TITLE: Prevention of physical restraint use among nursing home residents in Australia: the top three recommendations from experts and stakeholders

RUNNING TITLE: Recommendations to reduce physical restraint

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CONFLICT OF INTEREST

The authors have no potential financial or personal interest that may constitute a source of bias.

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TITLE: Prevention of physical restraint use among nursing home residents in Australia: the top three recommendations from experts and stakeholders

ABSTRACT

OBJECTIVE: To develop and prioritise recommendations to prevent the use of physical restraints among nursing home residents.

METHODS: This study comprised two expert and stakeholder consultation forums using a modified nominal group technique and a follow up electronic survey to rank the final set of recommendations.

RESULTS: There were fifteen recommendations formulated to prevent the use of physical restraint among nursing home residents. The three recommendations ranked as most important were that: a single definition be mandated for describing 'physical restraint'; use of physical restraint acts as a trigger for mandatory referral to a specialist aged care team and; nursing home staff profile and competencies are appropriate to meet the complex needs of residents with dementia and obviate the need to apply physical restraint.

CONCLUSIONS: Future studies should investigate the feasibility of implementing these recommendations and whether the proposed interventions reduce use of physical restraint.

KEY WORDS: Physical restraint; nursing homes; recommendations; prevention

SUMMARY STATEMENT OF IMPLICATIONS FOR PRACTICE

What does this research add to existing knowledge in gerontology?

- Fifteen recommendations to prevent physical restraint use were developed to introduce initiatives at the national policy, as well as, carer-resident level in the nursing home.
- Recommendations to prevent physical restraint use in nursing homes were ranked by experts in geriatric medicine, nursing and health care according to perceived importance, feasibility and impact.
- Consensus recommendations add new value to the physical restraint research by making the content more applicable and relevant to different stakeholders.

What are the implications of this new knowledge for nursing care with older people?

- Implementation of recommendations to prevent the use of physical restraint may assist nursing home staff, providers and policy makers to deliver improved care that is more aligned with contemporary views of human rights.
- Leadership from nursing professionals in research, policy and practice is essential if the multi-pronged approaches to reducing harm from use of physical restraint is to be successful.

How could the findings be used to influence policy or practice or research or education?

- New recommendations about preventing the use of physical restraint are valuable because they could be translated into policy and care standards that are monitored and enforced.
- Education programs targeting nursing staff attitudes and knowledge about physical restraint use, and alternatives to use, can be developed to reduce the moral conflict of staff regarding physical restraint use.

- Further research should focus on testing the efficacy of the proposed interventions in preventing physical restraint use in nursing home residents.

INTRODUCTION

Reducing the use of physical restraints on nursing home residents is a public policy priority (Flaherty, 2004). However, achieving this goal remains challenging because of the wide spread and incorrect perception that physical restraints improve resident safety (Evans & FitzGerald, 2002). Historically, nursing staff felt the necessity to use physical restraints to guarantee the residents' safety; control resident behaviour whilst fulfilling other tasks; or to protect themselves from perceived harm or risk of liability (Ralph & Gabriele, 2014). Empirical evidence demonstrates that physical restraints cause premature death (Bellenger,

Ibrahim, Lovell, & Bugeja, 2017) as well as other serious physical (Engberg, Castle, & McCaffrey, 2008) and psychological harms (Gastmans & Milisen, 2006) such as falls and cognitive decline. The impact of physical restraint on residents extends well beyond direct injury and death. The more likely negative consequence of restraint is its immobilising effects. It also represents sub-optimal care in that staff are not employing other evidence-based interventions to address the risk of falls or behavioural and psychological symptoms of dementia.

While efforts are focused on developing a universal definition of physical restraint (Bleijlevens, Wagner, Capezuti, & Hamers, 2016) to improve international generalizability, what constitutes physical restraint varies between countries. Traditionally, physical restraints have been defined as *“any action or procedure that prevents a person’s free body movement to a position of choice and/or normal access to his/her body by the use of any method, attached or adjacent to a person’s body that he/she cannot control or remove easily* (Bleijlevens et al., 2016).” Restraining devices include wrist restraints, abdominal and pelvic straps, vests or bed rails to name a few. The conceptual model for restraint in Australia does not include or consider that locked doorway exits as a form of physical restraint.

In Australia, ‘nursing homes,’ often referred to as care homes in the UK or long term care in North America, provide permanent and respite residential care to people who can no longer be supported living in the community (Sanford et al., 2009). Residents are predominantly female, aged over 80 years, and 60% have a diagnosis of dementia (Australian Institute of Health and Welfare, 2011). Although there is a growing support to reduce and eliminate physical restraint use, there is wide variation governing the use of restraint in Australian nursing homes. Another challenge is the lack of any publicly accessible data on the rates of use of restraint in persons with dementia. International efforts to reduce restraint use vary and can be considered as a continuum; with countries in different stages moving from accepting to, mitigating and finally to eliminating use of restraint. This is reflected in part by the maturity of national policies and regulation; the nature of clinical practice and; mechanisms to evaluate and reinforce a restraint free approach. For example in Germany, legislation clearly requires that residents have free body movement yet the prevalence of

physical restraint use in German nursing homes is as high as 58% (Meyer, Köpke, Haastert, & Mühlhauser, 2009.) A reason for this may be nursing staffs' lack of knowledge about the alternatives to using physical restraints (Ralph & Gabriele, 2014).

A systematic review identified five studies investigating interventions to reduce physical restraint use in nursing homes (Möhler, Richter, Köpke, & Meyer, 2011). In all the studies, the intervention comprised an educational programme aimed at changing nurses' attitudes towards restraint, as well as providing information about use of restraint and alternative options. A recent Cochrane review evaluating these educational interventions found insufficient evidence to support their effectiveness in reducing the use of physical restraints (Möhler, Richter, Köpke, & Meyer, 2012). More recent evidence of successful reduction efforts in use of restraints is evident from several countries which utilized a multi-component approach, including governmental mandates (exemplified by the USA) and administrative support through institutional policy and the provisions of alternatives (Köpke et al, 2012).

Another source of information about potential interventions is from medico-legal death investigations conducted by Coroners or medical examiners. Surprisingly, given the growing role of Coroners to recommend strategies to improve public health and safety (Kennedy, Ibrahim, Bugeja, & Ranson, 2014) there are few Coroners' recommendations in the reported cases of physical restraint-related deaths among nursing home residents (Office of the Chief Coroner for Ontario, 2013). In the absence of consistent empirical research evidence and a lack of incident investigations by experts about efficacious interventions to reduce restraint use, consensus recommendations are useful (Black et al., 1999; World Health Organization, 2003). Consensus recommendations add new value to the physical restraint research by making the content more applicable and relevant to different stakeholders.

AIM

This research developed recommendations intended to reduce and prevent the use of physical restraints among nursing home residents and ranked the recommendations according to perceived importance, feasibility and impact.

METHOD

Study design

This study used grounded theory methods, comprising two expert consultation forums using a modified nominal group technique (Gallagher, Hares, Spencer, Bradshaw, & Webb, 1993) and a follow up survey using a modified Dillman protocol (Da, 1978) (Figure 1). The study was conducted and reported in accordance with the consolidated criteria for reporting qualitative studies (COREQ) (Supplementary Table 1) (Tong, Sainsbury, & Craig, 2007).

>> **Figure 1** <<

Ethics

This study was approved by the Victorian Institute of Forensic Medicine Research Advisory Committee (RAC003/16) and the Department of Justice Human Research Ethics Committee (CF/13/8187). All participants were provided a plain language information form with their e-mail invitation that stated their participation in the forums would be taken as informed consent.

Participant selection

Participants were purposively sampled from metropolitan and regional Victoria and Queensland, Australia, and identified through the research team's existing network of contacts in aged care, policy, research and clinical practice. Participants were approached via email and did not receive payment for their attendance. Details of sample size and those who did not agree to participate can be found in Figure 1.

Setting

Each forum was held in central Melbourne, over a two-hour period with refreshment breaks. Forum #1 was held in June 2016, followed by Forum #2 in August 2016. The forums comprised exclusively of participants and the research team.

Researcher, facilitator and reflexivity

The primary researcher (EB) and an experienced external facilitator led the forums. Both researcher and facilitator were female; tertiary educated and involved in health care, working as a medical student and occupational therapist respectively. Prior to the forums, participants received an email outlining that the researcher was completing this study for

her MBBS Honours project, but no formal relationships were established between researcher and participants prior to study commencement.

Data collection and analysis

Data was collected and analysed throughout three rounds: 1) a structured exploratory forum of themes and ideas within six domains (Figure 1); 2) structured validation forum of draft recommendations (Supplementary Table 2); and 3) follow up electronic survey to prioritise the recommendation. This process is detailed in Figure 1 and Table 2. Both forums were recorded on an audio device and two researchers (EB, BK) recorded field notes throughout the forums. Data saturation was achieved over the two rounds. Participants were able to provide feedback on the recommendations from forum#1 in forum#2. Following forum#2 the final list of recommendations were disseminated to participants via email for comment.

Survey responses were exported from SurveyMonkey into a Microsoft Excel spreadsheet for descriptive analysis. A weighted arithmetic mean was calculated to determine the overall consensus of participants' responses to each statement. This was calculated by summing the allocated score to each response (Strongly agree=5; Agree=4; Neutral/Not sure=3; Disagree=2; Strongly disagree=1) and dividing the total by number of respondents for each question. A weighted total was calculated to determine the rank order (1st most important=3 points; 2nd most important=2 points; 3rd most important=1 point).

RESULTS

Participant characteristics

Fifteen participants (ten female) took part in the expert and stakeholder consultation forums. The first forum comprised seven experts in the fields of aged care, geriatric psychiatry and risk management. The second forum comprised three experts from the first forum in conjunction with eight representatives from key stakeholder organisations in the aged care sector. Both forums included four members of the research team and an experienced external forum facilitator who were considered non-participants in the study. Of the fifteen participants, ten (66.6%) responded to the survey (five were female). The survey respondents' duration of experience in aged care sector ranged between 1-40 years (median 17.5, IQR 9-30). Of the nine participants who self-reported their profession, these

were: manager (n=3), nurse (n=2), geriatric psychiatrist (n=1), academic (n=1), consumer advocate (n=1) and retired (n=1).

Recommendations overview

Fifteen recommendations to prevent the use of physical restraints were finalised following Forum Two. Six were to achieve a restraint free environment; five related to the use of restraint when there are no viable alternatives; and four concerned the reporting processes of physical restraint use and adverse events. The full text of the 15 recommendations is shown in Table 1 the process of recommendation development is shown in Table 2. The final set of recommendations were also emailed to over 300 agencies and individuals with an interest in the care of nursing home residents and opened for public consultation over a two-month period. The complete report presenting the rationale and barriers to implementation of each recommendation was published in November 2017. This communication summarises the key recommendations ranked by participants as being the most important for implementation.

>> **Table 1** <<

>> **Table 2** <<

Prioritized recommendations

The three most important recommendations for implementation, ranked out of a maximum weighted total of 30 (Supplementary Table 3), were:

1. Rec 1.1 Single definition be mandated describing physical restraint (weighted total=15).
2. Rec 2.4 Use of physical restraint acts as a trigger for mandatory referral to a specialist aged care team (weighted total=13).
3. Rec 1.6 Nursing home staff profile and competencies are appropriate to meet the complex needs of residents with dementia and obviate the need to apply physical restraint (weighted total=10).

Recommendation 1: Single definition (1.1)

Panelists reached consensus about the need to formulate a single definition of physical restraint that is applied universally. Participants supported the recommendation as being the most important for implementation because of the need to accurately understand when restraint policies should apply and to “*prevent insidious methods of restraint being ignored.*” Panelists also stated that a universal definition of what constitutes physical restraint would enable consistent reporting and comparability across studies.

The majority of survey participants (80%) 'agreed' or 'strongly agreed' a universal definition will contribute to reducing physical restraint use; and that this recommendation will contribute to improved care provision in nursing homes. All participants supported this recommendation in principle and 70% either 'agreed' or 'strongly agreed' this recommendation is capable of being implemented in an effective manner (see Supplementary Table 4).

Half (50%) of participants believed the timeframe for implementation would be 1-3 years.

The group most commonly selected as responsible for implementation of this recommendation was regulatory and professional bodies (see Supplementary Table 4).

Recommendation 2: Mandatory specialist referral (2.2)

That the use of physical restraint on a nursing home resident should prompt mandatory referral to a specialist aged care team was prioritized as the second most important recommendation for implementation. The aim of specialist team input is to review the resident's care plan and subsequently develop management strategies that do not involve the use of physical restraints. One participant stated, "*specialist input would legitimize the request for restraint*" as participants felt that physical restraint is often utilised as a "*convenience rather than a necessity.*" Participants expressed that behavioural disturbances can often be managed pharmacologically or by attending to unmet needs of the resident. All participants either "strongly agreed" or "agreed" that they supported the recommendation in principle and that this recommendation is supported by scientific evidence or professional consensus. Majority of participants (77%) at least agreed that this recommendation is capable of being implemented and that doing so would contribute to a reduction in physical restraint use.

Less than half of participants (44%) believed this recommendation could be implemented within 12 months, with remainder of participants selecting 1-3 years (33%) or 3-5 years (22%). The group most commonly selected as responsible for implementation of this recommendation were aged care providers (see Supplementary Table 4).

Recommendation 3: Appropriate staff profiles (1.6)

That the nursing home staff profile and competencies are appropriate to meet the increasingly complex needs of residents with dementia was prioritized as the third most important recommendation for implementation. One participant stated, "*this recommendation not only benefits residents by reducing restraint, but also minimizes stress*

and guilty on staff by providing them with alternate options to restraint.” Participants also expressed that some form of dementia specific training should be mandatory in staff training.

The majority of participants (90%) either ‘strongly agreed’ or ‘agreed’ that this recommendation is supported by evidence and that it would contribute to improved care provision for nursing home residents. All participants either ‘strongly agreed’ or ‘agreed’ that the support this recommendation in principle, however the majority (60%) were ‘neutral/not sure’ that this recommendation is capable of being implemented in an effective manner.

Half of the participants (50%) selected 3-5 years as the timeframe for the recommendation to be implemented. Two participants (20%) selected that this recommendation is not capable of being implemented at all. The group most commonly selected being responsible for implementation of this recommendation was aged care providers (see Supplementary Table 4).

DISCUSSION

Expert and key stakeholders developed 15 recommendations to introduce initiatives at the national policy level as well as at the carer-resident level in the nursing home. Three were determined as high priority. The need for a ‘*universally legislated definition*’ was ranked as the most important recommendation to be implemented. This was somewhat surprising because past studies examining the reduction of restraint use have focused predominantly on nursing staffs’ attitudes and perceptions towards restraints (Hamers, 2015) as well as viable alternatives to physical restraint (Bleijlevens et al., 2016). Internationally there are widely accepted definitions of physical restraint. In Australia there is not a single legislated national definition and thus in nursing homes this creates variation in how the term is interpreted. It is preferable that nursing homes be required to use the same definition of physical restraint. Without a standard national definition accurately reporting the use of physical restraints will always be problematic. Bleijlevens and colleagues (Bleijlevens et al., 2016) support the importance and feasibility of implementing a legislated definition of physical restraint. They report that an internationally accepted definition of physical restraint would not only allow nursing home staff to more accurately understand when

restraint policies should apply, but would also benefit clinical research by facilitating consistent comparisons between studies (Bleijlevens et al., 2016).

The recommendation ranked second was the *'use of physical restraint to act as a trigger to mandatory referral to a specialist aged care team.'* One of the reasons that physical restraints are applied is to manage impulsive behaviours, including behavioural and psychological symptoms of Dementia (BPSD) (Foebel et al, 2016). Residents exhibiting BPSD should be referred to a specialist aged care team for assessment and subsequent development of management strategies that do not involve the use of physical restraints. Such strategies do exist, with evidence that the careful and judicious use of antipsychotics is appropriate for BPSD management (Azermai et al., 2012) as are non-pharmacological interventions that aim to address the unmet needs of residents such as boredom, sensory stimulation or relaxation (Cohen-Mansfield, 2013; Sung, Chang, Lee, & Lee, 2006). The feasibility of this recommendation depends on the availability of specialist services and configuration of aged care and health care in each country. In Australia there are two potential approaches. The first is the availability of a recent government funded national clinical program, the Severe Behaviour Response Team, a mobile workforce unit comprised of a multi-disciplinary team who provide timely expertise to address the needs of people with severe BPSD (Dementia Australia, 2018). The more common approach would be to coordinate a multi-disciplinary team with health care professionals being drawn from the catchments mental health and hospital geriatric medicine services.

'That staff profiles and competencies be appropriate to meet the needs of residents with dementia' was the third most important recommendation. Given that staff education and training was predominant among the major themes that emerged in Forum One, it was not surprising that this recommendation was so highly ranked. Most participants considered this recommendation was supported by evidence, however a recent Cochrane Review evaluating interventions to reduce physical restraint use did not find convincing evidence for the efficacy of educational approaches alone (Möhler, Richter, Köpke, & Meyer, 2012). Despite evidence that education of staff alone is not effective, it may have merit when used in conjunction with a multi-component approach. Köpke, Mülhauser and Gerlach (2012) demonstrated a 6.5% reduction in physical restraint use within nursing homes after 6

months post implementing both a detailed guideline and theory-based multicomponent interventions.

Strengths and limitations

To our knowledge, this is the first set of recommendations generated for the prevention of physical restraint use in aged care services in Australia. These recommendations add new value to research into physical restraint as they are context-specific and generalizable internationally.

This study used a recognized method to allow for a broad range of ideas to be generated and data saturation was achieved. Participants were purposively sampled to ensure a diverse range of backgrounds and views were represented; however, the potential for selection bias cannot be excluded.

This study assessed perceived feasibility for implementation of the recommendations. This is perhaps the most important factor to consider when new recommendations are developed. For any intervention to be worthy of testing for efficacy, it must first be considered feasible (Bowen et al., 2009). The top two ranked recommendations scored more highly than the others on being capable of implementation.

The national data about use of restraint provided to stakeholders prior to the forum included situations where only deaths had occurred due to physical restraint. Given this most severe and dramatic outcome, it may have influenced their prioritisation and the nature of the recommendations. For example, the stakeholders may have been more ready to mandate and select more extreme interventions in an effort to address the issue that if presented with situations where restraint use had resulted in less visible and minimal physical harm.

Future studies should continue to investigate the specific individual components of feasibility such as acceptability, practicality, demand and integration (Bowen et al., 2009).

The ultimate test is trialing the recommendations in practice to determine if implementation does reduce harm. It is encouraging that internationally some countries are well advanced in reducing restraint use in comparison to Australia. It is essential that those with successful experiences publish and promote this to assist others to attain these same advances.

Implications and conclusions

Implementation of these recommendations may assist nursing home staff, providers and policy makers to deliver improved care to patients more aligned with contemporary views of human rights. Although new recommendations do not automatically lead to change in practice, they are valuable because they could be translated into policy or care standards that are monitored and enforced. The next step is to test the efficacy of the interventions in a research setting (Bugeja, McClure, Ozanne-Smith, & Ibrahim, 2011) followed by the arduous task of implementation. This process begins with the effective communication between researchers and practitioners (Bugeja et al., 2011).

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Table 1: List of final recommendations developed through expert and stakeholder consultation forums

#	Recommendation
1. Achieving a restraint free environment	
1.1.	That there is a single definition of physical restraint that is legislated so it is used universally to ensure a common understanding between aged care, health care professionals and providers about when physical restraint policy and protocols should apply.
1.2.	That nursing homes should focus on and be supported in, sustaining a person-centered care approach that respects the human rights of each resident.
1.3.	That policies and practice reflect that any behavioural symptoms exhibited by residents with dementia should act as a trigger for direct care staff to assess and consider whether there are any unmet needs of the resident.
1.4.	That the construction of new nursing homes adhere to specific building guidelines about structural design to promote a dementia-enabling environment; and that any refurbishment of existing homes also adhere to such guidelines.
1.5.	That any clinical handover between health and aged care providers follow a standardized approach to ensure optimal communication that enables an effective multidisciplinary approach to manage residents with dementia.
1.6.	That the nursing home staff profile and competencies are appropriate to meet the increasingly complex needs of residents with dementia and obviate the need to apply physical restraint.
2. When there are no viable alternatives to physical restraint	
2.1.	The application of physical restraint should only occur in extremely limited circumstances. The process should involve at least two health professionals and requires clearly documenting the reasons for use, duration of use, outcome of restraint and any adverse events that occur.
2.2.	All nursing homes should have a physical restraint policy that promotes alternative approaches and if restraint must be used, it is defined within the parameters of this policy.
2.3.	That informed consent is obtained from the resident and/or their appointed substitute decision-maker prior to any physical restraint application, and that this is documented.
2.4.	That use of physical restraint acts as a trigger for mandatory referral to a specialist aged care team to review the resident's care plan and identify strategies that eliminate or reduce the use of physical restraint.
2.5.	Physical restraint is instituted and monitored only by staff who have received formal training and been assessed to demonstrate competency in this intervention.
3. Reporting of restraint use and when adverse events occur	
3.1.	That a national, systematic and coordinated approach be taken to improve identification,

investigation, analysis and reporting of adverse events involving physical restraints among nursing home residents.

3.2. At the time consent is obtained, residents and family members should be provided with education about how and where to lodge any concerns and complaints related to the use of physical restraint.

3.3. That a national standardized and, co-ordinated approach to the investigation of all deaths of a nursing home resident while in a physical restraint is required.

3.4 That if a resident dies within seven days of being in any form of physical restraint, that this triggers investigation into the cause of death.

Table 2: Evolution of recommendations from Round 1 to Round 3

Domain	Themes	Round 1	Round 2
		Draft Recommendations	Final Recommendations
Legislation and Policy	- Regular monitoring	D1.1 Legislated definition	1.1 Legislated definition
	- Universal definition legislated*	D2.1 Mandatory specialist referral	1.2 Person-centered approach
	- Specific restraint training linked to accreditation*	D2.2 Restraint training	1.3 Behaviour triggers review
	- Building guidelines	D3.1 Reporting adverse events	2.1 Limited restraint use
	- Restraint use triggers referral to specialist teams*		2.2 Physical restraint policies
	- Restraint policies		2.4 Mandatory specialist referral
			3.1 Reporting adverse events
Physical Environment	- Building guidelines to promote dementia-friendly environments*	D1.2 Dementia friendly environments	3.3 Standardized death investigation
	- Open spaces for ease of observation	D1.3 Building guidelines	3.4 Restraint deaths investigated
	- Non slip flooring, adequate lighting, familiar environments		
Health Sector	- Clearer guidelines regarding restraint use	D1.6 Handover of information	1.4 Building guidelines
	- Improved culture of information sharing		
	- Timely referrals and discharge summaries		
	- Compatible software to enable ease of transmission of notes between providers		
Technology	- Using CCTV for supervision of restrained residents		1.5 Clinical handover

	<ul style="list-style-type: none"> - Motion sensors on residents - Use of technology to engage residents in meaningful activities - Sensors on restraint that indicate suspension, movement and/or monitoring of vital signs 		
Community	<ul style="list-style-type: none"> - Public campaigns about use of physical restraint and elder abuse - Empower families to say no to restraint* - Awareness of where complaints can be made 	D1.4 Improved public awareness	2.3 Informed consent 3.2 Lodging concerns and complaints
Staff	<ul style="list-style-type: none"> - Staff training in alternative methods to physical restraint - Improved training in dementia care from providers* - Increased education and understanding about the risks of restraint* - Reduced work load away from patients ("specialing") - Improved staff to resident ratios - Mandatory documentation for family with one-on-one sessions 	D1.5 Dementia training D1.7 Inform families of restraint risk D2.3 Less workload when caring for resident who is restrained	1.6 Appropriate staff competencies 2.5 Use by competent staff only

Key legend:* = Major themes, flagged as most important by participants *Refer to Supplementary Table 2 for full list of draft recommendations, and Table 1 for final recommendations.*

FIGURES/TABLES

Figure 1. The modified nominal group technique process used for this study

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