

Cognitive impairment and behavioural emergencies within the acute hospital setting

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ABSTRACT

Background Patients with cognitive impairment exhibiting agitation and aggression are challenging to manage in the acute hospital setting. When a patient's behaviours place themselves or others at risk of harm, a Clinical Aggression Response Team (C-ART) is dispatched. The aims of this project were to describe the characteristics of patients receiving a C-ART call and the experiences of C-ART staff members via semistructured interviews. Additionally, to audit local practice against two established standards of practice (Local C-ART Call Guideline and Australian Cognitive Impairment Guideline), to develop interventions to address identified shortfalls in adherence to these standards of practice and finally to re-evaluate adherence postintervention.

Methods A retrospective pre and postintervention audit using qualitative (interview) and quantitative (file review) mixed method research approach was used. Interventions targeted doctor hospital orientation sessions, distribution of hospital guidelines including a new pharmacological sedation guideline and finally ward-based brief education sessions.

Results Themes identified postintervention included improved familiarity with C-ART terminology, better understanding of C-ART member roles and improved communication among medical teams. However, there was continued pressure to use pharmacological sedation, a lack of debriefing and poor patient handover. File review of patients postintervention showed improvement from 36.8% to 65.6% in recording a provisional diagnosis and differentials for a patient behaviour necessitating a C-ART call. Additionally, the use of psychotropics during C-ART calls was lowered by 3.3% but did not reach significance ($p=0.62$).

Conclusion Behavioural disturbances in the elderly present many challenges for health staff. Interactive orientation sessions for doctors and distribution of hospital guidelines were shown to improve compliance with Local C-ART Call and Australian Cognitive Impairment Guidelines. Patients who receive multiple C-ART calls require further exploration and consideration, as this subset of the patient population present unique challenges.

INTRODUCTION

The management of patients with behavioural disturbances such as agitation and aggression presents significant challenges within the healthcare system.^{1 2} In response, a policy directive was released in Australia by the New

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Behavioural disturbances in older patients (>65 years) do occur in hospital but how we identify, prevent and manage patients with acute behavioural disturbances that could cause harm to self or others is poorly researched.

WHAT THIS STUDY ADDS

⇒ Through quality improvement, hospital staff can be better equipped to manage the care of patients with acute behavioural disturbances.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ More training and education is required of hospital staff managing acute behavioural disturbances on the wards. Patients with multiple acute behavioural disturbances requiring intervention are challenging and more research is required for this subset of patients.

South Wales Health Ministry aimed at reducing the risk of injury to staff, patients and visitors. The policy requires hospitals to implement a coordinated organisational response to prevent and manage occupational violence and aggression.³ One such organisational response in the Central Coast Local Area Health Service is the Clinical Aggression Response Team (C-ART).

The C-ART is comprised of both clinical and non-clinical hospital staff including a doctor, nurses, security officers and environmental support assistants. When the team is activated via the hospital paging system, a patient's behaviour is considered an emergency and the C-ART must respond immediately. This is a C-ART call. The team's role is to assist ward staff to de-escalate the disturbance through proper assessment, immediate action and planning to prevent further aggression. Ultimately, the goal of C-ART is to protect the patient, staff and visitors from harm, while upholding the patient's dignity and autonomy.

Behavioural disturbances can occur because of medical conditions including dementia, delirium, acute psychiatric conditions, intoxication or withdrawal from alcohol and other



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substances.⁴ Research into behavioural disturbances have largely occurred in emergency departments and psychiatric wards, with an emphasis on pharmacological management. The patient population in these areas is usually young with a statistically higher proportion having comorbid substance and mental health issues.^{5–8} However, the majority of behavioural disturbances on general hospital wards occur in older patient populations, many with cognitive impairment such as dementia and delirium.^{9 10}

In the setting of cognitive impairment, a variety of stressors can contribute to distress and agitation. For example, agitated behaviour could be precipitated by the unfamiliar environment, communication difficulties, pain, hunger, thirst, paranoia, frustration or other unmet needs. Understanding the underlying aetiology of a patient's behavioural disturbance is crucial to provision of comprehensive management.¹¹ The use of non-pharmacological strategies to manage behaviour is recommended as first line, utilising person-centred care principles.¹² Pharmacological management should only be used as a last resort, when non-pharmacological strategies alone have been inadequate to sufficiently mitigate the acute risks. This is because the use of psychotropics in this population is associated with a high burden of side effects and increased mortality.¹³

To limit pharmacological management of behavioural disturbances, a comprehensive understanding of a patient's distress is essential. Carers and families are usually able to provide valuable information in understanding a patient's triggers for distress, how to reduce this distress and how to communicate most effectively.¹⁴ This can be documented using a 'TOP 5', where up to five strategies are recorded and visible at the patient bedside.^{15 16} Another communication strategy is 'All About Me', similar to the 'This is Me' initiative in the United Kingdom (UK) that seeks to identify a patient's physical, mental, social and psychological needs in order to provide person-centred care.¹⁷ Similarly, an individual patient support ensures that a member of nursing staff is immediately available to redirect a patient, provide reassurances, reorientation and are more freely available to respond to a patient unmet needs in a timely manner.¹¹

Management of patient aggression can be challenging in an acute hospital setting. In many cases, the experience of aggression is highly distressing for the patient, carers, family, other support people and clinicians. The Cognitive Impairment Guideline from the Australian Commission for Quality and Safety in Healthcare recommends that patients be assessed comprehensively, the underlying cause for aggressive behaviour thoroughly considered and identified, individualised care plans be developed, reviewed frequently and communicated effectively.¹⁸ Despite these guidelines, anecdotal evidence indicated that staff attending C-ART calls often felt overwhelmed by the experience and were frequently unsure how to proceed.

Aim

The aims of this project were to describe the characteristics of patients receiving a C-ART call, to audit local practice against the local hospital C-ART Call Guideline and

the Australian Cognitive Impairment Guideline from the Australian Commission for Quality and Safety in Healthcare.¹⁸ To develop interventions to address identified shortfalls in adherence to these two guidelines and finally to re-evaluate adherence postintervention.

METHOD

Setting

The study took place in a 300-bed regional hospital in Australia, on the Central Coast in New South Wales, geographically situated between Sydney and Newcastle. Each C-ART call is recorded in the Incident Information Management System (IIMS).

Study design

A retrospective pre and postintervention audit using a qualitative (interview) and quantitative (file review) mixed method research approach.¹⁹

Preintervention (file review)

Participants

Adult patients receiving a C-ART during the months of July and August 2018 were identified using the IIMS database and their medical records were reviewed. C-ART calls occurring in the emergency department, mental health wards and outpatient settings were excluded. The winter months were selected due to high demand on health resources.²⁰

Data collection and analysis

Data were collected from patients' medical records using a data collection tool. Files were searched for evidence of documentation of aetiology of behaviours, use of communication tools (including the 'TOP5' and 'All About Me'), use of sedating psychotropics, physical restraints and de-escalation techniques. Other parameters recorded included the age of the patient, evidence of communication to nurses, treating teams, families and other subspecialties including geriatricians, drug and alcohol specialist or psychiatrists.

Logistics regression analysis was used within the generalised estimating equations framework to account for the repeated measures within patients (as data were collected on patients with multiple C-ART's). An exchangeable working correlation structure was assumed.

Preintervention (interviews)

Participants

Staff who attended at least one C-ART call were invited to participate. Information about the study was advertised to staff via email and their participation was voluntary. Phone contact numbers for hospital counsellors were given to participants as discussing prior C-ART events could be traumatic.

Data collection and analysis

Semistructured interviews were conducted with staff. Questions were developed in conjunction with a

geriatrician and other medical registrars with first-hand knowledge and experience in C-ART calls. The interviews were conducted by the same medical officer to maintain consistency. The interviews provided an opportunity to gather information about staff experiences during C-ART calls. The interviews were transcribed verbatim, information was deidentified and thematic analysis was performed using the Braun and Bern method.²¹

Intervention

Multifactor interventions were planned and implemented based on the themes identified from interviews with C-ART members and the initial patient file audit. These interventions included:

Dedicated 1-hour interactive training session for doctors with a C-ART educator, coinciding with hospital term commencement (orientation)

During this session, the C-ART procedural policy was discussed, outlining the different C-ART members and their roles, with particular emphasis on the medical officer's role. Discussion also explored some of the primary challengers faced during C-ART calls, including communication difficulties and de-escalation techniques. Finally, doctors participated in a brief exercise about situational awareness.

Provision of prereading material via email to doctors prior to hospital-term commencement, to introduce the concept of C-ART calls

Two major points were emphasised within this material. First, the importance of formulating a provisional diagnosis and a differential list on the possible underlying causes of a patient's behaviour. Second, the importance of medical registrars handing over patients who received a C-ART call to the patient's treating team. Email attachments included the C-ART Call Guideline, Adult Sedation Guideline and a map of the hospital.

An updated Adult Sedation Guideline was developed to reflect the Local Area Health Network's geriatrician expert opinion and current clinical practices

The Adult Sedation Guideline was updated to reflect local expert geriatrician opinion and recent studies in the use of pharmacological sedation during behavioural emergencies.²² The proposed changes were reviewed

and accepted by the hospital Therapeutic and Forms Committee.

Ward and case-based brief education sessions directed at nursing staff

These education sessions targeted two key concepts. First, the importance of verbal handover of patient information to members of staff attending the C-ART call using the ISBAR approach. This framework represents a standardised approach to communication which can be used in any situation. It stands for Introduction, Situation, Background, Assessment and Recommendation.²³ Second, introducing strategies to manage and prevent escalation of agitation or aggression on the ward. This included discussing the importance and utility of communication tools in patients with cognitive impairment including the 'TOP 5' and 'All About Me'. Other strategies included implementing and monitoring an alcohol withdrawal scale, bladder, bowel, behaviour charts and pain assessment in advanced dementia scale.²⁴

Postintervention (file review and interviews)

The postintervention file audit was identical to the preintervention audit. Postintervention interviews were only conducted with medical staff due to most interventions being directed towards doctors.

RESULTS

A total of 57 C-ART calls occurred in the preintervention group and 32 in the postintervention group. There were similarities in patient characteristics between the two groups with the majority having evidence of aggression/behavioural and psychological symptoms of dementia (BPSD) or requiring pharmacological sedation in the form of an antipsychotic or benzodiazepine before their first C-ART call (table 1).

In the preintervention group, 43% of patients had repeat C-ART calls, which made up 77% of the total number of C-ART calls. Within the postintervention group, 50% of patients had repeat C-ART calls, making up 78% of the total number of C-ART calls (table 2).

Postintervention the use of clinical or communication tools increased by just over 15% for patients both prior and after their C-ART call (table 3).

Table 1 Patient characteristics between the preintervention and postintervention groups

Characteristics	Preintervention	Postintervention
Patients, n	23	14
Age (years), mean (SD)	79.02±11.52	75.5±13.99
Delirium and/or dementia, n (%)	23 (100)	14 (100)
Alcohol/drug withdrawal, n (%)	0 (0)	0 (0)
Evidence of aggression OR BPSD prior to first C-ART, n (%)	15 (65)	10 (71)
Evidence of pharmacological sedation prior to first C-ART, n (%)	19 (83)	6 (64)

BPSD, behavioural and psychological symptoms of dementia; C-ART, Clinical Aggression Response Team.

Table 2 Number of patients requiring multiple C-ART calls (two or more C-ART calls)

Variable	Category		Regression analysis		
		Preintervention	Postintervention	OR (95% CI)	P value
Multiple C-ART calls per patient* n, (%)	Yes	10 (43.5)	7 (50.0)	1.3 (0.34 to 4.93)	0.70
	No	13 (56.5)	7 (50.0)		

*Simple logistic regression analysis done as no cluster of patients.

†Analysis done at the level of the individual participant (n=37).

C-ART, Clinical Aggression Response Team.

Interviews preintervention

In the preintervention group, 22 staff members participated including seven doctors, five nurses, five security guards and five environmental support staff.

A total of five themes with four subthemes were identified (table 4).

Interviews postintervention

In the postinterventional group, a total of six medical officers participated. A total of six themes were identified (table 5).

DISCUSSION

This study demonstrates the majority of patients with a behavioural disturbance who receive a C-ART call within the general hospital setting have cognitive impairment such as dementia and delirium, with the majority over the age of 65. This is consistent with an Australian study that found patients with the highest risk of requiring a behaviour emergency response on general surgical, and medical wards have a diagnosis of delirium, closely

followed by dementia.²⁵ Similarly, a study in a Sydney hospital found that patients over the age of 65 with behavioural disturbances and requiring emergency intervention, the majority had underlying dementia.²⁶ These findings also align with what is known about patients with dementia and comorbid acute medical and surgical problems, being five times more susceptible to developing a superimposed delirium, thus having multiple risk factors for behavioural disturbance requiring emergency intervention.²⁷

Understanding which patients are at risk of behavioural disturbances within a hospital setting could be very valuable to allow for appropriate resource planning and allocation. In this study, just over two-thirds of the patients requiring a C-ART call had a prior history of aggression and/or BPSD. Hence, a history of physical or verbal aggression is an important predictor for future aggression.^{28 29} Therefore, an awareness of a patient's history is vital to identify those at risk, to facilitate early intervention and preventative management.

Table 3 Measured variables in the preintervention and postintervention groups

Variable	Category	Outcome, n (%)		Regression analysis	
		Preintervention	Postintervention	OR (95% CI)	P value
Prior to C-ART call were any clinical or communication tools put in place: *IPS, Top 5, All About Me, Drug or Alcohol Withdrawal Scale	Yes	34 (59.7)	25 (78.1)	1.7 (0.5 to 5.8)	0.40
Documented provisional diagnosis of aetiology of C-ART call	Yes	21 (36.8)	21 (65.6)	1.24 (0.4 to 4.2)	0.73
Documented attempts at verbal and non-verbal de-escalation	Yes	44 (77.2)	24 (75.0)	1.0 (0.3 to 3.6)	0.98
Was physical restraint used	Yes	22 (38.6)	17 (53.1)	1.8 (0.4 to 4.1)	0.69
Sedation used during C-ART call	Yes	50 (87.7)	27 (84.4)	0.7 (0.2 to 2.4)	0.62
Family contacted	Yes	17 (29.8)	7 (21.9)	0.7 (0.2 to 2.5)	0.62
Treating team consultant contacted	Yes	10 (17.5)	4 (12.5)	0.8 (0.2 to 3.5)	0.74
On-call geriatrician, liaison psychiatry or drug and alcohol team contacted	Yes	7 (12.3)	7 (21.9)	2.1 (0.8 to 5.6)	0.12
Documented instructions to nursing staff post C-ART call	Yes	19 (33.3)	12 (37.5)	1.37 (0.4 to 4.8)	0.62
After C-ART call were any clinical or communication tools put in place: *IPS, Top 5, All About Me, Drug or Alcohol Withdrawal Scale	Yes	31 (54.4)	25 (78.1)	3.25 (0.9 to 11.8)	0.07

*IPS (individual patient support 1:1 nursing).

C-ART, Clinical Aggression Response Team.

Table 4 Thematic analysis of interviews' preintervention

Themes	Quotes	Comment
1. Unfamiliarity of C-ART terminology	Doctor My junior medical officer said there is a C-ART being called and I said what on earth is that?	Doctors were less familiar with the term C-ART, compared with other staff. Orientation to C-ART was not provided to doctors starting a new term within the hospital.
2. Effective pharmacological sedation of patients in a timely manner	Doctor I found that by the time I am called, everyone else is slightly at breaking point and the pressure is on you when walking in the door is to prescribe a drug... and often I felt that you were slightly pressured into using medication before exploring other options.	Doctors felt pressured to prescribe benzodiazepines and antipsychotics. They were unaware of the Adult Sedation Guideline and hence felt unsure at times which medication to use or at what dose.
3. Lack of clear understanding of the role and responsibilities of team member	Doctor Basically, I didn't know exactly what my role was. I didn't know if I was supposed to be there or not.	The role of the doctor during C-ART calls was not clear.
4. Significant time constraints placed on team members, many with competing priorities, leading to less time to address the primary cause of the behavioural disturbance	Doctor Usually, we need to give medication and go and run because I have something else on. I don't have time to see the patient.	
5. Communication		
a. Poor handover at the commencement of a C-ART call	Doctor Sometimes you don't get that information and then it is hard to piece it all together yourself. You can't really spend too much time trawling through the notes.	Doctors spend a significant amount of time gathering information about the patient due to the lack of a comprehensive handover to the C-ART team.
b. Difficulty and inexperience de-escalating aggressive patients	Doctor It can be intimidating, especially when patients are very abusive.	Approaching and managing aggressive patients can be troubling for many staff members. Sometimes they are unsure of the correct approach when confronting aggressive patients.
c. Lack of debriefing post C-ART call	Security That would be the worst part of a C-ART call, we do not really get a debrief.	Opportunities to debrief after a C-ART call were found to be lacking. A debrief is a chance for the well-being of the C-ART members to be reviewed.
d. Poor communication and handover between medical teams	Doctor I would say seventy-five percent, or eighty percent of times there are no clear plans from the treating team.	Communication regarding the management of patients who received a C-ART calls was at times poor, with no clear plans given to the after-hours doctor. Additionally, medical handover of the C-ART calls occurring after hours was also lacking.

C-ART, Clinical Aggression Response Team.

The study interventions were insufficient to prevent individual patients having multiple C-ART calls. It may be that this population subgroup possess distinct risk factors and hence alternative strategies need to be implemented. This may include a separate team to review patients who have required multiple C-ART calls during an admission for their behavioural disturbance. This team could provide independent and comprehensive assessment and a behaviour management plan without the time constraints and pressure that are present during a C-ART call. As a result of this study, the hospital Deteriorating Patient Committee is exploring development of such a team.

The introduction of a medical officer orientation session was shown to be a valuable resource since approaching and interacting with an aggressive patient

can be intimidating. Orientation to C-ART is particularly important given that each health network in New South Wales has different procedures and guidelines to manage patients with behavioural disturbances. Postintervention medical officers displayed a better understanding, confidence and appreciation for C-ART members' roles and responsibilities, as outlined in the local C-ART Call Guideline. Encouragingly, the medical officer orientation sessions are now adopted as standard practice within the hospital that this audit was conducted.

The Australian Cognitive Impairment Guideline outlines an approach for minimising medication including antipsychotics in the management of behavioural emergencies and emphasises using non-pharmacological interventions as first line. However, there was sustained pressure for medical officers to

**Table 5** Thematic analysis of interviews' postintervention

Themes	Quotes	Comment	
1. Better understanding of C-ART terminology	Doctor	I knew what a C-ART meant because of the orientation.	Doctors were able to correctly identify the system in place for behavioural disturbances within the hospital.
2. Good understanding of doctors role in C-ART	Doctor	So I think C-ART orientation was quite helpful, I realised the role of the manager, the role of doctor, the role of the team leader (and) what they should be doing.	Doctors were better informed and confident regarding their own role. Additionally, medical officers had a better understanding of the role of other C-ART members.
3. Evidence of handover to medical teams post C-ART call.	Doctor	With any serious problem for example a C-ART call, or rapid response, I usually handed over the case.	Communication between medical teams regarding patients receiving C-ART calls showed some improvement, particularly at the daily medical handover meeting.
4. Ongoing pressure to prescribe sedating medication	Doctor	There is a lot of pressure on medical staff to basically sedate so that everyone can walk away and get on with the day.	Doctors continue to describe many instances where they were pressured to prescribe pharmacological sedation.
5. Poor post C-ART call debriefs	Doctor	No debrief about what worked or didn't work during the C-ART call.	There was no evidence that debriefs occurred post C-ART calls.
6. Poor handover from ward staff to the C-ART members at the commencement of a C-ART call	Doctor	They would say this patient is agitated or this patient is trying to hit someone or something like that in very general terms but not a comprehensive handover.	A patient handover from ward staff to C-ART members at the commencement of the C-ART call remained poor.

C-ART, Clinical Aggression Response Team.

prescribe sedating medication during C-ART calls. There was a non-significant reduction in the number of patients that required sedation postintervention from 87.7% to 84.4% ($p=0.62$). This clinical reduction could be due to medical officers becoming more confident in using non-pharmacological de-escalation techniques in line with the Australian Cognitive Impairment Guideline. The data were not sufficient to determine if medication was used in smaller doses or if it was more targeted to symptoms in the postintervention group.

Encouragingly non-pharmacological intervention including verbal and non-verbal de-escalation occurred in over 75% of C-ART calls, both pre and postintervention. This is advantageous for several reasons, but, of particular importance is the known risks of using psychotropic medications such as benzodiazepines and antipsychotics in the elderly population as they have been associated with increased mortality, stroke and falls.³⁰

We looked at whether detailed instructions were provided to nursing staff post C-ART calls, including a management plan and documentation of important clinical information such as vitals, monitoring level of consciousness, pressure care, fluid balance chart and nutrition notes if sedation was used, as referenced in the Local C-ART Call Guideline. Unfortunately, there was no significant improvement postintervention with preintervention compliance at 33.3% and postintervention at 37.5% ($p=0.62$). There was no specific intervention that addressed detailed management plans or postsedation care. One suggestion for future quality improvement would be to incorporate postsedation management

plans with pharmacological sedation training sessions for doctors.

Both the C-ART Call Guideline and Cognitive Impairment Guideline recommend comprehensive patient assessment to identify (whenever possible) the underlying cause/s of the behavioural disturbance. Compliance with the standard is demonstrated by medical officers documenting a provisional diagnosis and differentials for the behavioural disturbances. When comparing the pre and postintervention groups, there was a clinical increase in compliance with this standard from 36.8% to 65.6% ($p=0.73$). It could be hypothesised that the prereading material emailed to medical officers prior to term commencement, which highlighting the importance of careful consideration and documentation of a diagnosis and differential diagnosis, may have led to an improvement in compliance with this standard.

Communication between staff is vitally important, to allow for consistent, comprehensive and coordinated care. Postintervention, there was improved communication between medical teams including during daily medical handover meetings as evidenced in postintervention interviews. This has many benefits including elevating the patient with a C-ART call to a high clinical priority for review by the treating team, thus allow for implementation of preventative measures early, exploration of alternatives and ultimately alleviating patient distress. Encouragingly C-ART calls have now become a permanent item on the agenda for medical handover meetings, with the treating team encouraged to refer and seek advice from other clinical experts including geriatric

and psychiatric teams when needed. Seeking advice from clinical experts is emphasised in both the C-ART Call Guideline and Cognitive Impairment Guideline.

On the arrival of the C-ART members to a C-ART call, a handover of the patient is required to the C-ART team as stipulated in the C-ART Call Guideline. Unfortunately, handover remained poor post-intervention as demonstrated in postintervention interviews. A different approach to the ward-based education sessions directed at nursing staff may be needed. In the future such sessions could include simulated scenarios allowing participants to practice communication of C-ART handover using ISBAR, under more pressured realistic conditions, to improve expertise and confidence in this area. In the future, consideration would also be given to consultation and inclusion of clinical nurse educators in the development and implementation of education sessions targeting nursing staff, to assist with engagement and utilisation of the material presented.

The file audit demonstrated that postintervention, there was a non-significant increase in implementing clinical and communication tools before and after a C-ART call ($p=0.40$, $p=0.07$, respectively). Discussing these tools in the short education sessions may have had a positive influence, these tools form the patient-centred approach that is emphasised in the Cognitive Impairment Guideline.

The use of physical restraint remained high, with no reduction in its use postintervention ($p=0.69$). Physically restraining a patient is sanctioned in the C-ART Call Guideline, but only in certain critical circumstances, where all alternatives have been exhausted. Physical restraint in the prone position must be kept to the shortest time possible due to the high risk of harm to the patient by way of positional asphyxiation and/or aspiration. However, data collected from the patients' medical files were not adequate to determine when physical restraint was used, if all alternatives have been exhausted prior to the use of restraint, what type of restraint was used, who performed the restraint and for how long. This could be the focus for a future quality improvement project with the Cognitive Impairment Guideline strongly discouraging physical restraints.¹⁸

This study was limited to one small regional hospital in New South Wales, with a relatively small patient cohort. It is acknowledged that findings are site-specific with the approach and procedures used to manage behavioural emergencies likely to differ across health networks in New South Wales and Australia. For this reason, results must be cautiously generalised to other health networks. Additionally, with the small sample size, the study was not sufficiently powered to find statistical differences in the variables between the pre and postintervention cohort of patients (table 3).

Furthermore, the data collection set was limited and relied on the accuracy and quality of documented clinical data. Due to the nature of C-ART calls, that is, often a high stress and chaotic situation, there may have been

instances that interventions were implemented but not documented in the patient notes. Time of audit bias should also be considered. Results may have differed if earlier or later months of the year were sampled when clinical staff may have had varying levels of clinical experience and workload.

Interviews were based on volunteers so not all C-ART members were interviewed. Additionally, in the postintervention interview phase, bias could be introduced as non-medical C-ART team members were not interviewed.

Looking towards the future, the uptake of the orientation sessions for doctors could be further improved by running the sessions on multiple occasions throughout a medical term, to capture more staff.

C-ART training could be expanded to include clinical simulation, to recreate the clinical experience of being confronted with a C-ART call scenario, to further enhance communication and management. The clinical simulation could use actors as patients and draw from real-life scenarios for both clinical and non-clinical staff to practice teamwork and management skills under pressure.

Future dedicated education session for doctors on the appropriate use of pharmacological management could also be considered. These sessions conducted by staff specialists could expand on indications, contraindications and possible adverse effects of the use of psychotropics in the management of behavioural emergencies. Sessions could also cover requirements for postsedation monitoring as referenced in the Local C-ART Call Guideline and how this should be documented to comply with the standard. Lanyards with up-to-date information on pharmacological management could also be distributed across the health network based on the Adult Sedation Guideline.

Debriefing was found to be significantly lacking in both pre and postintervention interviews. This would be a valid component to target in future quality improvement projects, perhaps by dedicating a set time and date each week for C-ART members to discuss prior C-ART call events with a trained facilitator. This would provide an outlet for those involved to process the event, reflect on what went well and what could be improved, to enhance learning opportunities and prevent burn out.

In conclusion, behavioural disturbances in the elderly present many challenges for healthcare staff within a general hospital setting. Patients with multiple behavioural disturbances requiring repeated C-ART calls place high demands on finite resources, and new innovative approaches need to be explored. Further reducing rates of pharmacological sedation and minimising physical restraint of patients receiving C-ART calls should be areas of priority in future projects.

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