

Improving the Management of Severe Behavioural and Psychological Symptoms of Dementia (BPSD) in Hospitals

Impact of Challenging Behaviour
Associated with Dementia and BPSD
in Victorian Health Services

Final Online Report

Prepared by:

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ABBREVIATIONS

ACAS	Aged Care Assessment Service
AD	Alzheimer's Disease
AH	Allied Health
AHA	Allied Health Assistant
AIHW	Australian Institute of Health and Welfare
ANUM	Associate Nurse Unit Manager
CGA	Comprehensive Geriatric Assessment
DH	Department of Health
ED	Emergency Department
GEM	Geriatric Evaluation and Management
GP	General Practitioner
HREC	Human Research Ethics Committee
LOS	Length of Stay
NARI	National Ageing Research Institute
NUM	Nurse Unit Manager
OH&S	Occupational Health and Safety
OT	Occupational Therapist
OVA	Occupational Violence and Aggression
PAC	Post-Acute Care
PD	Parkinson's disease
RACF	Residential Aged Care Facility
REDCap	Research Electronic Data Capture
SRS	Supported Residential Services
SSA	Site Specific Authorisation
VAHI	Victorian Agency for Health Information
VHIMS	Victorian Health Incident Management System

EXECUTIVE SUMMARY

Hospitals are known to be challenging places for people with dementia. Numerous physiological and psychosocial factors associated with being acutely unwell, combined with an unfamiliar and often unsuitable physical and social environment, can exacerbate symptoms of dementia. These new or changing symptoms can be difficult to manage, cause significant distress to patients, family members, staff and other patients, may result in harm to people with a dementia diagnosis or to others, and result in increased morbidity and mortality.

This study of the impact of challenging behaviours associated with dementia and BPSD forms part of a larger project titled *'Improving the Management of Patients with Severe Behavioural and Psychological Symptoms of Dementia (BPSD) in Victorian Hospitals'* conducted by the National Ageing Research Institute (NARI) on behalf of the Victorian Department of Health (DH). The results from all components of the project will help to inform service delivery and the development of a best practice model of care for patients with BPSD in Victorian public hospitals.

The aim of this project component was to identify the presence and impact of challenging behaviour associated with dementia and BPSD in Victorian hospitals. A manual file audit was conducted to identify aggressive, abusive and/or threatening behaviour, and associated management responses, in inpatients with dementia +/- BPSD who had been discharged from across nine Victorian health services during a 6-month period in 2021. The medical records of these patients were reviewed by the site principal investigators and associate investigators (data collectors) and a standardised manual file audit data collection form was completed.

Ethical approval for this study was obtained from Austin Health Human Research Ethics Committee (HREC) on July 6th, 2021 (HREC/75588/Austin-2021). In addition to routinely collected demographic, administrative and clinical data, qualitative information in the medical record that was related to the admission was used by data collectors to provide estimates of agitation and BPSD using the Pittsburgh Agitation Scale (PAS)¹ and the Brodaty Seven-Tiered Model of Management of BPSD², respectively.

Key Findings

While the presence of challenging behaviours in patients with dementia and BPSD is a significant issue for Victorian hospitals, the collective impact on staff, clinical outcomes and the health system has not been studied. The current manual file audit aimed to identify aggressive, abusive and/or threatening behaviour, and associated management responses, in patients with dementia +/- BPSD throughout their inpatient admission.

Across the sample of 274 former inpatients included in the study who had been identified as having dementia (through clinical coding) and had been discharged from hospital between 1st January and 30th June 2021, approximately one-quarter (26.3%) were estimated to have severe (11.3%), very severe (9.5%) or extremely severe (5.5%) BPSD according to the Brodaty Tiers.² This is considerably higher than the prevalence estimates in the theoretical model of management proposed by Brodaty.² It was identified that 49% of patients exhibited aberrant vocalisation during their admission, with 57% displaying motor agitation, 56% resisting care in some form and 44% being aggressive. While the types and rates of behaviours varied greatly, more than 25% of patients were reported to have demonstrated the two most severe levels of agitation in each category. Approximately one-third (33%) of patients initiated violence and/or physical aggression during their admission, with 96% of these behaviours directed towards staff, 51% towards the environment, 13% towards other patients and 4% towards visitors.

Pharmacological and non-pharmacological strategies implemented to manage challenging behaviours in patients with dementia and BPSD included: prn medication (47%); increased supervision/monitoring (44%); behavioural support plans (29%); environmental changes (28%); diversional therapy (15%) and physical restraint (7%). Despite this, challenging behaviours resulting in code grey responses were demonstrated in over one-quarter (28%) of patients, with 2% requiring more than 10 code greys to be called (both planned and un-planned) during their admission. A similar number of patients (2%) exhibited behaviours that required a code black emergency response as a result of posing a serious threat to personal safety that could not be safely managed by ward staff.

1. BACKGROUND

1.1 Dementia and Severe BPSD in Hospitals

Dementia is recognised as a significant and growing issue for health and aged care services in Australia. While dementia is not an inevitable or normal part of the ageing process, dementia was the leading cause of death of women and the second leading cause for men in 2020.³

The term “dementia” describes a group of conditions characterised by gradual impairment of brain function, which impacts daily function. Dementia symptoms include difficulties with memory and thinking, communication and speech, and/or mobility, and changes in personality and behaviour. For people formally diagnosed with dementia, difficulties in communicating and expressing needs may manifest in many ways. The Behavioural and Psychological Symptoms of Dementia (BPSD) refer to symptoms of dementia such as mood disturbances, hyperactivity-type symptoms, psychotic symptoms, changes in appetite, hoarding, night-time behaviour disturbances and “wandering” and can affect between 60 and 90% of people with dementia to varying extents.² These symptoms often have a significant impact on people with dementia, carers and family, and have been associated with reduced functional ability, premature admission to residential care, increased hospitalisation rates, and increased stress for carers and for the person with dementia.⁴

The use of the term ‘BPSD’ is controversial as such symptoms may manifest because of the circumstances and situations perpetuated by other people and by external environments, and also from physical causes (such as medication side effects, undetected or untreated pain or discomfort, infections). However, the term is frequently used in clinical contexts and in the literature alongside other terminology such as changed behaviours, responsive behaviours, unmet needs, behaviours of concern, challenging behaviours and non-cognitive or neuropsychiatric symptoms of dementia.

Hospitals are known to be challenging places for people with dementia, particularly those presenting with BPSD. Numerous physiological and psychosocial factors associated with being acutely unwell, combined with an unfamiliar and often unsuitable physical and social environment, can exacerbate symptoms. These new or changing symptoms can be difficult to manage, cause significant distress to family members, staff and other patients, pose a significant risk of harm to patients themselves or to others, and result in increased morbidity and mortality.

1.2 ‘Improving the Management of Patients with Severe BPSD in Victorian Hospitals’ Project

A key issue identified by the Victorian Sub-acute Executive Peak Body in 2019 was whether Victorian health services have the capacity to meet the needs of a growing number, and increased severity, of people presenting and being admitted to hospitals with BPSD. A preliminary benchmarking survey of nine metropolitan and three regional health services in Victoria revealed that all health services provide care for patients with dementia and BPSD in sub-acute settings, but individual models of care (including management approaches and patient pathways relating to relevant ED and acute care settings) varied significantly between health services.⁵ In addition, a number of challenges to achieving a responsive Geriatric Evaluation and Management (GEM) service, the most common specialist model of care used in Victoria for patients with dementia and BPSD, were identified. Challenges included workforce recruitment, retention, level of skill, and access to specialist mental health services, and issues relating to the built environment.

Since the commencement of this project in 2019 there have been a myriad of issues for hospitals relating to care of older people due to the COVID-19 pandemic. Across Australia the COVID-19 pandemic placed and continues to impact service provision in hospitals and RACF. In Victoria, at least 191 RACF experienced at least one COVID-19 outbreak in the early years of the pandemic. Transfer to hospital was a common response for residents who tested positive for COVID-19 and required medical care. Many of those transferred from RACF to hospital had a diagnosis of dementia and the challenges in managing BPSD were exacerbated.

As a result, the National Ageing Research Institute (NARI) was commissioned by the Victorian Department of Health (DH) to undertake a comprehensive review of the management of patients with severe BPSD in Victorian Hospitals (*Improving the Management of Patients with Severe BPSD in Victorian Hospitals* project).

This retrospective manual file audit forms part of that larger project.

1.3 Project Components

The *Improving the Management of Patients with Severe Behavioural and Psychological Symptoms of Dementia (BPSD) in Victorian Hospitals* project consists of multiple components. These include:

1. Establishment of an agreed definition of 'severe BPSD';
2. Exploration of national and international best practice principles and models of care regarding the hospital management of patients with severe BPSD through a rapid literature review;
3. Exploration of the extent and impact of severe BPSD on incidents, adverse events and outcomes in hospital settings within Victorian health services (through a population prevalence study, a point prevalence study, and a retrospective manual file audit);
4. Exploration of the local actions currently in place within Victorian health services to manage patients with severe BPSD in the hospital setting and compare these against best practice (using an online benchmarking survey); and
5. Exploration of the experience of family members* and staff relating to the current hospital management of severe BPSD within Victorian health services.

**Due to the COVID-19 pandemic, family member experience was not explored*

The results from all components of the project will help to inform service delivery and the development of a best practice model of care for patients with BPSD in Victorian public hospitals.

2. OVERVIEW

2.1 Study Aim

This current study aims to identify the presence and impact of challenging behaviour in patients with dementia in Victorian hospitals.

A retrospective manual file audit was conducted to identify aggressive, abusive and/or threatening behaviour, and associated management responses, in inpatients with dementia who had been discharged from across nine Victorian health services during a 6-month period in 2021.

2.2 Study Objectives

The primary objectives of this study were:

1. To identify the proportion of patients at each participating health service with a diagnosis of dementia demonstrating aggressive, abusive or threatening behaviour
2. To identify the proportion of patients at each participating health service with a diagnosis of dementia demonstrating aggressive, abusive or threatening behaviour resulting in a documented incident or adverse event
3. To identify the range of management strategies employed at each participating health service in response to aggressive, abusive or threatening behaviour in patients with dementia and BPSD

3. PROJECT DESIGN

3.1 Procedure

De-identified patient level data was obtained from a retrospective manual file audit of former inpatients from across nine Victorian health services who had been assigned a clinical code of dementia during their admission. Ethical approval for this study was obtained from Austin Health Human Research Ethics Committee (HREC) on July 6th, 2021 (HREC/75588/Austin-2021).

3.2 Health Service Recruitment

Site specific authorisation (SSA) was obtained for each of the nine health services participating in the overall project over a period of eight months, with delays largely impacted by the COVID-19 pandemic. The last SSA approval was obtained on 23rd March 2022. Two additional health services were initially approached and included in the multi-site ethics approval however were unable to commit to taking part in the research activities, thus research governance approval was not pursued at these sites and these organisations had no further part in the study.

Six of the participating health services were located in metropolitan Melbourne while the remaining three represented large regional centres (Table 1).

Table 1. Participating Health Services: File Audit Study

	Metropolitan	Regional
Participating Health Services	• Austin Health • Monash Health • Northern Health • Peninsula Health • St Vincent's Hospital Melbourne • Western Health	• Barwon Health • Bendigo Health • Grampians Health Ballarat (formerly known as Ballarat Health Service)

Across the nine health services, there were a range of site principal investigators and associate investigators (data collectors). In total, the data was collected by 14 health professionals across the nine sites, including:

- Two (2) Neuropsychologists
- One (1) Psychiatrist
- Four (4) Geriatricians/Fellows
- Five (5) Registrars/Residents
- One (1) Nurse
- One (1) Occupational Therapist (OT)

3.3 Medical Record Inclusion Criteria

The medical records of previous hospital inpatients who had been identified as having dementia (through clinical coding) and had been discharged from hospital between 1st January and 30th June 2021 were eligible to be audited. There was no inclusion criteria relating to admission source, care type required, clinical unit/specialty involvement, length of stay (LOS) or discharge destination.

3.4 Patient Consent

Data collection involved routinely collected demographic, administrative and clinical data, as well as qualitative information relating to the admission, therefore individual patient recruitment or consent was not required as per HREC approved protocol.

3.5 Data Collection

Data items consisted of open, closed and multiple choice items, which were developed by experts in hospital dementia care representing all participating health services as well as NARI project team members. Feedback was incorporated into a final version of the Manual File Audit Data Collection Form (see Appendix 1).

Data was collected at each health service through a manual file audit of individual patient medical records and, if necessary, a review of the specific incident reporting platforms used by each health service – Victorian Health Incident Management System (VHIMS) Central Solution (CS), Incident Reports; and RLDatix (formerly known as RiskMan). Health services were requested to audit up to 30 medical records of older inpatients (aged 50 years and over) with a known diagnosis of dementia who had been discharged following a hospital admission. Records were selected consecutively and retrospectively from patients who had been discharged from the participating health service from 30 June 2021 back to 1 January 2021 until 30 records were retrieved. If 30 records were not reached for those discharged after 1 January 2021, the audit was only conducted on the available number of records. If, at the end of auditing 30 records per health service, less than 5 records included patients who had exhibited aggressive, abusive or threatening behaviour during the inpatient admission, further medical records were retrieved until 5 records with patients who have exhibited aggressive, abusive or threatening behaviour were audited.

Records were reviewed by the principal investigator and associate investigators (data collectors), all of whom were clinicians employed at the respective sites, and the manual file audit data collection form was completed, with data entered into Research Electronic Data capture platform (REDCap). In addition to demographic, administrative and clinical data collection, qualitative information from the medical records was reviewed to provide estimates of challenging behaviours according to the following rating scales:

1. Presence of aggressive, abusive, and threatening behaviour using the Pittsburgh Agitation Scale (PAS).⁸ While the PAS is usually performed through direct observation of patient behaviour, data collectors were asked to use the behaviours documented in the medical record to infer the severity of agitation in four specific behavioural dimensions: (1) aberrant vocalisations; (2) motor agitation; (3) aggressiveness and (4) resisting care (Figure 1).
2. Severity of behavioural and psychological symptoms of dementia (BPSD) based on the Brodaty Seven-Tiered Model of Management of BPSD.⁽²⁾ This model identifies different severities of BPSD, estimates the prevalence of these and provides recommendations about appropriate management (Figure 2). Within this study, severity of BPSD was assigned by data collectors based on available information in the medical record as opposed to patient observation.

3.6 Data Analysis

Raw data was downloaded into Excel and cleaned. RStudio (an open-source integrated development environment software program for statistical analysis) and Excel were used to generate and analyse ward demographics, patient demographics, patient health information, documented incidents and resultant behaviour management strategies. Descriptive data (numbers and percentages) were used to describe the key findings within each of these categories.

Figure 1. Pittsburgh Agitation Scale¹

Circle only the highest intensity score for each behavior group that you observed during this rating period. Use the anchor points as a guide to choose a suitable level of severity. (Not all anchor points need be present. Choose the more severe level when in doubt.)

Behavior Groups	Intensity During Rating Period
Aberrant Vocalization (repetitive requests or complaints, nonverbal vocalizations, e.g., moaning, screaming)	0. Not present 1. Low volume, not disruptive in milieu, including crying 2. Louder than conversational, mildly disruptive, redirectable 3. Loud, disruptive, difficult to redirect 4. Extremely loud screaming or yelling, highly disruptive, unable to redirect
Motor Agitation (pacing, wandering, moving in chair, picking at objects, disrobing, banging on chair, taking others' possessions. Rate "intrusiveness" by normal social standards, not by effect on other patients in milieu. If "intrusive" or "disruptive" due to noise, rate under "Vocalization.")	0. Not present 1. Pacing or moving about in chair at normal rate (appears to be seeking comfort, looking for spouse, purposeless movements) 2. Increased rate of movements, mildly intrusive, easily redirectable 3. Rapid movements, moderately intrusive or disruptive, difficult to redirect 4. Intense movements extremely intrusive or disruptive, not redirectable verbally
Aggressiveness (score "0" if aggressive <i>only</i> when resisting care)	0. Not present 1. Verbal threats 2. Threatening gestures; no attempt to strike 3. Physical toward property 4. Physical toward self or others
Resisting Care (circle associated activity) Washing Dressing Eating Meds Other _____	0. Not present 1. Procrastination or avoidance 2. Verbal/gesture of refusal 3. Pushing away to avoid task 4. Striking out at caregiver
Were any of the following used during this rating period because of behavior problems? (Circle interventions used.) Seclusion PRN Meds (specify) Restraint Other interventions _____	

Figure 2. Brodaty Seven-Tiered Model of Management of BPSD²



* Prevalence is expressed as estimated percentage of people with dementia who currently fall into this category.
† Estimate based on clinical observations. ‡ Estimate based on Lyketsos et al.²

4. KEY FINDINGS

4.1 Demographics

A total of 274 patients were included in the file audit, with Table 2 providing a summary of demographics.

Table 2. Patient Demographics

Characteristic	Measurement	Sample Population, N=274
Age	Mean (s.d)	82 years (8.1)
	Median	83 years
Sex	Female (%)	50.4%
Length of Stay (days)	Mean (s.d)	26 days (28.0)
	Median	15 days
	Range	5 hours - 166 days

4.1.1. Age & Sex

The mean age of patients within the sample population across all health services was 82 years (sd. 8.1), with a median of 83 years (Table 3).

Across the nine health services, approximately 50% of patients were documented as being female ($n=136$).

Table 3. Patient Age, by Patient Sex

Sex	Mean Age (s.d)	Median
Male (N=136)	83 years (8.3)	84 years
Female (N=138)	82 years (8.0)	83 years

4.1.2. Usual Accommodation Type

Prior to admission, approximately 68% of patients ($n=186$) included in the file audit lived in a private residence (either alone or with others) while 29.6% ($n=81$) usually resided in residential aged care.

On separation, however, over half of patients (50.7%, $n=139$) were discharged to residential aged care facilities (RACF). As a result, the proportion of patients living in private dwellings decreased to 34% ($n=93$).

Table 4. Patient Accommodation Pre-admission vs. Post-discharge

	Pre-Admission		Post-Discharge	
Accommodation Type	<i>n</i>	%	<i>n</i>	%
Private Residence – Alone	57	20.8%	22	8.0%
Private Residence – With Others	129	47.1%	71	25.9%
Residential Aged Care	81	29.6%	139	50.7%
Transitional Care Program	0	0	9	3.3%
Psychogeriatric Care Facility/Specialist Dementia Care	0	0	5	1.8%
Deceased	-	-	11	4.0%
Other (Boarding house/Disability Housing, Rehabilitation, 'Missing', Supported Residential Services)	7	2.6%	17	6.2%

The frequency distribution of patients as they moved between accommodation types from admission to discharge is presented in Table 5. Key relationships identified in the data include:

- 35% of patients who previously lived with others in a private residence were discharged to RACF
- 39% of patients who previously lived alone in a private residence were discharged to RACF
- Of those who were admitted from accommodation described as 'other' (for example, boarding house, supported residential services), approximately 70% of these patients moved to RACF post-discharge
- 8.6% of patients who lived in a RACF prior to admission died in hospital

Table 5. Relationship between Pre-admission Accommodation and Post-discharge Accommodation

		Post-Discharge Accommodation (VAED Categories)*						
		External to Hospital			Hospital-based Service			Deceased
		Residential Aged Care Facility	Private Residence (with others)	Private Residence (alone)	Transitional Care Program	Specialist Psychogeriatric Care Facility	Other	
Pre-Admission Accommodation	Residential Aged Care Facility	82.7%	4.9%	0.0%	0.00%	2.5%	1.2%	8.6%
	Private Residence (with others)	34.9%	49.6%	1.6%	3.1%	0.9%	7.0%	3.1%
	Private Residence (alone)	38.6%	5.3%	35.1%	8.8%	3.5%	8.8%	0.0%
	Other	71.4%	0.0%	0.0%	0.0%	0.0%	28.6%	0.0%
	Total	50.7%	25.9%	8.0%	3.3%	1.8%	6.2%	4.0%

* i.e. "38.6% of patients who were admitted from a private residence (living alone) were discharged to a Residential Aged Care Facility"

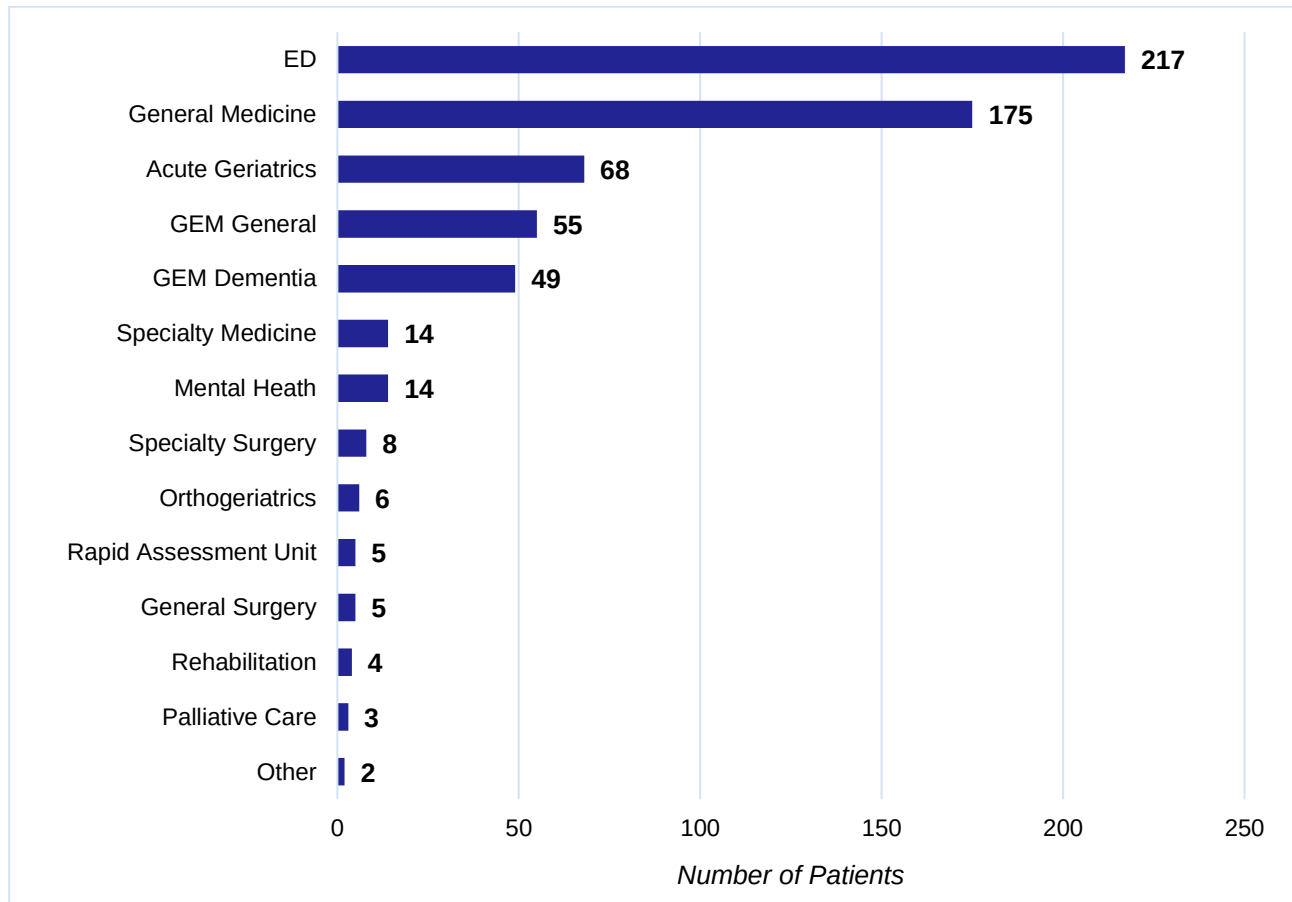
4.1.3. Length of Stay

The mean LOS for the sample across all health services was 26 days (s.d 28), with a range of 1 day to 166 days. The median LOS was 15 days. Patients that resided in hospital for a period beyond 6 months (182 days) were considered outliers and excluded from the LOS analysis ($n=1$).

4.1.4. Clinical Units

On average, patients in the audit received care from 2.3 different clinical units/specialties during their inpatient admission. The highest number of units for an individual patient was four ($n=11$ patients). Patients who were admitted to hospital via the Emergency Department (ED) made up approximately 80% of patients in the sample - only two patients who attended ED were not transferred to another clinical unit (one returned to RACF and one to a private residence). Nearly two-thirds (64%) of patients spent time admitted under a general medicine unit during their admission. Moving directly from the ED to general medicine was the most common patient pathway, experienced by 143 patients (52%). For those who spent time receiving care in acute geriatric units, 96% were admitted via the ED.

Figure 2. Range of Clinical Units during Admission (N=274)



4.2 Medical Condition

4.2.1. Primary Diagnoses for Admission

The sample inclusion criteria was older patients (aged 50 years and over) with a known diagnosis of dementia however admission to hospital or presentation to the ED was due to a variety of reasons. While patients may have been admitted or presented for reasons specific to dementia, they may have been admitted or presented for other medical or social reasons. This was not explored within the current study.

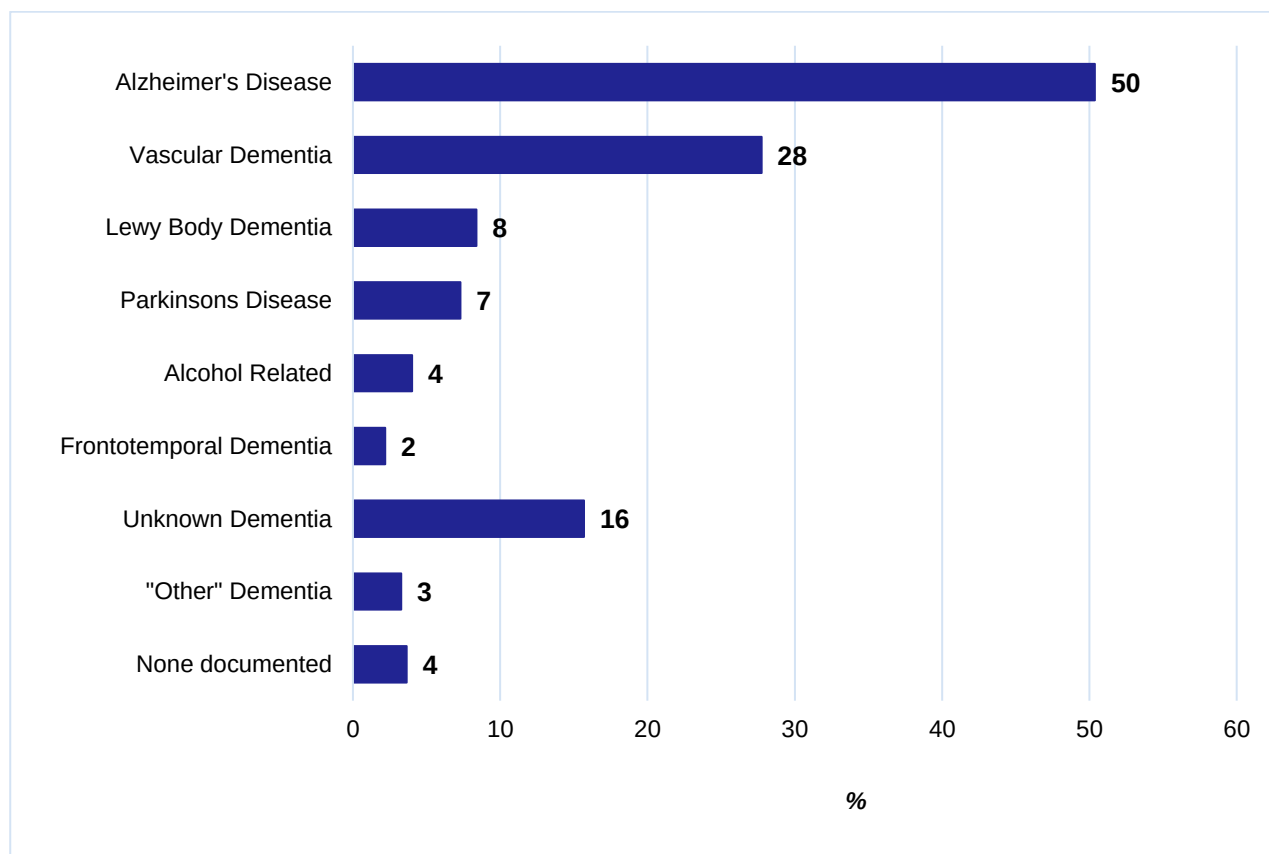
There were 84 different primary diagnoses for hospital admission across the sample population, with delirium the most common (26%, $n=70$). It is important to note that, of those 70 patients, 22 also had BPSD or dementia listed as the primary diagnosis while 8 patients had delirium specified with reference to a urinary tract infection. BPSD was recorded as the primary diagnosis for admission for 62 patients (23%). Of these, 63% were later estimated as between Tier 5 and Tier 7 on the Brodaty Model, indicating that their BPSD presented as severe.

Overall, 20% of patients ($n=56$) had dementia listed as part of their primary diagnosis for admission. Thirteen percent (13%) of patients ($n=35$) had falls (+/- fracture) as the primary diagnosis for admission. An additional 12 patients (4%) had confusion noted as part of the reason for their admission.

4.2.2. Dementia Sub-types

All patients in the sample had a diagnosis of dementia, as per the inclusion criteria. A wide range of dementia sub-types were recorded. The most common sub-diagnosis was Alzheimer's Disease (AD), representing 50% of patients, followed by Vascular Dementia (28%) (Figure 3). For those whose dementia was specified as 'other' ($n=9$), three patients had unspecified dementia, three were explained as having 'mixed' dementia and three patients had other, rarer forms of dementia. The remaining three patients were listed as having conditions that were distinct variants of dementia sub-types, or symptoms that mimicked dementia.

Figure 3. Dementia Sub-types (N=274)



Of the 274 patients in the sample, 60 (22%) had two dementia sub-types indicated (Table 6). The most common combination of dementia sub-type diagnoses was AD and Vascular ($n=40$ patients). One patient had three sub-type diagnoses—AD, Vascular and Parkinson's disease (PD).

Table 6. Combinations of Dementia Sub-types (N=61)

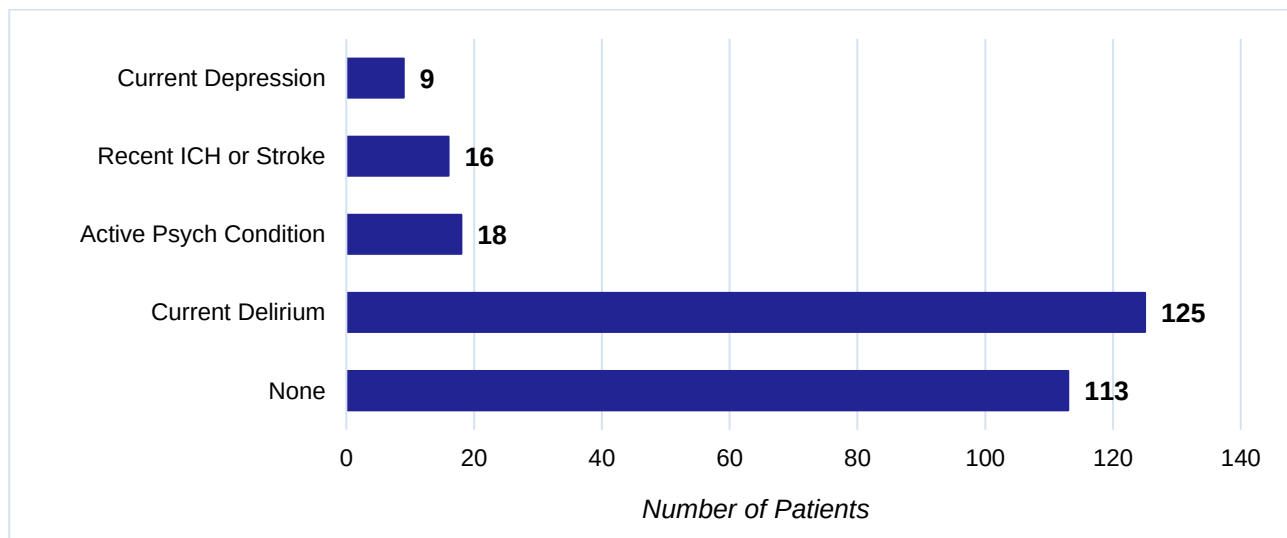
Number of Sub-Types	Sub-type Combination	<i>n</i>	%
2	AD + Vascular Dementia	40	14.6%
	AD + Lewy Body Dementia	2	0.73%
	AD + PD	1	0.36%
	AD + Alcohol Related Dementia	1	0.36%
	PD + Frontotemporal Dementia	1	0.36%
	PD + Lewy Body Dementia	5	1.82%
	PD + Vascular Dementia	3	1.09%
	PD + Unknown Dementia	2	0.73%
	Vascular Dementia + Alcohol Related Dementia	3	1.09%
	Vascular Dementia + Lewy Body Dementia	2	0.73%
3	AD + PD + Vascular Dementia	1	0.36%
	TOTAL	61	22%

4.2.3. Additional Concerns

Data regarding documented co-existing conditions or concerns that may be impacting cognition and/or behaviour relevant to the admission in question was collected. Almost half (41%, $n=113$) of patients had no co-existing concerns relevant to their admission.

Of the 161 patients (59%) who had other co-existing conditions related to cognition or behaviour, 78% were identified as having current delirium. This equates to 46% of the total sample (Figure 4). Nine (9) patients had two co-existing conditions or concerns—of these, three had current delirium and an active psychiatric condition; three had delirium and had had a recent ICH or Stroke; two had current delirium and current depression; and one had current depression and had experienced a recent ICH or stroke. One additional patient had three co-existing conditions/concerns - current delirium, an active psychiatric condition, and had experienced a recent ICH or stroke.

Figure 4. Co-existing Concerns Relevant to the Current Admission, Across the Entire Sample (N=274)

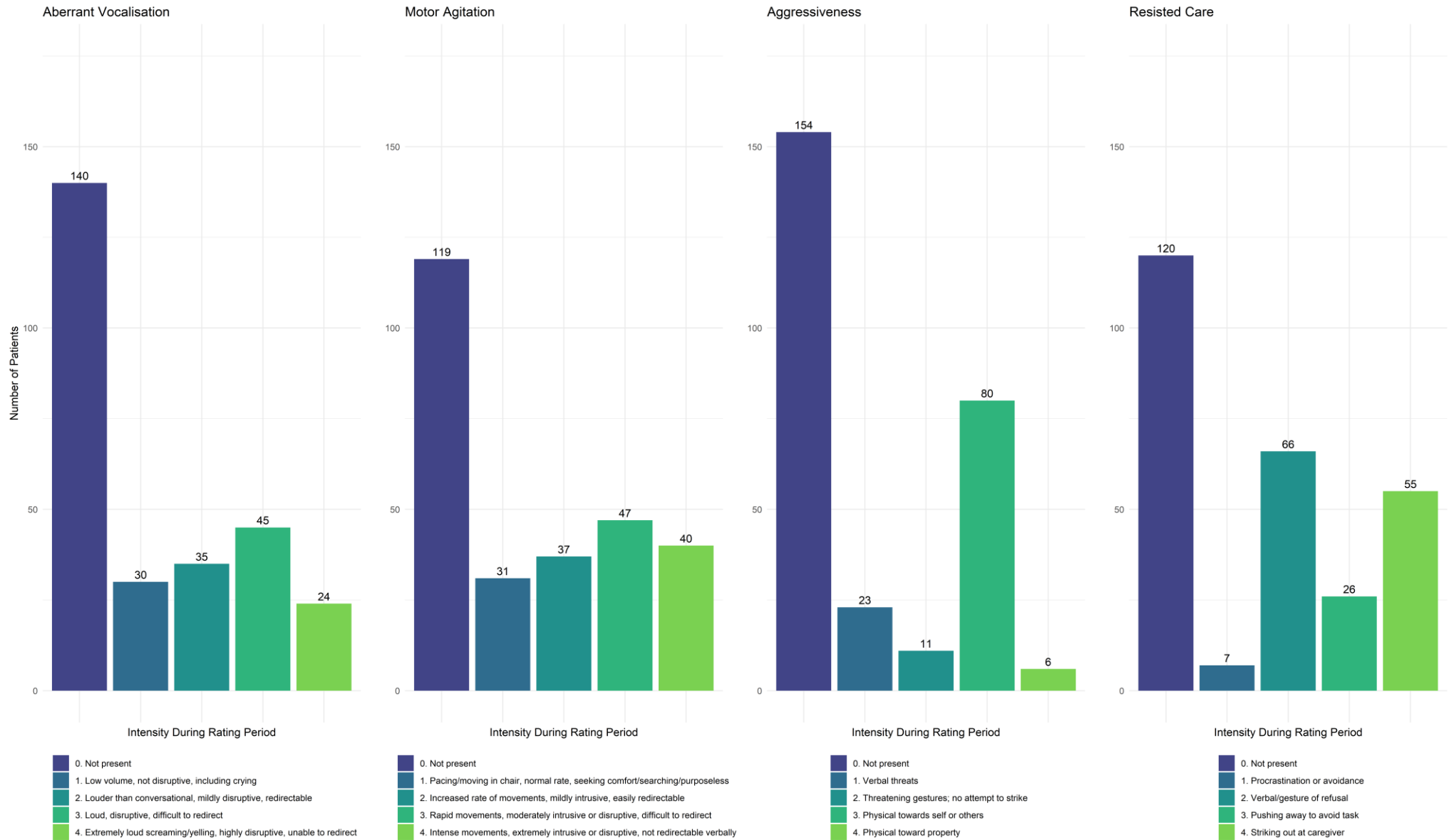


4.3 Documented Challenging Behaviours

Data collectors used any aggressive, abusive or threatening behaviour documented within the medical record to rate each individual patient's level of agitation according to the PAS. In addition to rating behaviour within the four domains (aberrant vocalization, motor agitation, aggression, and resisting care), responses to patient behaviour and resultant management strategies were also recorded.

Figure 5 shows the frequency of each domain of the PAS within the audited sample. It is worth noting that individual patients may have demonstrated behaviours that met none, one or multiple domain criteria within the PAS.

Figure 5. Pittsburgh Agitation Scale Ratings (N=274)



4.3.1. Aberrant Vocalisation

Of the 274 patients in the audit, 134 patients (49%) demonstrated a form of aberrant vocalisation during their admission, as per the PAS (Figure 5, Table 7). Of these, 84% ($n=113$) demonstrated aberrant vocalisation that was disruptive to some extent, with approximately 18% ($n=24$) demonstrating extreme levels.

Table 7. Aberrant Vocalisation during Admission (N=274)

Aberrant Vocalisation	<i>n</i>	%
Not present	140	51%
Low volume, not disruptive, including crying (<i>least severe</i>)	30	11%
Louder than conversational, mildly disruptive, redirectable	35	13%
Loud, disruptive, difficult to redirect	45	16%
Extremely loud, highly disruptive, unable to redirect (<i>most severe</i>)	24	9%

4.3.2. Motor Agitation

Of the 274 patients in the audit, 155 patients (57%) were identified as having demonstrated a form of motor agitation during their admission, as per the PAS (Figure 5, Table 8). Of these, approximately 80% ($n=124$) demonstrated motor agitation that was intrusive to some extent, with 26% ($n=40$) demonstrating extremely intrusive or disruptive movements and were not able to be redirected verbally.

Table 8. Motor Agitation during Admission (N=274)

Motor Agitation	<i>n</i>	%
Not present	119	43%
Pacing or moving about in chair at normal rate (seeking comfort/looking for spouse/purposeless movements) (<i>least severe</i>)	31	11%
Increased rate of movements, mildly intrusive, easily redirectable	37	14%
Rapid movements, moderately intrusive or disruptive, difficult to redirect	47	17%
Intense movements, extremely intrusive or disruptive, not redirectable verbally (<i>most severe</i>)	40	15%

4.3.3. Aggression

Of the 274 patients in this audit, 120 patients (44%) demonstrated a form of aggression during their admission, as per the PAS (Figure 5, Table 9). Of these, 72% ($n=86$) demonstrated aggression that was physical in nature, either towards property, or an individual (self or others). Data collectors gave a wide range of examples including: patients grabbing staff, kicking staff, throwing objects at staff, swearing, hitting and threatening staff and/or other patients, and patients assaulting family members.

Table 9. Aggression during Admission (N=274)

Aggression	<i>n</i>	%
Not present	154	56%
Verbal threats (<i>least severe</i>)	23	8%
Threatening gestures; no attempt to strike	11	4%
Physical towards self or others	80	29%
Physical toward property (<i>most severe</i>)	6	2%

4.3.4. Resisting Care

Of the 274 patients in this audit, 154 patients (56%) were identified as having resisted care during their admission, as per the PAS (Figure 5, Table 10). Of these, approximately 53% ($n=81$) resisted care in a physical manner, either pushing away to avoid the task or striking out at a caregiver. Documented examples included patients throwing objects, removing equipment/monitoring devices, twisting staff members arms, hissing at family members.

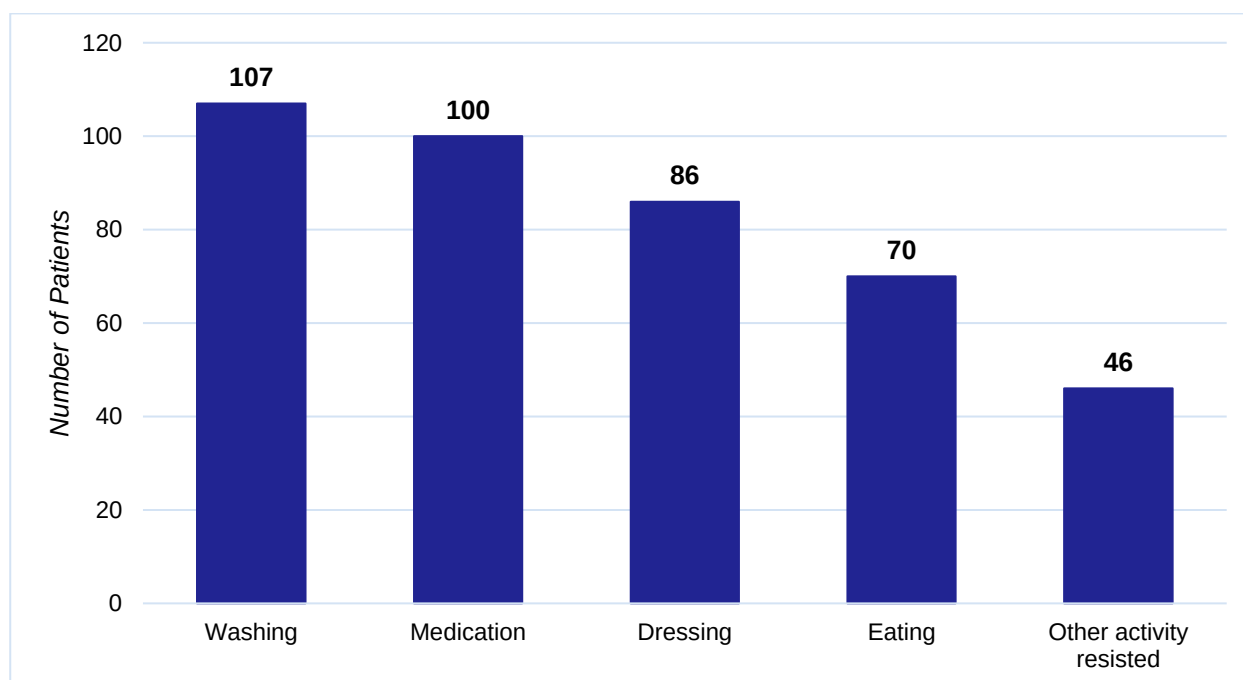
Table 10. Resistance to Care during Admission (N=274)

Resisted Care	<i>n</i>	%
Not present	120	44%
Procrastination or avoidance (<i>least severe</i>)	7	3%
Verbal/gesture of refusal	66	24%
Pushing away to avoid task	26	9%
Striking out at caregiver (<i>most severe</i>)	55	20%

Of the 154 patients who resisted care (when assistance was required for the care), the most resisted activity was *washing* (39%, $n=107$), followed by *medication administration* (36%, $n=100$) and *dressing* (31%, $n=86$) (Figure 6). There were a wide range of 'other' care activities resisted for (patients who needed assistance to do these activities) including:

- Contenance care;
- Routine tests (e.g. blood glucose testing);
- Wound care;
- Observations; and
- Mobilisation.

Figure 6 Care Activities Resisted by Patients with Dementia ($n=154$)



4.4 Response to Challenging Behaviours

Half of patients (50%, $n=137$) included in the file audit required a 'response to behaviour' during their admission in order to manage challenging behaviours (Table 11). Of these, 95% had PRN medication administered. Additionally, in response to challenging behaviours:

- Eight (8) patients had PRN medication and were secluded;
- Eleven (11) patients had PRN medication and restraint;
- Six (6) patients had PRN medication and 'other' management responses; and
- Three (3) patients had multiple responses to manage their behaviour, including PRN medication and restraint in combination with seclusion or an 'other' management response.

Table 11. Responses to Challenging Behaviours ($N=137$)

Response/s to Challenging Behaviours	<i>n</i>	%
Restraint	14	5%
PRN Medication	130	47%
Seclusion	10	4%
Other (1:1 specialising, use of family members, reassurance)	13	5%

Of the 274 patients included in the audit, 34% ($n=93$) were identified as having demonstrated 'other' challenging behaviours which were physical in nature such as:

- Patients assaulting staff (biting, hitting, grabbing, kicking, spitting);
- Sexual assault of staff and sexual disinhibition;
- Self-harm;
- Unprovoked aggression; and
- Intruding on other patients in their rooms.

Additional challenging behaviours notes included:

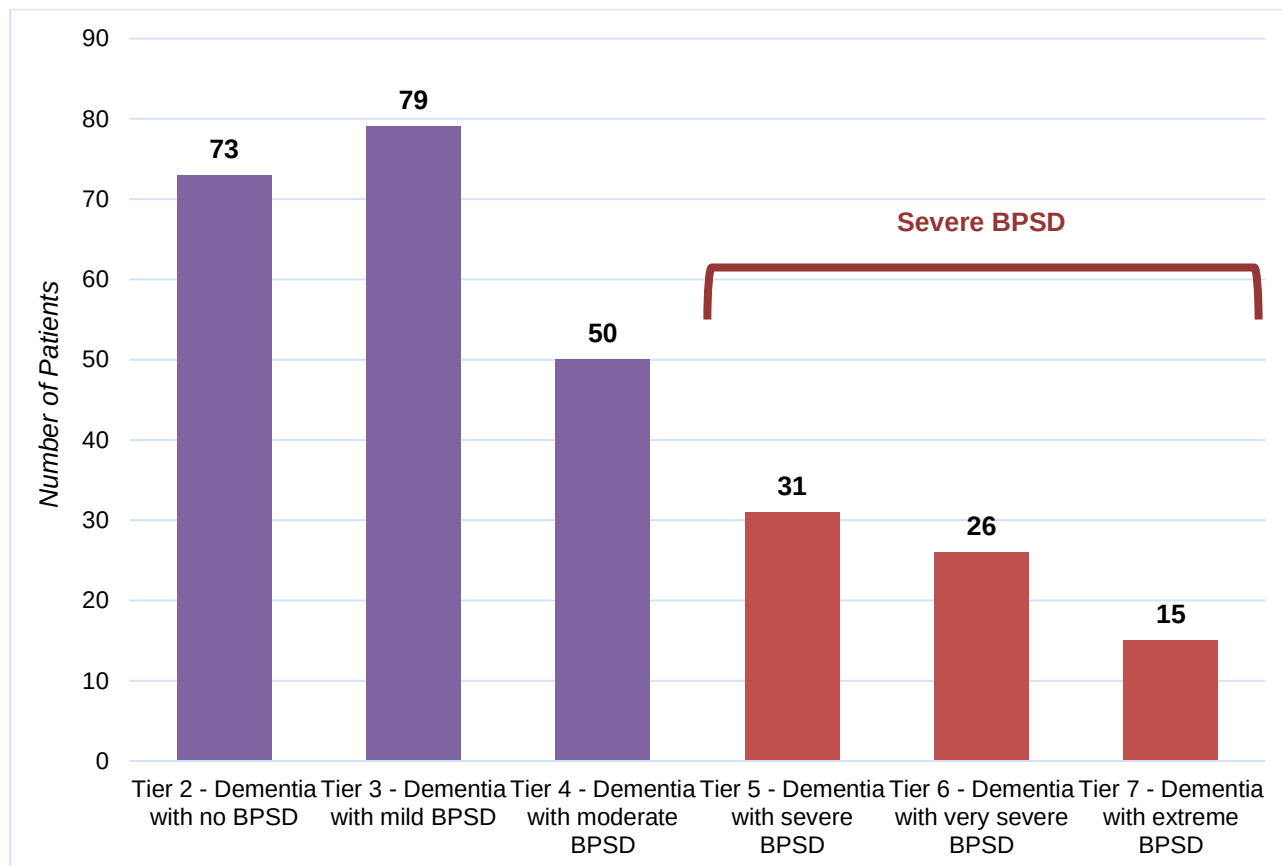
- Poor sleep;
- Wandering;
- Pacing;
- Inappropriately voiding their bowels; and
- Paranoia.

Impulsivity was a common concern, with patients reported to often inappropriately mobilise without assistance, therefore increasing their falls risk and subsequently requiring sensor mats. A number of patients were noted to be fixated on absconding.

4.5 Brodaty Tier Estimate

Of the 274 patients who were included in the audit, 26% (n=72) were estimated by the data collectors as having dementia with severe, very severe or extreme BPSD i.e. Tiers 5, 6 or 7 according to the Brodaty Tiers (Figure 7, Table 12).

Figure 7. Estimation of Patient BPSD Severity According to Brodaty Tiers (N=274)



Of those who were estimated at Tier 5 or above, 46% were residing in RACF prior to their hospital admission, which increased to 68% following discharge. Thirty-five percent (35%) of those estimated at Tier 5 or above spent time in a sub-acute GEM (dementia) unit during their admission while 14% spent time in a sub-acute GEM (general) unit. All patients estimated at these tiers (100%) received PRN medication in response to challenging behaviour. In addition, all (100%) were indicated as having been aggressive towards staff, and 71% had required at least one unplanned code grey (see section 4.6.2) during their admission.

Table 12. Estimation of Patient BPSD Severity According to Brodaty Tiers (N=274)

Estimate on the Brodaty 7-Tiered Model of Service Delivery	n	%
Tier 7 – Dementia with extreme BPSD	15	5.5%
Tier 6 – Dementia with very severe BPSD	26	9.5%
Tier 5 – Dementia with severe BPSD	31	11.3%
Tier 4 – Dementia with moderate BPSD	50	18.2%
Tier 3 – Dementia with mild BPSD	79	28.8%
Tier 2 – Dementia with no BPSD	73	26.6%
Tier 1 – No Dementia	-	-

4.6 Documented Incidents

4.6.1. Patient Initiated Violence and/or Physical Aggression

Of the 274 patients in this audit, approximately 33% ($n=90$) initiated violence and/or physical aggression in some form during their admission (Figure 8).

The greatest impact was on staff, with 96% of patients ($n=86$) directing physical aggression and/or violence towards them. This was followed by physical aggression and/or violence towards the physical environment, observed in 51% of patients ($n=46$) that initiated aggression and/or violence (Figure 9). Patients may have directed violence or aggression to more than one category of person.

Of the 90 patients who initiated violence and/or physical aggression during their admission, 38% ($n=34$) directed this towards both staff and the physical environment. A further 9% ($n=8$) impacted staff, the physical environment and other patients. Two patients, both estimated at Tier 7 on the Brodaty Tiers, initiated violence and/or physical aggression that impacted staff, fellow patients, their physical environment, and visitors.

Figure 8. Patient Initiated Violence and/or Physical Aggression (N=274)

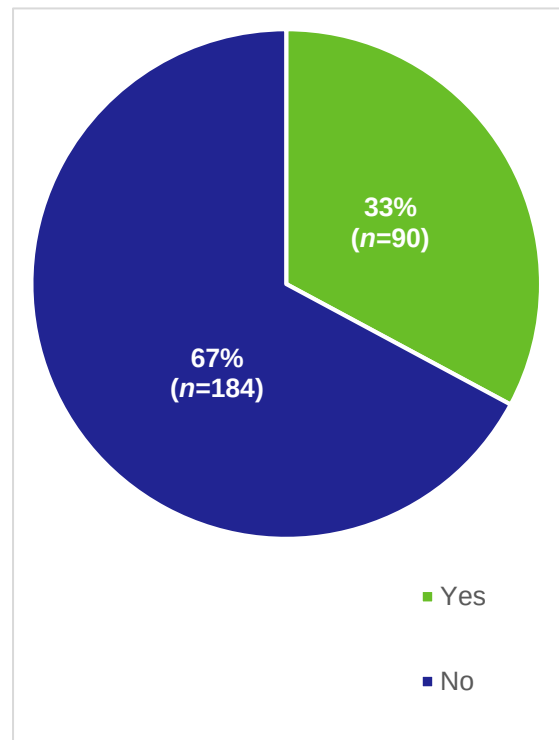
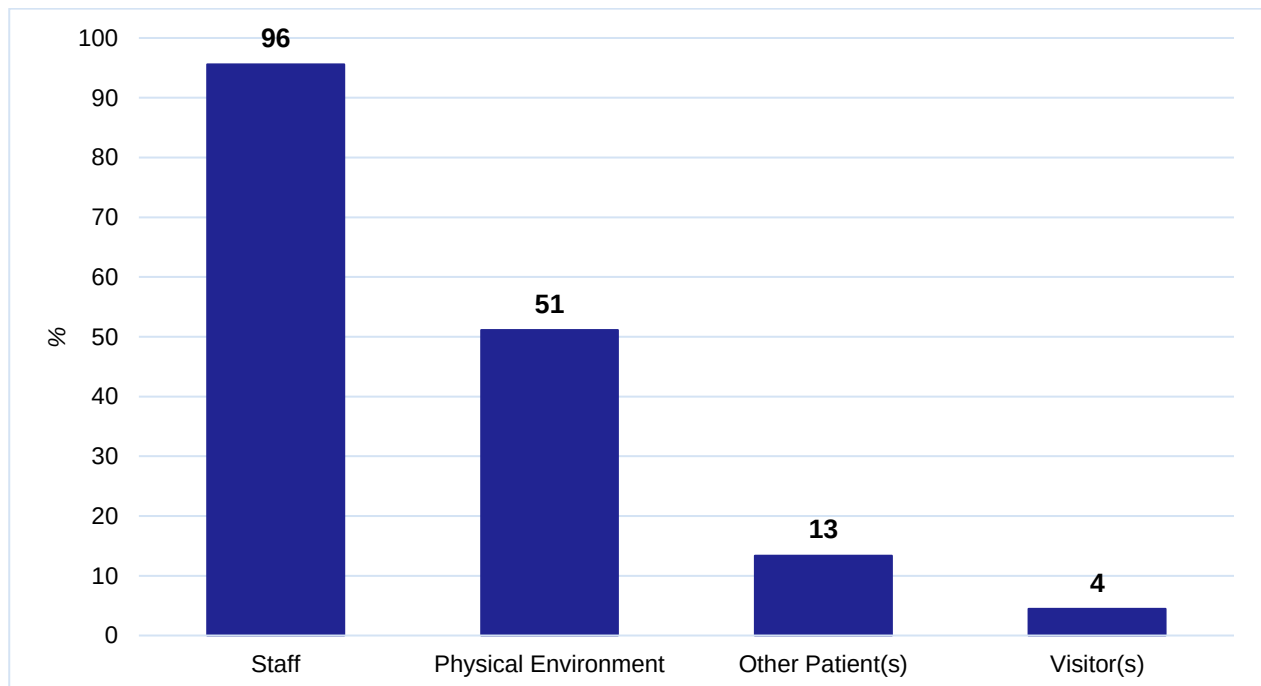


Figure 9. Who/What was Impacted by Patient-initiated Violence and/or Aggression (N=90)



4.6.2. Code Greys

Code greys were separated into 2 categories:

1. An *unplanned* code grey is an unarmed threat, an emergency response to an incident in which there is actual violent, aggressive, abusive, or threatening behaviour exhibited by patients or visitors, towards others or themselves, which requires immediate assistance.
2. A *planned* code grey is an anticipatory response to an anticipated incidence of violence, aggressive, abusive, or threatening behaviour, that following a risk-based assessment, is anticipated to be exhibited by patients or visitors, towards others or themselves.

Seventy-seven patients (28%) had a least one code grey (planned or unplanned) during their admission (Figure 10, Table 13). The highest number of unplanned code greys for an individual patient during their admission was 30, while the highest number of planned code greys was 40.

Figure 10. Code Grey Response Required during Admission (N=274)

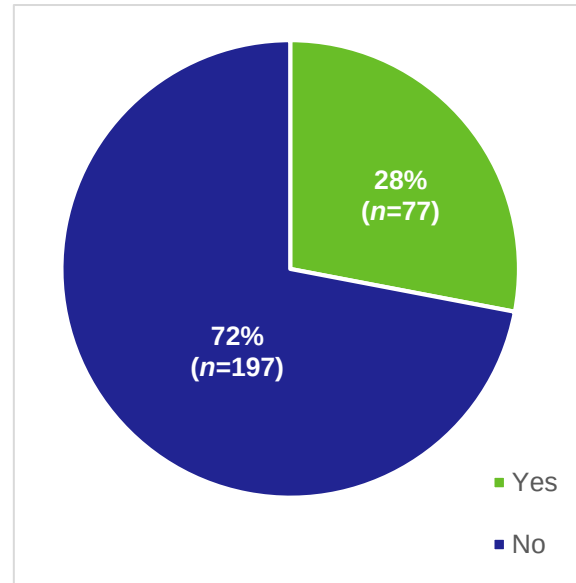


Table 13. Number of Unplanned and Planned Code Greys

Code Grey Type	Frequency (per admission)	Number of Patients	%
Unplanned Code Greys	1 – 5	45	16%
	6 – 10	6	2%
	10+	5	2%
Planned Code Greys	1 – 5	18	7%
	6 – 10	5	2%
	10+	6	2%

4.6.3. Code Blacks

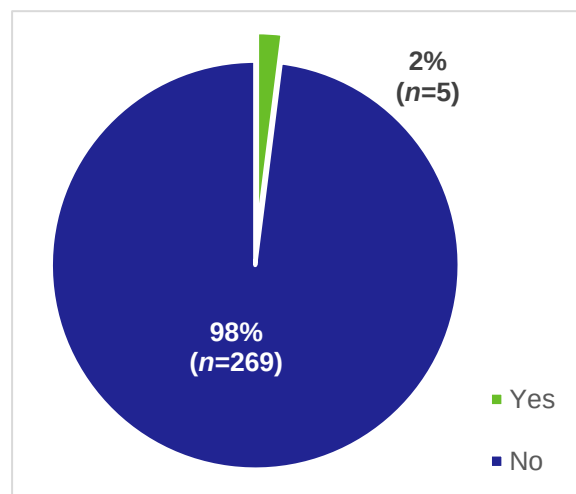
A code black is an armed threat, a situation where a person has made a threat with a weapon, and/or where there is a serious threat to personal safety that cannot be safely managed.

Of those patients who had a code black called during their admission (2% of patients, $n=5$), four patients initiated one code black, and one patient demonstrated behaviours that required two code blacks (Figure 11).

Four of these patients had also had multiple unplanned code greys (between 2 – 13 incidents per patient) and two patients had multiple planned code greys (2 and 12 planned code greys, respectively).

All had exhibited violence or aggression towards staff.

Figure 11. Code Black Response Required during Admission (N=274)

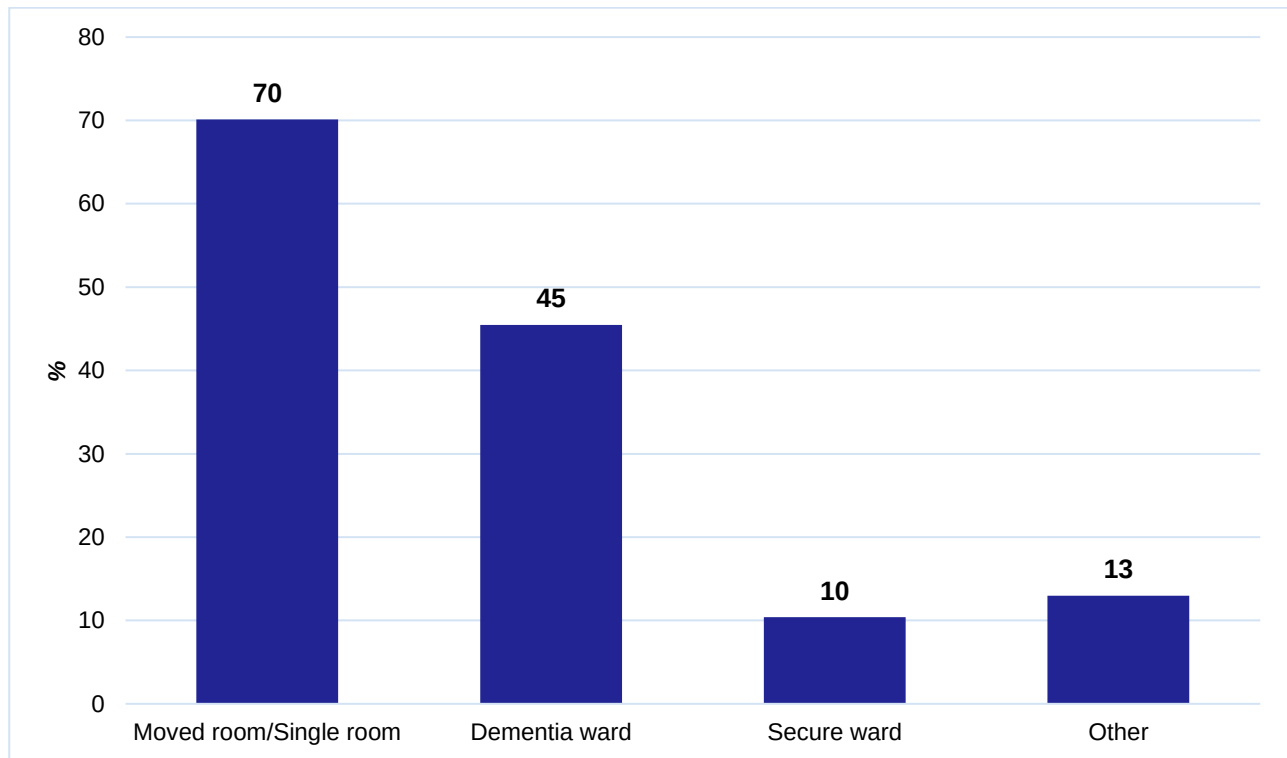


4.7 Documented Strategies for the Management of BPSD

4.7.1. Environmental Changes

Of the 274 patients included in the audit, 28% ($n=77$) received an environment change in response to behavioural concerns during their admission. In regards to the types of environment changes that were undertaken, the most common was that the patient was moved to a different or a single bedroom (70% of those who experienced an environment change, $n=54$). The next most common was a move to a secure dementia ward (45% of those who experienced an environment change) (Figure 12).

Figure 12. Environmental Changes in Response to Challenging Behaviours (N=77)



Patients may have experienced more than one environment change in response to their behaviour. Four patients experienced several environment changes, being moved to a new or single room, to a dementia specific ward, and to a secure ward or transfer to another hospital. Twenty-two patients (8% of the total sample), were moved to two different environments in response to their behaviour—this was primarily a move to a new or single room, and a move to a dementia ward. 'Other' types of environment change were explained as transfers to different hospitals, to mental health units, or moves between acute care and GEM wards.

4.7.2. Additional Supervision/Monitoring

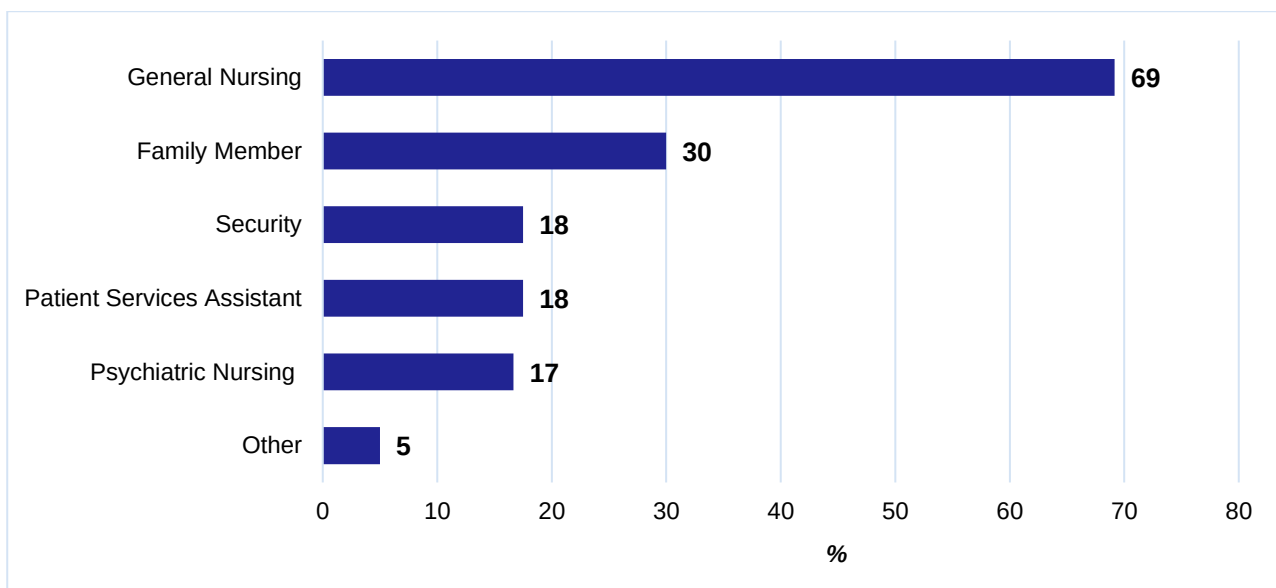
Almost half of the patient sample (44%, $n=120$) required additional supervision or monitoring because of behavioural concerns during their admission. This may have involved one type of individual, or many individuals across clinical and non-clinical roles.

Of those patients who required additional supervision or monitoring, 69% ($n=83$) received this support from general nursing. This equates to 30% of all patients in the audit (patients). The next most common role to provide additional supervision or monitoring were family members of patients who provided this service to 36 patients (30% of patients requiring additional supervision or monitoring; 13% of all patients).

Table 14. Number of Roles Involved in Supervising Patients with Challenging Behaviour (N=120)

Number of Roles	n	%
Four roles to supervise/monitor during admission (combination of general nursing, security, family members, patient services assistants, or psychiatric nursing)	7	6%
Three roles to supervise/monitor during admission (combination of general nursing, security, family members, patient services assistants, or psychiatric nursing)	10	8%
Two roles to supervise/monitor during admission (combination of general nursing, security, family members, patient services assistants, or psychiatric nursing)	26	22%
One role to supervise/monitor during admission (either general nursing (n=45), security (3), family members (14), patient services assistants (9), psychiatric nursing (5), other (1))	77	64%

Figure 13. Roles Responsible for Supervising/Monitoring Patients with Challenging Behaviour (N=120)



4.7.3. Physical Restraint

Physical restraint was used for 20 patients (7%) during their inpatient admission. The most common types of restraint used were four-point restraints on wrists/ankles or on wrist restraints alone (30% of patients who were restrained, n=6, respectively) (Table 15).

Table 15. Types of Physical Restraint Used during Admission (N=20)

Restraint Type	n	%
Barn Door	3	15%
Four-point restraint on wrists/ankles	6	30%
Tabletop	1	5%
Wrist Restraint	6	30%
Other (bed sheets tucked tightly, security guards held patient down for prolonged period, restraint only during code greys, 'not stated').	4	20%

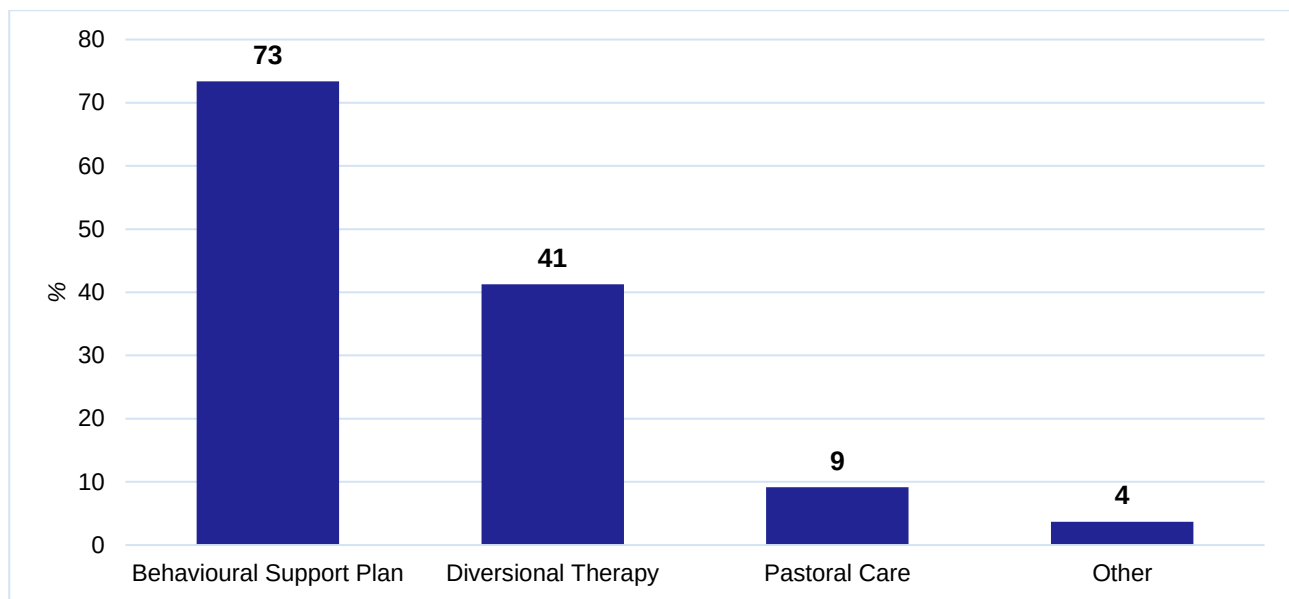
4.7.4. Behavioural Support

Of the 274 patients included in this audit, 109 (40%) required behavioural support as a strategy for managing challenging behaviours in some form. The most common strategy was use of a behavioural support plan (73% of patients, $n=80$), followed by diversional therapy (41%, $n=45$) (Figure 14). Some patients received multiple forms of behavioural support during their admission.

In regards to the 'other' category, this included of the following examples of behavioural support:

- Frequent nursing observation;
- Family attendance;
- Behaviour support nurse supporting patient and team;
- Use of sunflower tool;
- Doll therapy; and
- Music therapy.

Figure 14. Types of Behavioural Support Used during Admission (N=109)



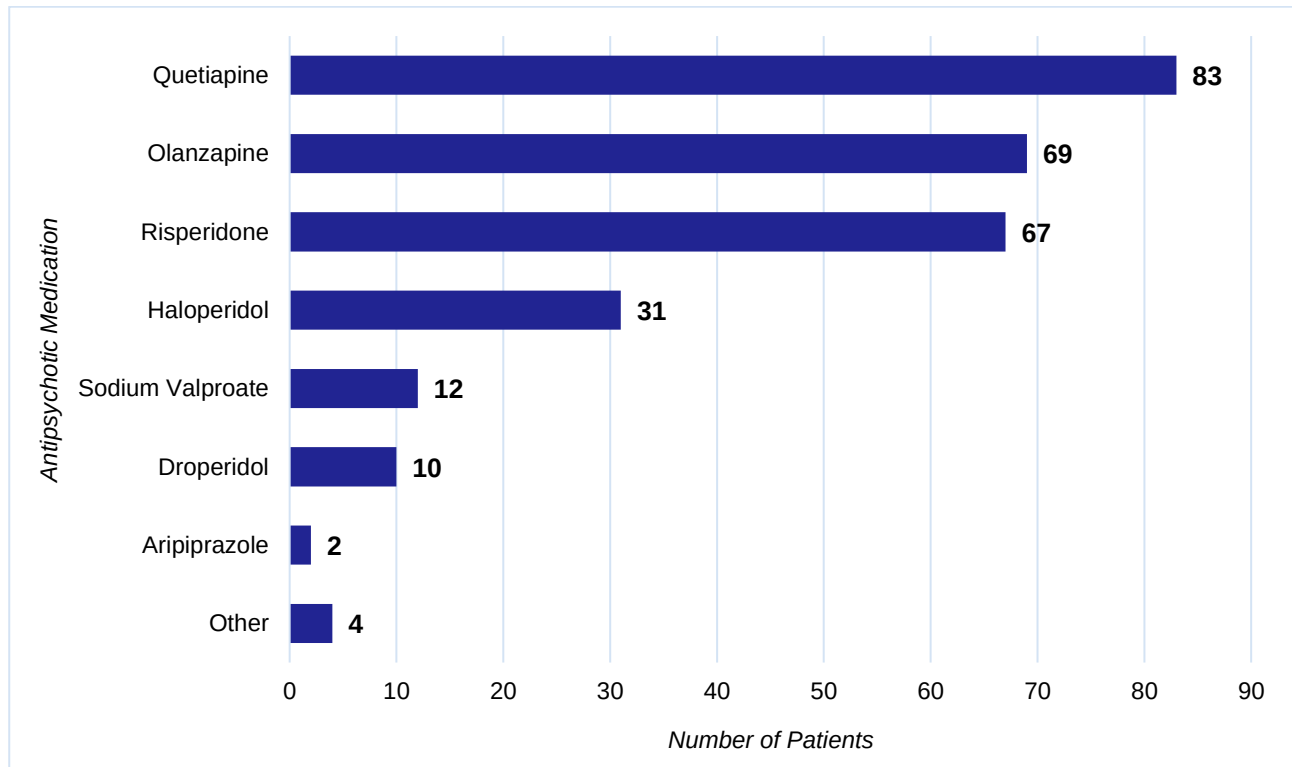
4.8 Medications

A number of patients (22%, $n=59$) did not receive any of the medication types of interest for this audit during their admission (i.e. no antipsychotic, sedative, or anti-depressant medications, no memantine, cholinesterase inhibitors, melatonin, or 'other' medications for treatment of dementia and BPSD). Of these, 24% ($n=14$) were classified as having severe BPSD as per the Brodaty Tiers. In addition, 25% of patients ($n=15$) who did not have any medications of interest administered during their admission exhibited behaviours that prompted code grey responses.

4.8.1. Antipsychotic Medication

Over half of patients (57%, $n=156$) received antipsychotic medication(s) during their admission. It was common for patients to be on more than one antipsychotic medication. Of the 156 patients receiving antipsychotic medications, 83 (53%) received doses of two or more different antipsychotic medications. Of these, 29 had received 3 or more different antipsychotic medications during the admission. The most common regular antipsychotic medication was Quetiapine, with 83 patients receiving this during their admission (30% of all patients in this audit; 53% of patients who received an antipsychotic medication), followed by Olanzapine (25% of all patients; 44% of patients who received an antipsychotic medication) (Figure 15). Listed under the 'other antipsychotic medications' category were: Clozapine ($n=1$), Ziprasidone ($n=1$), Oxazepam ($n=1$), and Paliperidone ($n=1$).

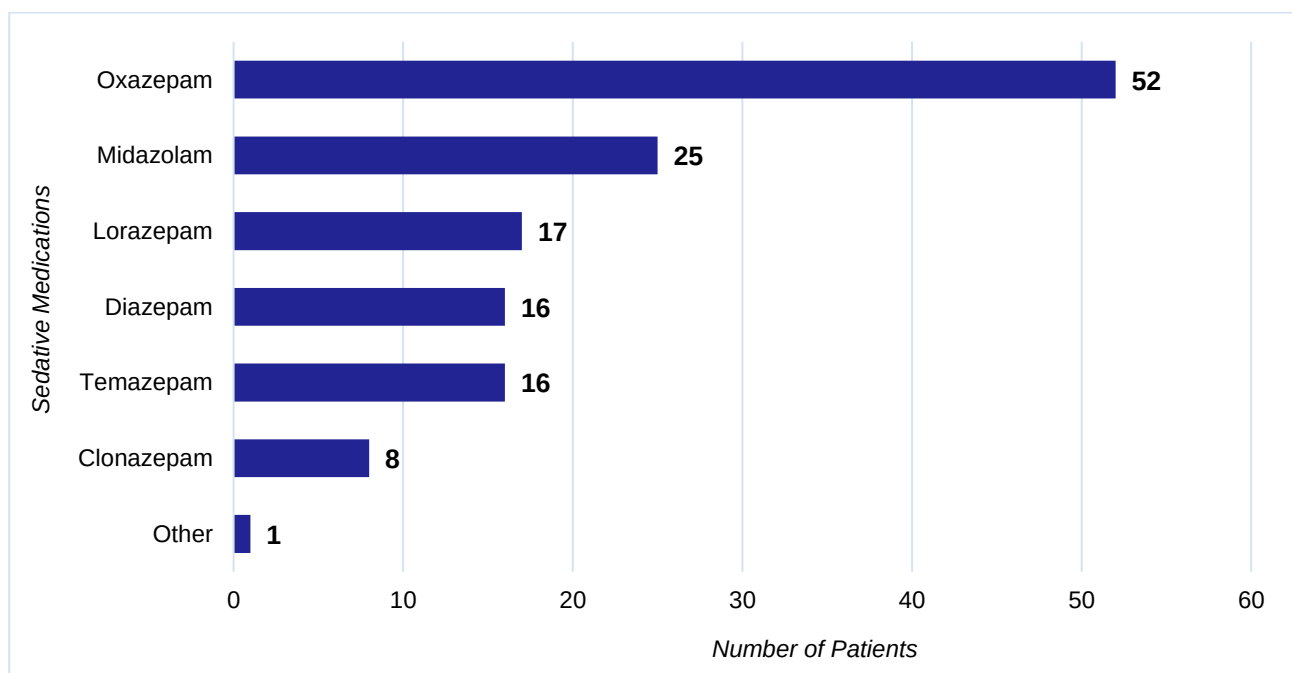
Figure 15. Types of Antipsychotic Medications Administered during Admission (N=156)



4.8.2. Sedatives

Of the 274 patients in the audit, 34% received sedative medication(s) during their admission ($n=94$ patients). Of these, 33% received more than one type of sedative during their admission ($n=31$). The most commonly administered sedative medication listed was Oxazepam ($n=52$), 52% of patients who received a sedative medication representing and 19% of all patients in the sample (Figure 16). The only additional sedative medication listed in the “Other” section was Olanzapine ($n=1$).

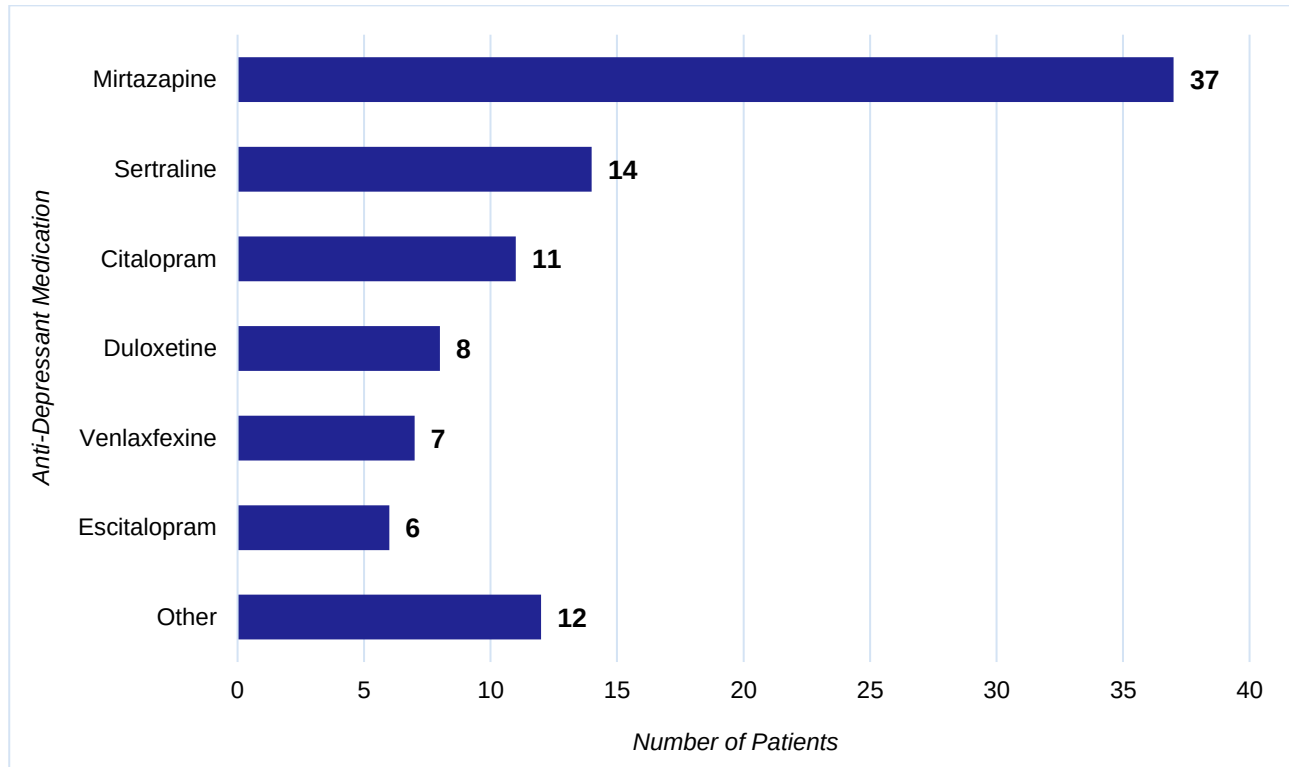
Figure 16. Types of Sedative Medications Administered during Admission (N=94)



4.8.3. Anti-depressants

Approximately one-third of patients (34%, $n=92$) of patients in the audit sample received an anti-depressant medication during their admission. The most common anti-depressant medication administered to patients was Mirtazapine, with 37 patients (40% of patients who received an anti-depressant medication during their admission 14% of all patients) (Figure 17). Data collectors listed a range of 'other' anti-depressant medications that had been used for patients in the study including Paroxetine ($n=5$), Nortriptyline ($n=1$), Amitriptyline ($n=4$), Agomelatine ($n=1$) and Desvenlafaxine ($n=1$).

Figure 17. Types of Anti-depressant Medications Administered During Admission ($N=92$)



4.8.4. Memantine & Cholinesterase inhibitors

A small number of patients (8%, $n=22$) had Memantine administered during their admission. Cholinesterase inhibitors were also prescribed for 45 patients (16% of all patients in the audit).

4.8.5. Other Medications used for the treatment of BPSD

'Other' medications used to manage BPSD that were not included within the above-mentioned categories, can be categorised into two groups:

1. **Analgesia:** Buprenorphine Patches ($n=5$), Endone ($n=2$), Targin – Oxycodone with Naloxone (Controlled) Release ($n=2$), 'Analgesia' ($n=1$).
2. **Anti-epileptics:** Carbamazepine ($n=2$), Sodium Valproate ($n=1$, specified for epilepsy), Lamotrigine ($n=1$)

In addition, 24 patients (9% of all patients in the audit) had Melatonin listed as an 'other' medication.

5. DISCUSSION

Despite a population prevalence and point prevalence study having already been conducted as part of the wider project into the management of dementia in Victorian hospitals, a retrospective manual file audit was required to provide more comprehensive information about the presence and impact of challenging behaviours associated with these conditions. Reasons for this included:

1. The *population prevalence study* (analysing routinely collected hospital administrative data) was unable to include details regarding incidents and adverse events, and there were concerns regarding the quality of data and whether it reliably reflected the reality of the hospital experience.
2. The *point prevalence study* (analysing manually collected patient-level data) was only able to identify dementia (diagnosed and suspected/probable) vs. non-dementia on inpatient wards on a given day (i.e. a point in time) and therefore was unable to illustrate patient journeys, care experiences or incidents across an entire admission.

Similar to these two previous project components, this study of nine health services is the first time that information regarding the impact and management of aggressive, abusive and/or threatening behaviour associated with inpatients who have a diagnosis of dementia has been documented in Victoria. The sample population included 274 patients with documented dementia (136 male; 136 female), with an average age of 82 years, who had been admitted and subsequently discharged from hospital.

5.1 Patient Population

Across the sample population, patients with dementia had collectively been admitted to over 14 different clinical units during their hospitalisation, with the most common being ED (80% of patients). The high percentage of patients who had been admitted to a General Medical Unit (64%), as well as the combined presence of these patients on Special Medical/Special Surgical/General Surgical units (10%), suggests that a model of care in emergency and acute hospital settings that supports the complex needs of this vulnerable population is critical.

Although patients in the sample had been admitted to an average of 2.3 different clinical units during their admission, the maximum number of clinical units responsible for the care of individual patients was four. There were 11 patients (4%) in the study who this applied to. Given that each clinical unit generally has a specific 'home' ward location within the hospital, this suggests that these patients experienced at least 4 different ward environments and multi-disciplinary care teams during their admission. Furthermore, while the audit did not collect information regarding how many individual bed/room changes that patients had experienced, the use of environmental changes as a reactive strategy for managing challenging behaviours associated with dementia and BPSD means that the number of physical 'moves' for patients would likely have been even greater. In the current study, 20% of all patients had been moved to a different room or a single room in response to behavioural concerns. The constraining impact of the ward routine, including being isolated in a single room without the positive impact of the company of other patients in a common area, has been shown to negatively impact the hospital experience of patients and their carers.⁴ Multiple moves between hospital beds, rooms, wards and/or campuses frequently results in an inability of patients with cognitive impairment to adapt to the new and unfamiliar surroundings which has been shown to instigate and/or exacerbate BPSD and increase the risk of delirium.^{4,5}

Findings from the file audit also identified significant changes in the admission vs. discharge accommodation status of patients with dementia who require hospitalisation. Prior to admission, majority of patients in the sample were reported as living in a private residence, either alone (20.8%) or with others (47.1%). This figure reduced dramatically on discharge to 8% and 25.9%, respectively. Unsurprisingly, there was an opposing swing relating to the proportion of patients living in residential aged care (29.6% pre-admission vs. 50.7% on discharge). Discharge planning for patients who require a change in usual accommodation status during their hospital admission is known to be complex, particularly for those with cognitive impairment, and is frequently associated with barriers and delays to timely discharge following resolution of the acute medical condition.

This not only impacts patient flow through the hospital system, but also increases the risk of adverse events and hospital-acquired complications including functional and cognitive decline.

The high proportion of patients with dementia requiring accommodation change at discharge is reflected in the average LOS of the sample population which, at 26 days, is 10 times the average LOS for all hospitalisations (2.6 days) and twice the average LOS for hospitalisations due to dementia (13 days).⁶ This is supported by numerous studies which have identified that there are several factors that are linked to longer LOS which are particularly relevant to this population. These include:

- Presence of co-morbidities (e.g. advancing age, frailty and moderate to severe dementia)⁷
- Functional limitations (e.g. use of walking aids and dependency)⁸
- Social support needs (e.g. awaiting downstream permanent accommodation)

While trends over time in hospitalisations and LOS for patients with dementia are known to be different to trends in hospitalisations and LOS due to dementia, this distinction was not made within the current file audit.

There was, however, significant variation identified in the amount of time that each individual patient included in the audit spent at the hospital be that in the ED or as an admitted patient. At the lower end of the range, one patient spent only 5 hours in total in the ED. Conversely, at the higher end, one patient remained in hospital for 166 days, or almost 6 months having being under Emergency, Acute Geriatric and GEM Dementia Units before ultimately being discharged to a Specialist Psychogeriatric Care Facility. For the purposes of LOS data analysis this patient was considered an 'outlier' however anecdotal reports from Victorian health professionals suggest that LOS exceeding 6 months are not uncommon in this patient population. Evidence from the literature suggests that potential contributing factors for this include the significant amount of time needed for psychiatric symptoms of dementia and BPSD to stabilise/improve and social issues impacting the ability of the patient to be discharged to their usual place of accommodation.⁹ In addition, a lack of medical staff experience in treating patients with dementia, particularly in relation to discharge planning, has also been linked to longer hospitalisation.⁹ Models of care that support the management of patients with dementia and BPSD in Victorian hospitals, including access to geriatricians and other members of the multi-disciplinary team who are skilled in this specialist area, will be explored in future studies as part of the larger project.

Another interesting finding was the high percentage of patients with dementia from RACF who died during their hospital admission (8.6%). This warrants further investigation to determine whether increased access to, and improved responsiveness of, palliative care in the patient's usual place of accommodation could have potentially avoided unnecessary hospitalisation at end of life.

5.2 Dementia +/- BPSD

5.2.1 Sub-types

Although all patients in the audit had a confirmed diagnosis of dementia, this was not necessarily their primary reason for admission to hospital. The sub-types of dementia documented in this sample reflects the proportion of different forms of dementia in the population – AD was the most prevalent, followed by vascular dementia and Dementia with Lewy Bodies.

5.2.2 Severity of BPSD

As per the previous point prevalence study, severity of BPSD for hospital inpatients with suspected, probable, or a diagnosis of dementia included in the sample was estimated by data collectors using Brodaty's Seven-Tiered Model of Management of BPSD.² The model divides people into seven tiers in ascending order of symptom severity and decreasing levels of prevalence — from people with no dementia (Tier 1) to patients with dementia and extreme BPSD who may require intensive specialised care unit (Tier 7).

Within the current study, however, the prevalence of people with dementia in hospital who were identified as demonstrating 'severe' BPSD (Tier 5), 'very severe BPSD' (Tier 6) and 'extreme BPSD' (Tier 7) was considerably higher than that outlined in the Brodaty model as follows:

- 'Severe' (Tier 5): 11.3% (current study) vs. 10% (theoretical model)
- 'Very Severe' (Tier 6): 9.5% (current study) vs. <1% (theoretical model)
- 'Extreme' (Tier 7): 5.5% (current study) vs. 'rare' (theoretical model)

Considering that 23% of patients in the audit had BPSD listed as their primary diagnosis, with carer stress documented as a contributing factor to 3% of hospital admissions, this skewed finding is not necessarily surprising. As outlined previously, hospital environments often contribute to the development or exacerbation of BPSD, with the resultant separation from a long term partner or recent bereavement also known to increase agitation and/or anxiety. However, the sheer number of patients in hospital who are demonstrating severe, very severe and extreme BPSD within this study, and the potential impact this has on both the workforce and hospital-wide patient flow, is cause for concern.

5.2.3 Presence of Co-existing Delirium

Delirium is a temporary syndrome of acute brain dysfunction characterized by inattention and other mental status impairments that is associated with significant adverse physical, cognitive and psychological outcomes and increased costs to healthcare services.^{10,11} While delirium can occur in young people, particularly in the immediate post-operative period, it is the most common complication of hospital admission for older people¹² with dementia a predisposing factor.

Within the current study, over 25% of patients had delirium listed as their primary diagnosis, while almost half (46%) were suggested to have experienced delirium during their hospital admission. This supports claims in the literature that patients with dementia are prone to a series of circumstances and factors in modern acute hospitals and that result in the development of delirium which, unfortunately, can lead to a downward cascade of interacting problems resulting in further dependency, longer LOS and even death.¹³

5.3 Aggressive, Abusive or Threatening Behaviours

5.3.1 Types and Rates

Using the PAS to assess and rate the documented behaviours of agitation demonstrated within the sample population, it was identified that 49% of patients had exhibited aberrant vocalisation during their hospital admission, while 57% had displayed motor agitation, 56% had resisted care in some form and 44% had been aggressive. While the types and rates of behaviours varied greatly, more than 25% of patients were reported to have demonstrated the two most severe levels of agitation in each category. This has significant impacts for the models of care required to safely and effectively manage this patient population in hospitals.

5.3.2. Workforce Impacts

In addition to the above, one-third (33%) of patients in the current audit had initiated violence and/or physical aggression towards self, others or physical property, with majority of this directed towards staff (96% of incidents). Examples of this included patients kicking/hitting and throwing objects at staff as well as sexual disinhibition an assault. As a result, 28% of patients required a code grey response to be called, with a further 2% initiating a code black response as a direct result of violence or aggression. Occupational violence and aggression (OVA) is an increasing concern for all staff in hospitals, with up to 95% of health care workers having experienced verbal or physical assault.¹⁴ Research has shown that nurses who suffer injuries from patients with dementia who are aggressive face psychological challenges, experience high level of distress and feel fear and frustration.¹⁵ Addressing the issue of OVA associated with patients with dementia and BPSD against hospital staff requires a whole of system approach that is able to accurately capture the frequency and scope of the threats faced in the workplace.

However, despite the Victorian Health Incident Management System (VHIMS) being well established as the standardised dataset for the collection and classification of incidents across Victorian health services, anecdotal reports from clinicians and the Victorian Agency for Health Information (VAHI) suggest that current data collection and reporting processes (and formal escalation pathways with OH&S and WorkCover programs) are highly variable across Victorian hospitals. Understanding the workforce impact of violence and physical aggression towards staff will therefore require the development of a specific, consistent and state-wide dataset.

The need for staff to initiate a response to challenging behaviours was reported to be required in half of all patients in the audit. The unpredictable nature of these behaviours largely required reactive management strategies, such as organising bed/ward moves, which increase workload and are both time consuming and mentally/emotionally stressful for staff. Furthermore, additional supervision and monitoring of patients with dementia due to behavioural concerns was largely identified as being the responsibility of general nursing staff although it was unclear whether this additional role was required within existing staffing ratios or was supernumerary through formal 1:1 specialising practices. The availability of systematic organisational support, appropriate resources and targeted education/training for staff to assist them in providing high quality care for patients with dementia was also not explored as part of this audit.

5.3.3 Restrictive Interventions

According to the Mental Health Act 2014, restrictive interventions involve the use of bodily restraint (physical and mechanical restraint) and seclusion.¹⁶ Research suggests that the use of bodily restraints can lead to a number of negative physical and psychological effects¹⁷ which are related to:

1. The physical effects of a device in contact with the body (e.g. bruises, skin tears).
2. The physical effects of being immobilised such as: decubitus ulcers (ulcers due to position such as prolonged sitting or lying); respiratory complications; urinary incontinence and constipation; under-nutrition; increased dependence in activities of daily living; impaired muscle strength and balance; and decreased cardiovascular endurance.
3. The psychological effects of being trapped (such as increased agitation, depression, fear, discomfort and anxiety).¹⁸
4. The risks associated with escape (increased risk of mortality caused by strangulation or entrapment or serious injuries resulting from falls - for example, fracture or head trauma).^{19,20}
5. The risk of a person falling and incurring harm from that fall.¹⁹

While worldwide recommendations state that physical restraint should therefore be avoided wherever possible, research suggests that it is often exercised in acute care settings, especially for elderly patients and those with dementia.²¹ This is supported by the current study which revealed that physical restraint was used to manage the challenging behaviours of 7% of the sample population during their admission.

Seclusion was also used for 4% of patients however there is widespread agreement in the literature that this practice should be used as a last resort to reduce the risk of serious harm to both staff and other patients.

5.3.4. Pharmacological Management

Findings from the file audit reveal that a number of different medication types are used to support the management of patients with dementia in hospital. Despite this, the current study did not capture the indications for why medications had been administered during a patient's admission and whether this was existing or newly prescribed. An example of this is the antipsychotic medication 'quetiapine', used in 30% of patients within the study, which is an on-label medication for schizophrenia treatment but also an off-label medication for sedation.

Antipsychotics were the most common medication type used in the audit sample (57%), followed by sedatives (34.3%), anti-depressants (33.6%), cholinesterase inhibitors (16%) and NMDA receptor antagonist-memantine (8%). Melatonin was also used in 9% of patients, possibly to improve sleep and reduce sundowning. Almost half of patients (47%) required PRN medication in response to challenging behaviours either as a stand-alone management strategy or in conjunction with other mostly restrictive interventions. It is difficult to establish whether these rates of medication use are appropriate due to a lack of Australian-based literature in this area. What is known, however, is that patients with dementia are particularly prone to adverse reactions to medication, especially antipsychotics which can cause oversedation, dysphagia, parkinsonism, stroke and increased mortality.²² Care also needs to be taken with other groups of medications, such as anticholinergics, which can worsen cognitive impairment and precipitate urinary retention.²³

Interestingly, 22% of patients were recorded as not having any of the medication types listed by this audit administered during their admission (no antipsychotic, sedative, or anti-depressant medications, no memantine, cholinesterase inhibitors, melatonin, or 'other' medications for treatment of dementia and BPSD). It is important to note that these patients were spread across the Brodaty Tiers,² therefore suggesting that having no medication listed as administered was not necessarily indicative of severity of dementia and BPSD.

5.3.5. Cost of Care

A 2013 AIHW report²⁴ suggested that the average cost of hospital care for people with dementia was higher than for people without dementia (\$7,720 compared with \$5,010 per episode). While there was no direct evaluation of cost associated with this study, many of the findings suggest that the financial impact of challenging behaviours associated with dementia and BPSD in Victorian Health Services is significant. Extended LOS, for example, is considered to have the strongest influence on costs per admission,²⁵ placing a considerable burden on hospital resources and creating financial pressures for the health-care system.

5.4 Limitations

The methodology used for the file audit involved data collection approximately 30 medical records per health service from older patients (aged 50 years and over) with a known diagnosis of dementia and who may have exhibited aggressive, abusive or threatening behaviour during the inpatient admission or ED presentation.

Limitations associated with the survey methodology that may potentially impact the accuracy and interpretation of the information obtained include:

1. **Self-auditing Bias:** The findings presented in this report were obtained via self-audit. This type of methodology introduces a number of biases which may affect the accuracy of the data, including social desirability bias where the data collectors involved in data collection provide certain responses in order to make a good impression rather than reporting accurate information.
2. **Self-selection Bias:** The methodology with which site investigators selected the patient files to be audited was not controlled for in the study protocol. It is therefore possible that these patients were selected due to the prior knowledge/experience of clinicians regarding the details of the patient's hospital admission. This may have resulted in an increased severity of dementia and/or challenging behaviours compared with the overall number of patients with dementia in the inpatient hospital setting.
3. **Non-response Bias:** Given that data collectors potentially had full control over who was included in the file audit, and which questions were completed, situations may have occurred in which data collectors chose not to include certain responses. In addition, responses may not have been provided due to difficulty in finding the required information in the patient's medical record.
4. **Question Bias:** Despite careful and considered survey design, involving collaboration with expert clinicians, some questions may have unintentionally been leading, ambiguous and/or open to (mis)interpretation by survey respondents. In addition, anecdotally, a number of data collectors reported that they had no previous knowledge or experience regarding use of the Brodaty Tiers.

Other possible limitations of the study that should be considered include:

- Background/experience of data collectors and the impact of their previous relationships with patients i.e. if they were familiar with a patient who was included in the audit, how much did this influence their responses as opposed to a patient who they were unfamiliar with and therefore needed to rely purely on the information contained within their medical record.
- Reliance on information regarding the patient's admission being accurately documented by staff in the medical record.
- Difficulty attributing aggressive, abusive or threatening behaviours to dementia alone i.e. what was the impact of other co-morbidities including delirium etc.
- No data collected regarding primary language spoken and the potential impact this additional communication barrier has on challenging behaviours.

6. CONCLUSION

Dementia is recognised as a significant and growing health and aged care issue in Australia. Although hospitals are known to be challenging places for people with dementia, in particular those with BPSD, there is limited information available about the prevalence of this patient population in inpatient hospital settings. The current manual file audit prevalence study aimed to identify the presence and impact of challenging behaviour associated with dementia in Victorian hospitals. It is part of a wider project focusing on the management of dementia and severe BPSD in hospital settings that will help inform service delivery and the development of a best practice model of care for these patients in Victorian public hospitals.

The study involved a file audit of 274 hospital inpatients across nine Victorian health services who had been identified as having dementia (through clinical coding) and had been discharged from hospital between 1st January and 30th June 2021. Just over one-quarter (26.3%) of patients were estimated to have severe (11.3%), very severe (9.5%) or extremely severe (5.5%) BPSD during their inpatient admission according to the Brodaty Tiers.² This is considerably higher than the prevalence estimates in the theoretical model of management proposed by Brodaty.² Not surprisingly, many patients exhibited challenging behaviours according to the PAS¹ behaviour groups including aberrant vocalisation (49%), motor agitation (57%), aggression (44%) and resistance to care (56%). While the types and rates of behaviours varied greatly, more than 25% of patients were reported to have demonstrated the two most severe levels of agitation in each category. Approximately one-third (33%) of patients were also identified as having initiated violence and/or physical aggression in some form during their admission, with 96% of these directing this towards staff, 51% towards the environment, 13% towards other patients and 4% towards visitors. Addressing the issue of OVA associated with patients with dementia and BPSD against hospital staff will require a whole of system approach that is able to accurately capture the frequency and scope of the threats faced in the workplace.

Over one-quarter of patients (28%) demonstrated behaviours that were challenging enough to result in a code grey emergency response during their inpatient admission, with 2% requiring more than 10 code greys to be called (both planned and un-planned). A similar number of patients (2%) exhibited behaviours that required a code black emergency response as a result of posing a serious threat to personal safety that could not be safely managed by ward staff. In an attempt to manage these behaviours, and ensure best outcomes for patients, staff and visitors, a wide variety of pharmacological and non-pharmacological strategies were implemented including: prn medication (47%); increased supervision/monitoring (44%); environmental changes (28%); behavioural support plans (27%); diversional therapy (15%) and physical restraint (7%).

The findings from this study indicate that the presence of challenging behaviours in patients with dementia and BPSD in Victorian health services is substantial and has a significant impact on the health and wellbeing of patients, families/carers, staff and visitors, as well as the tangible and intangible features of the hospital environment. As a result, models of care that are evidence-based, data-driven and adequately resourced are required to safely and effectively manage this patient population in hospitals.

7. REFERENCES

1. Rosen, J. *et al.* The Pittsburgh Agitation Scale: A User-Friendly Instrument for Rating Agitation in Dementia Patients. *The American Journal of Geriatric Psychiatry* **1**, 52–9 (1994).
2. Brodaty, H., Draper, B. M. & Low, L.-F. Behavioural and psychological symptoms of dementia: a seven-tiered model of service delivery. *The Medical Journal of Australia* **178**, 231–4 (2003).
3. Australian Institute of Health and Welfare (AIHW). Dementia in Australia: Summary - Web Report. at <https://www.aihw.gov.au/reports/dementia/dementia-in-aus/contents/summary> (2023).
4. Prato, L., Lindley, L., Boyles, M., Robinson, L. & Abley, C. J. D. Empowerment, environment and person-centred care: A qualitative study exploring the hospital experience for adults with cognitive impairment. *Dementia* **18**, 2710–2730 (2018).
5. McCusker, J. *et al.* Environmental risk factors for delirium in hospitalized older people. *Journal of the American Geriatrics Society* **49**, 1327–1334 (2001).
6. Australian Institute of Health and Welfare (AIHW). Dementia in Australia - Hospital care. at <https://www.aihw.gov.au/reports/dementia/dementia-in-aus/contents/health-services-used-by-people-with-dementia/hospital-care> (2023).
7. Zekry, D. *et al.* Does dementia predict adverse hospitalization outcomes? A prospective study in aged inpatients. *International Journal of Geriatric Psychiatry: A journal of the psychiatry of late life and allied sciences* **24**, 283–291 (2009).
8. Avelino-Silva, T. J. *et al.* Comprehensive geriatric assessment predicts mortality and adverse outcomes in hospitalized older adults. *BMC geriatrics* **14**, 1–8 (2014).
9. Sugiyama, H. *et al.* Predictors of prolonged hospital stay for the treatment of severe neuropsychiatric symptoms in patients with dementia: a cohort study in multiple hospitals. *International psychogeriatrics* **25**, 1365–1373 (2013).
10. Davis, D. H. *et al.* Association of delirium with cognitive decline in late life: a neuropathologic study of 3 population-based cohort studies. *JAMA psychiatry* **74**, 244–51 (2017).

11. Siddiqi, N., House, A. O. & Holmes, J. D. Occurrence and outcome of delirium in medical in-patients: a systematic literature review. *Age and ageing* **35**, 50–64 (2006).
12. Inouye, S. K. Delirium in older persons. *New England journal of medicine* **354**, 1157–1165 (2006).
13. George, J., Long, S. & Vincent, C. How can we keep patients with dementia safe in our acute hospitals? A review of challenges and solutions. *Journal of the Royal Society of Medicine* **106**, 355–361 (2013).
14. Work Safe Victoria. Introducing the occupational violence and aggression (OVA) incident investigation tool. at <https://www.worksafe.vic.gov.au/introducing-occupational-violence-and-aggression-ova-incident-investigation-tool> (2023).
15. Kang, Y. & Hur, Y. Nurses' experience of nursing workload-related issues during caring patients with dementia: a qualitative meta-synthesis. *Journal of Environmental Research and Public Health* **18**, 10448 (2021).
16. State Government of Victoria. *Mental Health Act 2014*. (2014).
17. Engberg, J., Castle, N. G. & McCaffrey, D. Physical restraint initiation in nursing homes and subsequent resident health. *The Gerontologist* **48**, 442–452 (2008).
18. Castle, N. G. Mental health outcomes and physical restraint use in nursing homes {private}. *Administration and Policy in Mental Health and Mental Health Services Research* **33**, 696–704 (2006).
19. Department of Health and Ageing. Decision-Making Tool: Supporting a Restraint Free Environment in Aged Care. at <https://www.agedcarequality.gov.au/sites/default/files/media/Decision-Making%20Tool%20-%20Supporting%20a%20restraint-free%20environment.pdf> (2012).
20. Gastmans, C. & Milisen, K. Use of physical restraint in nursing homes: clinical-ethical considerations. *J Med Ethics* **32**, 148–52 (2006).
21. Okuno, T. *et al.* Physical restraint of dementia patients in acute care hospitals during the COVID-19 pandemic: A cohort analysis in Japan. *PloS one* **16**, e0260446 (2021).

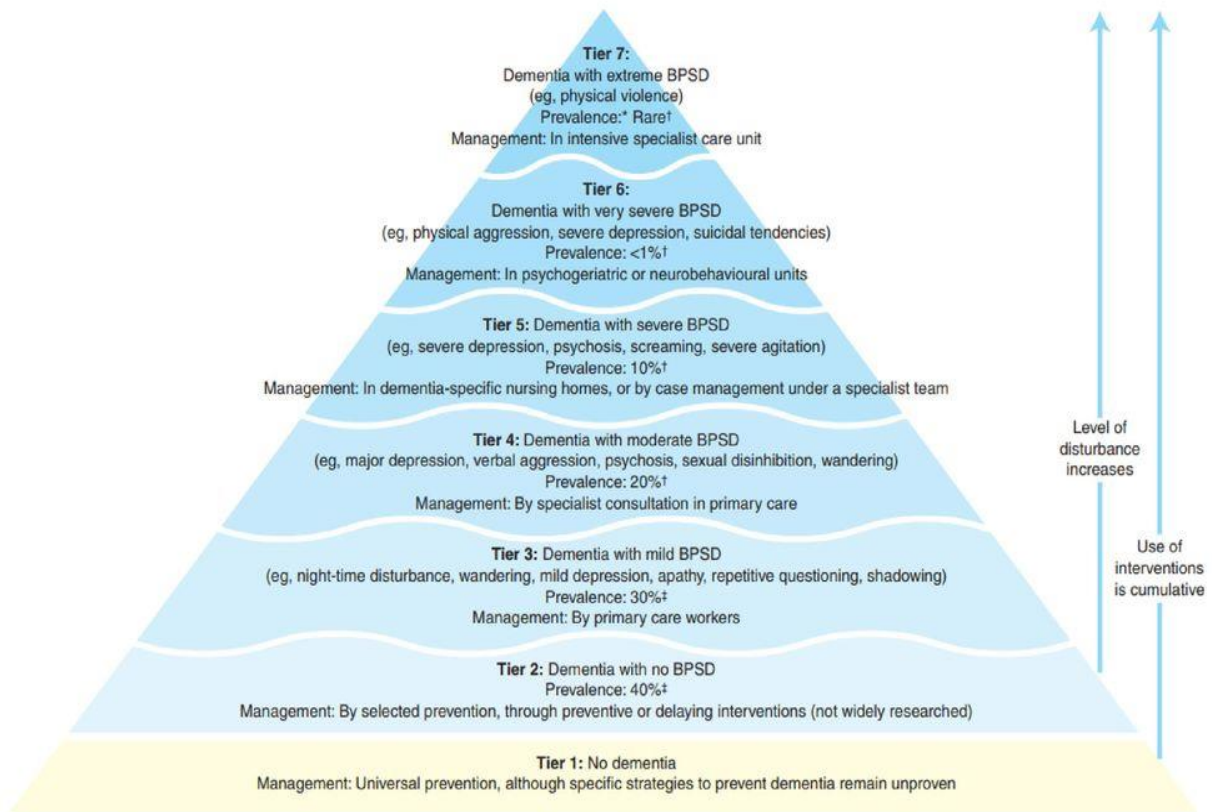
22. Gill, S. S. *et al.* Antipsychotic drug use and mortality in older adults with dementia. *Annals of internal medicine* **146**, 775–786 (2007).
23. Fox, C. *et al.* Anticholinergic medication use and cognitive impairment in the older population: the medical research council cognitive function and ageing study. *Journal of the American Geriatrics Society* **59**, 1477–1483 (2011).
24. Australian Institute of Health and Welfare (AIHW). *Dementia care in hospitals: costs and strategies*. 109 <https://www.aihw.gov.au/reports/aged-care/dementia-care-in-hospitals-costs-and-strategies/summary> (2013).
25. Sampson, E. L. *et al.* Behavioural and psychiatric symptoms in people with dementia admitted to the acute hospital: prospective cohort study. *The British journal of psychiatry* **205**, 189–196 (2014).

APPENDIX 1: Health Service Survey Questions - Manual File Audit

Demographics (exclude ICU/CCU/Obstetrics)	
1. Age (if < 18 years = END AUDIT)	
2. Sex	☐ Male ☐ Female ☐ Indeterminate
3. Date of <u>Admission</u>	
4. Date of <u>Discharge</u>	
5. Type of Usual Accommodation on <u>Admission</u>	☐ Private Residence – alone ☐ RACF ☐ Private Residence – with others ☐ Other:
6. Type of Accommodation on <u>Discharge</u>	☐ Private Residence – alone ☐ RACF ☐ Private Residence – with others ☐ Other:
7. Clinical Units During Admission (please select all that apply)	☐ Emergency Department ☐ Acute Geriatric ☐ Medical ☐ GEM ☐ Surgical ☐ Mental Health ☐ Other:
8. Hospital Wards During Admission (please select all that apply)	☐ Emergency Department ☐ Sub-acute ward – General ☐ General Medical ward ☐ Sub-acute ward – Dementia ☐ Acute Geriatric ward ☐ Mental Health ward ☐ Other:
Medical Condition	
1. What is the patient's primary diagnosis for this admission?	
2. Please indicate the dementia sub-type documented in the patient's history	☐ AD ☐ Parkinson's Disease ☐ Vascular ☐ Unknown ☐ Frontotemporal ☐ None documented ☐ Lewy Body ☐ Other:
3. Are any of the following additional concerns regarding cognition listed in the patient's history?	☐ Intracerebral haemorrhage or stroke ☐ Current Delirium ☐ Psychiatric Condition ☐ Current Depression ☐ None applicable
<i>DO NOT go any further if the following is applicable:</i> - patient has delirium in the absence of any pre-existing cognitive concerns/dementia - patient has new onset stroke +/- delirium in the absence of pre-existing cognitive concerns/dementia - patient has psychiatric disease in the absence of any cognitive concerns/dementia - patient has intellectual disability, autism, acquired/traumatic brain injury, without evidence of associated cognitive decline/dementia	
Documented Behaviours – Circle only the highest intensity score for each behaviour grouping observed during this rating period. Use the anchor points as a guide to choose a suitable level of severity. (Not all anchor points need be present. Choose the more severe level when in doubt). THIS RATING PERIOD IS THE ADMISSION TO DATE.	

1. Has the patient demonstrated aberrant vocalisation during this admission? (repetitive requests or complaints, nonverbal vocalisations e.g. moaning, screaming)	0. Not present 1. Low volume, not disruptive, including crying 2. Louder than conversational, mildly disruptive, redirectable 3. Loud, disruptive, difficult to redirect 4. Extremely loud screaming/yelling, highly disruptive, unable to redirect
2. Has the patient demonstrated motor agitation during this admission? (pacing, wandering, moving in chair, picking at objects, disrobing, banging on chair, taking others' possessions. Rate "intrusiveness by normal social standards, not be effect on other patients. If "intrusive" or "disruptive" due to noise, rate under "vocalisation")	0. Not present 1. Pacing or moving about in chair at normal rate (seeking comfort/looking for spouse/purposeless movements) 2. Increased rate of movements, mildly intrusive, easily redirectable 3. Rapid movements, moderately intrusive or disruptive, difficult to redirect 4. Intense movements, extremely intrusive or disruptive, not redirectable verbally
3. Has the patient demonstrated aggressiveness during this admission? (score "0" if aggressive only when resisting care)	0. Not present 1. Verbal threats 2. Threatening gestures; no attempt to strike 3. Physical toward property 4. Physical towards self or others
4. Has the patient resisted care during this admission?	0. Not present 1. Procrastination or avoidance 2. Verbal/gesture of refusal 3. Pushing away to avoid task 4. Striking out at caregiver
4a. If resisted care, with which activity was this associated?	☐ Washing ☐ Eating ☐ Dressing ☐ Medications ☐ Other:
5. Were any of the following used during this rating period because of behaviour problems?	☐ Seclusion ☐ Restraint ☐ PRN Medication ☐ Other:
6. Please list any other behaviours of concern during this admission	
7. Please estimate BPSD severity as per Brodaty 7-Tiered Model of Service Delivery	☐ Tier 7 – Dementia with extreme BPSD ☐ Tier 6 – Dementia with very severe BPSD ☐ Tier 5 – Dementia with severe BPSD ☐ Tier 4 – Dementia with moderate BPSD ☐ Tier 3 – Dementia with mild BPSD ☐ Tier 2 – Dementia with no BPSD

Seven-tiered model of management of behavioural and psychological symptoms of dementia (BPSD)



Documented Incidents	
1. Did the patient initiate violence and/or physical aggression during this admission?	☐ Yes ☐ No (go to Q2)
1a. If yes, who/what was impacted by the violence or physical aggression? Select all that apply.	☐ Staff ☐ Fellow Patient ☐ Visitor ☐ Physical Environment
2. Did the patient have code greys called during this admission?	☐ Yes ☐ No (go to Q3)
2a. If yes, how many unplanned vs. unplanned code greys?	☐ Planned: _____ ☐ Unplanned: _____
3. Did the patient have code blacks called during this admission?	☐ Yes ☐ No (go to Documented Management Strategies)
3a. If yes, how many code blacks?	

Documented Management Strategies																																	
1. Was there need for environmental change as a result of behavioural concerns during this admission?	☐ Yes ☐ No (go to Q2)																																
<i>1a. If yes, which type/s of environment? Select all that apply.</i>	☐ Single Room ☐ Secure Ward ☐ Specialist Dementia Ward ☐ Other:																																
2. Was there need for additional staffing presence as a result of behavioural concerns during this admission?	☐ Yes – 1:1 staffing ☐ Yes – specialised staffing ☐ No (go to Q3)																																
<i>2a. If yes, which type/s of additional staffing? Select all that apply.</i>	☐ Security ☐ Psychiatric Nursing ☐ General Nursing ☐ Other: ☐ PSA ☐ Volunteer ☐ Family member																																
3. Was there need for physical restraint during this admission?	☐ Yes ☐ No (go to Q4)																																
<i>3a. If yes, which type/s of physical restraint? Select all that apply.</i>	☐ Lap belt ☐ Wrist restraint ☐ Seating ☐ Tabletop ☐ Bedrails ☐ Other:																																
4. Was there need for behavioural support during this admission?	☐ Yes ☐ No (go to Q5)																																
<i>4a. If yes, which type of behavioural support? Select all that apply.</i>	☐ Behavioural Support Plan ☐ Pastoral Care ☐ Diversional Therapy ☐ Other:																																
5. Please indicate whether any of the following medications were used during this admission. Select all that apply (include regular, trialled and PRN medications).	<table border="0"> <thead> <tr> <th><u>Antipsychotics</u></th> <th><u>Sedatives</u></th> <th><u>Anti-depressants</u></th> <th><u>Other</u></th> </tr> </thead> <tbody> <tr> <td>☐ Risperidone</td> <td>☐ Oxazepam</td> <td>☐ Sertraline</td> <td>☐ Memantine</td> </tr> <tr> <td>☐ Olanzapine</td> <td>☐ Temazepam</td> <td>☐ Citalopram</td> <td>☐ Cholin- esterase</td> </tr> <tr> <td>☐ Quetiapine</td> <td>☐ Lorazepam</td> <td>☐ Mirtazapine</td> <td>☐ inhibitors</td> </tr> <tr> <td>☐ Aripiprazole</td> <td>☐ None</td> <td>☐ None</td> <td>☐ Other:</td> </tr> <tr> <td>☐ Haloperidol</td> <td>☐ Other:</td> <td>☐ Other:</td> <td></td> </tr> <tr> <td>☐ None</td> <td></td> <td></td> <td></td> </tr> <tr> <td>☐ Other:</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	<u>Antipsychotics</u>	<u>Sedatives</u>	<u>Anti-depressants</u>	<u>Other</u>	☐ Risperidone	☐ Oxazepam	☐ Sertraline	☐ Memantine	☐ Olanzapine	☐ Temazepam	☐ Citalopram	☐ Cholin- esterase	☐ Quetiapine	☐ Lorazepam	☐ Mirtazapine	☐ inhibitors	☐ Aripiprazole	☐ None	☐ None	☐ Other:	☐ Haloperidol	☐ Other:	☐ Other:		☐ None				☐ Other:			
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