrated either full compliance or approaching compliance on an additional 8 to 20 of the 27 standards. That is, facilities showed somewhere between a one-third to two-third improvement in compliance to the APS recommendations.

Some of the standards that showed improvements in compliance were common to all facilities. This would suggest that the implementation program is particularly successful at instigating change in key areas, irrespective of the idiosyncrasies of the individual facilities. Improvements in pain identification was one key area that showed increased compliance after the implementation program, particular in regards to standards regarding asking verbal

residents regularly to report pain, and standards that focused on considering pain if there is a significant change in a resident's condition and routinely every 3 months.

There were also a few standards at each facility that showed no improvements after the program. This suggests a number of standards were difficult to address through the implementation program. There were 3 standards common to a majority of the facilities that were particularly problematic. The standard using the Resident's Verbal Brief Pain Inventory (RVBPI) as an assessment tool for residents with cognitive ability was not a standard adopted by the majority of RACFs pre-program, and was only adopted by half the facilities after the program. This may in part be due to an RACF's policy to only adopt tools that are consistent with other RACFs of the same provider. The standard where residents not responsive to pharmacotherapy and non-pharmacotherapy should be referred to a pain specialist or pain clinic was either not complied with pre-program or to only a limited extent. Post-program, only one facility had improved their compliance. In this instance, GP barriers or limited services (particularly due to regional access) were cited as problems. Engaging general practitioners to modify pharmacological treatments when the aged care staff felt that they were indicated was also seen as a recurring challenge. Finally the standard of an explicit pain management education program for residents and families was a problem for all four facilities pre-program. After implementing the program, only one facility had complied, and with little improvement shown in the other facilities.

Despite some standards failing to improve, the overall success of the implementation program highlights the effectiveness of the program in instigating meaningful improvement in standards along APS best practice. The program suggests that different models of training are appropriate when tailored based on the role, qualifications and education of the aged care staff being trained. The engagement of GPs and allied health professionals was also seen as critical to a successful pain management outcome. To ensure improved and ongoing pain

management practice in RACFs, any changes implemented must be embedded in routine clinical care. That is, changes to pain assessment and management should be realistic in whether they can be implemented as part of standard daily care, especially considering the milieu of aged care with high staff turn-over and limited staffing capacity.

### **Self-Efficacy**

After implementation of the program, there was significantly better staff self-efficacy in pain identification, assessment and management. Staff reported a better understanding of the APS pain management guidelines ( $p < 0.001$ ) and facility procedures for pain management ( $p < 0.001$ ), post-implementation. This directly addresses standards related to structured procedures being in place for staff to observe and document known kinds of pain-related behaviours in all residents, standards related to structured procedures being used to identify the cause of pain, and standards in regards to the RACF having explicit pain assessment / management policies in line with APS guidelines. After the program, staff also expressed an increased confidence in using a wide range of pharmacological and non-pharmacological pain therapies ( $p < 0.001$ ), which addresses the pain management section of the guidelines. This standard also showed considerable improvement in full compliance post-implementation, with half of the facilities meeting full compliance. Finally, staff also indicated an increased belief that they had adequate training to assess pain in residents ( $p < 0.001$ ) and showed an increased confidence in their ability to recognise pain in residents with dementia / non-verbal ( $p = 0.003$ ). This impacted on pain identification and assessment areas, and addressed standards related to the use of structured procedures to identify the cause of pain, the use of the RVBPI as the pain assessment tool for residents with sufficient cognitive ability (though facilities failed to improve their compliance with this standard), and that the Abbey Pain Scale is used as the pain assessment tool for residents with severe cognitive impairment.

## CONCLUSION

At the start of the project, 27 evidence based guidelines were compiled and evaluated at each participating RACF. Prior to the implementation program, the RACFs demonstrated full compliance on relatively few of the 27 standards. All RACFs demonstrated major improvements in compliance by the conclusion of the project, although levels of compliance differed across standards and several standards were particularly challenging to adopt into practice. Overall, this is a very positive outcome for the educational and training initiative and provides clear and unequivocal evidence that best evidence based practice in residential aged care is achievable when appropriate training and resources are provided to the aged care workforce. Further attention to the continued training of aged care staff is likely to yield improved care for residents and a more engaged and committed workforce.

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**Table 1: 27 standards of good practice in the identification, assessment and management of pain in residential aged care facilities (RACF), based on Australian Pain Society (APS) guidelines:**

- RACF demonstrates a pain vigilant culture,
- Residents (if able) are regularly asked about their pain,
- Structured procedures to identify pain when resident unable to report pain,
- Structured staff procedures to document pain-related behaviours,
- Consider pain if a significant change in the resident's condition, and every three months,
- Resident / person responsible involved in pain assessment and management,
- Multidisciplinary collaboration between doctors, nurses, physiotherapists and other staff for pain assessment and management,
- Structured procedures to identify the causes of pain,
- New acute or remediable persistent pain diagnosed promptly and treated,
- Resident's Verbal Brief Pain Inventory (RVBPI) used for pain assessment of residents with cognitive ability,
- Abbey Pain Scale used for pain assessment of residents cognitively impaired,
- Residents with partial capacity to report are assessed with RVBPI and Abbey Pain Scales,
- Both at rest and movement-based periods are included in observational pain measures,
- Uni-dimensional pain assessment used to continue monitoring pain and treatment response after comprehensive assessment,

- Both pharmacological & non-pharmacological treatment therapies in pain management plans,
- Pharmacological treatments are based on a diagnosis where possible and consider co-existing medical conditions,
- Medications tailored for pain type and severity,
- Around the clock analgesic medication for residents with persistent pain,
- Residents who fail to respond to treatment and still distressed by pain are considered for referral to a pain medicine specialist or multi-disciplinary pain clinic,
- RACF has explicit pain assessment / management policies along APS guidelines,
- RACF has explicit facility plans for assessing resident / family satisfaction,
- RACF has pain management quality improvement processes,
- Explicit pain management education program for residents and families,
- Systematic pain management education program for all staff,
- RACF has an interdisciplinary pain management team,
- Access to appropriate multidisciplinary treatment methods and personnel,
- RACF has integrated multidisciplinary treatment protocols.

**Table 2: Number of Standards and Percent Compliant with 27 APS guidelines, pre- and post- implementation program.**

	Pre-Program Compliance	Additional Compliance	<b>Post-Program Compliance</b>	Approached Compliance	Showed no improvement
Facility A	7 (26%)	+3 (11%)	<b>10 (37%)</b>	11 (41%)	6 (22%)
Facility B	12 (44%)	+2 (7%)	<b>14 (52%)</b>	6 (22%)	7 (26%)
Facility C	11 (41%)	+5 (19%)	<b>16 (59%)</b>	8 (30%)	3 (11%)
Facility D	6 (22%)	+17 (63%)	<b>23 (85%)</b>	3 (12%)	1 (4%)

Notation: x (y%) = number of standards (percentage of standards)

**Table 3: Staff self-efficacy in pain management at Time 1 and Time 2.**

\*p < 0.05; \*\*p < 0.01; \*\*\*p < 0.001.

	Time 1 n (%)	Time 2 n (%)
<b>Q1. Confidence in pain management skills</b>	n=166	n=142
Agree	158 (95%)	140 (99%)
<b>Q2. Able to recognise when a resident is experiencing pain</b>	n=170	n=143
Agree	166 (98%)	142 (99%)
<b>Q3. Able to recognise pain in those with dementia or non-verbal Residents **</b>	n=170	n=142
Agree	152 (89%)	139 (98%)
<b>Q4. Know and understand the Australian Pain Society Guidelines for Pain Management in Residential Care Facilities ***</b>	n=167	n=142
Agree	88 (52%)	129 (88%)
<b>Q5. Know &amp; understand facility procedures for dealing with pain***</b>	n=170	n=143
Agree	146 (86%)	139 (98%)
<b>Q6. Happy with current facility procedures for dealing with pain *</b>	n= 169	n=142
Agree	154 (91%)	138 (98%)
<b>Q7. Know who to tell if noticing a resident is in pain</b>	n=170	n=143
Agree	170 (100%)	142 (99%)
<b>Q8. If noticing a resident is in pain, will always report this to the appropriate person</b>	n=170	n=143
Agree	168 (99%)	143 (100%)
<b>Q9. Have had adequate training to enable me to assess if a resident is in pain ***</b>	n=170	n=142

Agree	142 (84%)	138 (97%)
<b>Q10. Regularly involved in providing treatment for pain **</b>	n=167	n=142
Agree	122 (73%)	122 (86%)
<b>Q11. Confident in using a wide range of pharmacological and non-pharmacological therapies for pain management ***</b>	n=160	n=140
Agree	103 (65%)	118 (84%)
<b>Q12. Believe that the treatments provided for pain are effective</b>	n=170	n=143
Agree	161 (95%)	133 (93%)