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Research paper

Violence and aggression in the intensive care unit: What is the impact of Australian National Emergency Access Target?

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ABSTRACT

Introduction: Violence in healthcare settings is a concern for healthcare professionals and patients. Media reports, and debate within the healthcare profession, and the academic literature infer that workplaces such as intensive care units are becoming exposed to increasing violence. Increases in the incidence of violent behaviour are sometimes attributed to the increased pressure on emergency departments to accelerate the throughput of patients to meet targets. To ensure the wellbeing of patients and staff, there is a need to evaluate the impact of such targets. The aim in this study was to evaluate the incidence and to describe the context in which patients' aggressive and violent behaviours occurred since the introduction of the National Emergency Access Target in a local tertiary Australian intensive care unit.
Methods: A retrospective examination of events triggering violence-related emergency codes from 12 months before the introduction of the National Emergency Access Target up until 12 months after its implementation (2011–2013).
Results: A small increase in the number of Code Grey/Code Black activation was identified after the introduction of the target (before = 18, after = 29). Admissions following drug overdoses, isolated head trauma, and cardiac arrest were the presentations most likely to have been associated with a violence-related emergency call. Female registered nurses, male critical care registered nurses, and clinical nurse specialists were the most at risk of occupational violence. Male nursing staff members were found to be more likely to be involved in incidences of verbal violence ($p < 0.003$).
Conclusion: Although there was a minimal increase in the overall number of emergencies triggered by violent behaviour, valuable information on the type of occupational violence occurring towards healthcare professionals and patients in this setting was found. We suggest that these findings add further important detail to the existing understanding of the problem of occupational violence. These detailed insights can further inform policy development, professional education, and practice.
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1. Introduction

Occupational violence is a widespread problem in healthcare settings. The introduction of the National Emergency Access Target (NEAT), also known as the '4-h rule program',[1] in Australia, has led to a perception that its implementation is an explanation for an increase of violence in settings such as the intensive care unit (ICU). This perceived increase in occupational violence through anecdotal reports prompted this investigation. We sought to establish whether an ICU had an actual or perceived increased incidence of occupational violence after the NEAT implementation. It had been suggested that increased pressure to admit to the ICU from the emergency department (ED) earlier than previously could be a factor contributing to the perceived increase of occupational violence. This might have been due to time constraints placed on EDs to meet the NEAT with patients previously managed in the ED being transferred to the ICU earlier.[2]

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The implementation of a 4-h target for EDs or Four Hour Rule Program initially started in the United Kingdom in 2000.[3] This target originally aimed for 100% of the patients attending the ED to be seen, treated and discharged, admitted to an inpatient facility, or transferred to a more appropriate location, within 4 h of arrival into the ED. The target was later adjusted to 98% to allow for patients to be kept in the ED to be stabilised fully before transfer, in case of clinical instability.[3] In Australia, the NEAT was initially trialled in April 2009 in Western Australia and subsequently introduced to the public healthcare system in January 2012. At the study site, the NEAT was introduced in November 2012. Although the NEAT is still a nationwide target, it was renamed Emergency Treatment Performance (ETP) in 2015 in New South Wales.[4]

The implementation of the NEAT was reported to have provided some positive changes such as improved patient throughput, reduced overcrowding in the ED, improved timeliness to ED care, decreased hospital mortality, and improved discharge planning.[5–7] While there are clear benefits to patients and the ED, some drawbacks in other areas have also been reported. Some of these drawbacks included an increase in delayed discharges from the ICU, resulting in increased length of stay and increased complexity in the planning and arrangement of patient transfers, for example, to wards that may not be equipped or otherwise prepared to provide the specialised and intensive care required.[5,8]

There is some acknowledgement that occupational violence in the healthcare setting is already a serious issue.[9–14] The manifestation of violence or aggression is considered to be complex and multifactorial, with contributing factors such as organisational, environmental, and individual components being recognised as influential.[15,16] Examples of violent behaviours experienced and reported by nurses and midwives in Victoria included being bitten, kicked, punched, pushed, threatened with weapons, and even included some death threats.[17] In rural areas, Alexander[9] showed that the most frequent form of violence was verbal, followed by threatening behaviour, physical violence, and sexualised behaviour. Gender differences were also reported, with male nurses proportionally more likely to receive higher rates of physical assaults or violent behaviour than female nurses.[18,19] Underreporting is another aspect surrounding occupational violence that is widely recognised in the healthcare setting.[11,15,19–21] An explanation for underreporting could be the varying definitions of what constitutes occupational violence. Beech[11] highlighted that studies investigating workplace violence usually have different meanings and criteria for what is defined as occupational violence. For example, who is involved, what constitutes violence, and where the incident takes place, all have an impact on whether violence is considered to be occupational violence. These varying and perhaps socially or culturally determined definitions make any comparison of the exact rates of occupational violence between countries or organisations challenging. The terms aggression and violence are often used interchangeably. The definition of aggression considered for the study was as defined by the health service: “any incidents in the clinical setting in which staff members are threatened, abused, or assaulted in circumstances arising out of, or in the course of, their employment” (22, p.3). Violence is sometimes defined differently from aggression as it is more likely to have an intent to cause harm than aggression.[23] There is sometimes an overlap between the two and as stated by the World Health Organization (2002): “Defining it is not an exact science but a matter of judgement.”(24, p. 4)

For the purposes of this study, the definition of occupational violence developed by the International Labour Office and the World Health Organization in the healthcare setting has been adopted. Occupational violence is defined as the following:

> Incidents where staff are abused, threatened or assaulted in circumstances related to their work, including commuting to and from work, involving an explicit or implicit challenge to their safety, well-being or health (25, p.10).

Perrone[15,26] highlighted that occupational violence in the healthcare setting remains mostly underresearched. Some research has taken place in the ED and mental health and nursing home settings, and these areas have been shown to have higher rates of violence.[27] There is still very little research investigating occupational violence and the impact of the NEAT implementation on the ICU. This lack of evidence means that the impact of new targets and this change to operational and clinical practice has yet to be systematically evaluated in the ICU setting. The lack of research on this change in practice creates the need to assess whether occupational violence was indeed actually increasing or whether the effect of such violence were being felt more intensively due to time constraints placed on the ED by the NEAT implementation or other pressures. Healthcare facilities in Victoria, Australia, and further afield must ensure that the workplace is safe and minimises risk to the health of its employees. In the state of Victoria, these responsibilities are governed by the Occupational Health and Safety Act, 2004 (p.1025). It is important to note that new standards have recently been developed in all Victorian hospitals in response to incidents of violence and aggression.[22]

1.1. Code Grey/Code Black activation definition

In Australia, emergency codes in healthcare are standardised,[28] and there is one emergency code used for aggressive behaviour, Code Black. In Victoria, however, another code was created as a recommendation from the Inquiry into Violence and Security Arrangements in Victorian Hospitals[19] in an attempt to standardise responses to violence further. A Code Grey is triggered by an actual in-hospital aggressive behaviour, while a Code Black is triggered when a weapon is also present or there is a serious threat to personal safety. The definition adopted for this study is slightly different in that a Code Grey was defined as any incident where a person threatens injury to others or themselves.

This study was designed to investigate whether anecdotal concerns that patients with presenting conditions that might precipitate challenging behaviours were being transferred to the ICU earlier owing to the constraints placed by the NEAT on the ED.

The aims in this study were to (i) determine the incidence of aggressive and violent behaviours exhibited by patients since the implementation of the NEAT in an ICU, (ii) identify the characteristics of patients exhibiting such behaviours, and (iii) determine the healthcare professionals most at risk of being subjected to occupational violence in this setting.

2. Methods

2.1. Research design and setting

A before and after retrospective review of medical records over a 24-month period was conducted to evaluate the impact of the NEAT on aggressive or violent behaviours of adult patients in the ICU. This study was conducted in a 45-bed adult ICU, at a metropolitan tertiary hospital in Victoria, Australia. More than 2500 patients are admitted to this unit yearly with a variety of conditions and acuity. On average, this ICU has 39 patients at any time, with a mix of ICU and High Dependency Unit (HDU) patients. Full ethical approval was obtained from the study site and the University before the start of data collection (116/14 and FHEC14/066).

2.2. Participants

Data from hospital medical records for a 24-month period between 2011 and 2013 were analysed. All records of adult patients (older than 18 years) admitted to the ICU from the ED for whom a Code Grey or Code Black was activated in the ICU were included in the study, in keeping with the study's aims. To determine whether the implementation of the NEAT had an effect, patient records were sampled from 12 months before the NEAT implementation and 12 months after the implementation. A total number of 47 patient records were included, 18 pre and 29 post, of a total of 823 records examined pre and 914 post NEAT implementation.

2.3. Data collection

There was no data collection tool suitable for this study. Data were, therefore, collected using a purpose-designed tool. The tool was piloted before its use on medical records of three patients to evaluate its face and content validity. As all the information collected was objective or physiological patient data, this information was not open to interpretation, and the tool was found suitable for use. The data were collected from the ICU observation chart, the hospital's electronic medical record system, and the patient history. Code Grey/Code Black data were collected from the security database. Data collected included the following: date and times of admission in the ICU and ED, gender, age, diagnosis, and previous signs of violence or aggression while admitted in the ED or ICU and if patients were intubated in the ED for agitation/aggression, the time of intubation, sedation used for transfer to the ICU, reason for admission to ICU, gender of staff involved in incident, type of staff involved, and time and the type of incident.

2.4. Data analysis

The data were imported and analysed using SPSS 22.0 (IBM Corp. Released 2013. IBM SPSS Statistics for Windows, version 22.0. Armonk, NY: IBM Corp). Descriptive statistics were used to report patients' demographic characteristics. Inferential statistics, using Pearson's chi-square and Fisher's exact test, were used to ascertain, which healthcare professionals were most at risk of occupational violence including differences in gender of healthcare professionals for verbal, physical, risk to self and risk to other incidents, and their level of education. Data normality was checked before performing statistical testing. The data were examined for approximate normality by variable, using the Shapiro–Wilk and skewness and kurtosis statistics. The Shapiro–Wilk statistic test was significant, indicating approximate normality. In addition, the skewness and kurtosis z-values of ±1.96 was also supportive of approximate normality of the variables. A p-value of <0.05 was considered statistically significant for the Shapiro–Wilk and skewness and kurtosis statistics.

3. Results

3.1. Incidence of Code Grey/Code Black 'activation' before and after NEAT implementation

In the 12 months before the NEAT implementation timeframe, the total percentage of Code Grey/Black activation that occurred was 2.19% ($n = 18$). The total percentage of Code Grey/Black activation that occurred in the specified timeframe after NEAT implementation was 3.17% ($n = 29$). There was a slight increase since the introduction of the NEAT of 0.98% Code Grey/Code Black activation or the equivalent of 11 more Code Grey/Code Black activation for patients who were transferred from the ED to the ICU ($\chi^2(1) = 1.598$, $p = 0.206$).

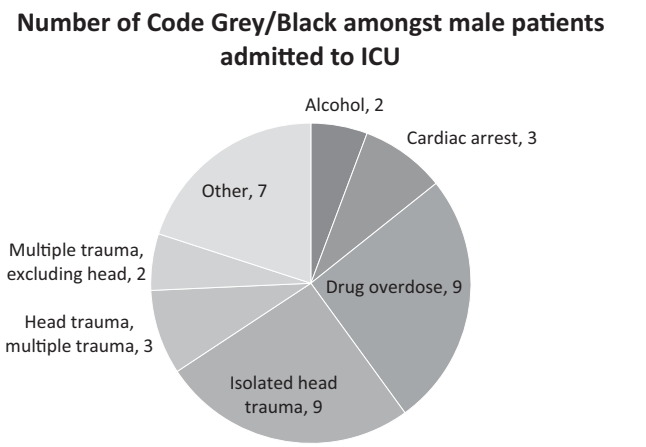

Fig. 1. Pie chart for male patients illustrating the number of Code Grey/Code Black activation for patients associated with their different diagnosis, during the 24-month period. Other include bacterial pneumonia (1), drug overdose, alcohol and trauma (1), mechanical airway obstruction (1), pancreatitis (1), seizure (1), burns (1), and sepsis (1). ICU, intensive care unit.

3.2. Diagnosis associated with a behaviour causing occupational violence

The most common type of admission from the ED to the ICU only for Code Grey/Code Black activation was for patients having taken a drug overdose, patients with isolated head trauma, patients admitted following a cardiac arrest, patients with a head trauma and multiple trauma, and patients with multiple trauma but excluding a head trauma, seizures, alcohol misuse, asthma, bacterial pneumonia, congestive heart failure, drug overdose combined with alcohol and trauma, and patients with a mechanical airway obstruction, pancreatitis, sepsis, and burns. Fig. 1 illustrates the number of Code Grey/Code Black activations associated with admission diagnosis for male patients, while Fig. 2 is representing the same information for female patients.

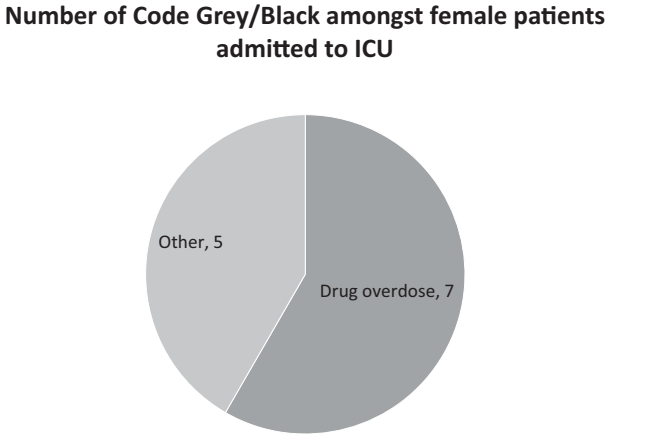

Fig. 2. Pie chart for female patients illustrating the number of Code Grey/Code Black activation for patients associated with their different diagnosis, during the 24-month period. Other include asthma (1), cardiac arrest (1), congestive heart failure (1), a combination of a drug overdose and alcohol (1), and seizure (1). ICU, intensive care unit.

3.3. Average age of patients for Code Grey/Code Black activation

The average age of male patients was 41.66 years compared with 31.25 years for female patients that activated a Code Grey/Code Black with male patients in the study being significantly older than female patients ($p = 0.024$).

3.4. ED length of stay and a comparison between pre- and post-NEAT means

The average ED length of stay time before the NEAT to admission in the ICU was 6.02 h. After the implementation of the NEAT, the average ED length of stay reduced to 4.75 h ($p = 0.325$).

3.5. Previous history of violence and ED management

A previous history of violent behaviour was identified for 13 patients. A total of 35 patients were intubated in the ED (before = 14; after = 21). Of these, 22 were intubated in the ED for management of agitation/aggression (before = 11; after = 11).

3.6. Healthcare professionals at risk

To determine whether there was a difference between healthcare professionals involved in Code Grey/Code Black activation and their level of qualification, the Fisher's exact tests were performed owing to assumption violations. As there were no incidents recorded for medical staff and associate nurse managers, only registered nurses (RNs), critical care registered nurses (CCRNs) and clinical nurse specialists (CNSs) were tested. The tests showed that Code Grey/Code Black activation incidents were more likely to occur toward female RNs ($n = 14$, 40.0%) compared with male RNs (n = 4, 33.3%); male CCRNs ($n = 7$, 58.3%) compared with female CCRNs ($n = 19$, 54.3%); and male CNSs ($n = 1$, 8.3%) compared with female CNSs ($n = 2$, 5.7%). Full results are presented in Table 1.

3.7. Types of incident

Fisher's exact tests were used to evaluate the type of incident that occurred toward healthcare professionals. These incidences included verbal violence, physical violence, a risk of harm to self, and a risk of harm to others. The gender of patients involved in such incidents was also evaluated. Full results are presented in Table 2. In this instance, there is no comparison made between the levels of qualification for healthcare professionals, only the gender of staff affected. The tests revealed that verbal violence was more likely to occur toward male nursing staff (66.7%) than female nursing staff (20%). Male nursing staff members were also more likely to be at a higher risk, of risk of harm to self (83.3%) and risk of harm to others (91.7%), than female nursing staff (77.1% and 71.8%, respectively). Female nursing staff members were more likely to be recipients of physical violence (45.7%) than their male nursing counterparts (25%). Full results are presented in Table 3.

Table 1
Associations between healthcare professional's gender and education levels.

Qualification	Gender distribution (%)	*p* value
RN	F 14 (40.00) M 4 (33.3)	0.68
CCRN	F 19 (54.3) M 7 (58.3)	0.81
CNS	F 2 (5.7) M 1 (8.3)	0.76
Total	F 35 (74.5) M 12 (25.5)	

F, female; M, male; RN, registered nurse; CCRN, critical care registered nurse; CNS, clinical nurse specialist.
RN refers to a person registered in division 1 on the register of Nurses of the Nursing and Midwifery Board of Australia established under the Health Practitioners Regulation National Law Act 2009. CCRNs are nurses who have a postgraduate qualification in critical care, while the term CNS has been used to refer to nurses appointed to that grade with either a critical care certificate or at 12-month experience in the ICU.[29]

Table 2
Types of incident involving other patients.

Type of incident	Gender distribution (%)	*p* value
Verbal violence	F 4 (33.3) M 11 (31.4)	0.90
Physical violence	F 2 (16.7) M 17 (48.6)	0.04[a]
Risk of harm to self	F 10 (83.3) M 27 (77.1)	0.65
Risk of harm to others	F 9 (75.0) M 30 (85.7)	0.41
Total	F 35 (74.5) M 12 (25.5)	

[a] Statistically significant.Preincidents and postincidents are combined, and the total number of incidents analysed was 47 (18 pre and 29 post).
More than one type of violence may have occurred in each incident, and this is reflected in the percentages.

4. Discussion

4.1. Incidence of Code Grey/Code Black activation compared with the pre- and post-NEAT

The data analysis showed that since the introduction of the NEAT there was a small but measurable (0.98%) increase in the call of Code Grey/Code Black activations in the ICU from the patients admitted from the ED. This study showed that 18 Code Grey/Code Black activations were triggered before the NEAT implementation and 29, after the NEAT implementation, although this increase was not statistically significant. This equated to 11 more Code Grey/Code Black activations since the introduction of the NEAT. This rise in Code Grey/Code Black activations is consistent with the Australian report by Perrone,[15] where occupational violence has been shown to have increased substantially in the previous decade, and while this increase was measured since the implementation of the NEAT, it is not possible to determine whether or not it is a direct effect of the NEAT. The number of patients admitted to the ICU from the ED since the introduction of the NEAT also increased from 823 to 914 within the same timeframe.

Interestingly, was the finding that the healthcare professionals most at risk overall for occupational violence, were male CCRNs

Table 3
Types of incident involving healthcare professionals.

Type of Incident	Gender distribution (%)	*p* value
Verbal violence	F 7 (20) M 8 (66.7)	0.03[a]
Physical violence	F 3 (45.7) M 16 (25)	0.20
Risk of harm to self	F 27 (77.1) M 10 (83.3)	0.65
Risk of harm to others	F 28 (71.8) M 11 (91.7)	0.32
Total	F 35 (74.5) M 12 (25.5)	

Preincidents and postincidents are combined, and the total number of incidents analysed was 47 (18 pre and 29 post). More than one type of violence may have occurred in each incident, and this is reflected in the percentages.
[a] Statistically significant.

compared with female CCRNs. They were, however, close in percentage terms of risk. In contrast, female RNs were more likely to be at risk than their male counterparts. Male CNSs compared with female CNSs were only slightly more at risk. When examining all nurses in ICU, female nursing staff members were, however, more at risk compared with male nursing staff. Whether patients identified as violent were preferentially allocated to male CCRNs rather than female CCRNs while other patients were not preferentially allocated and still displayed episodes of violence/aggression cannot be determined. This gendered pattern of patient allocation, with patients identified at risk of disruptive behaviours allocated to male CCRNs, while other staff members are allocated to patients with a lower anticipated risk could be an explanation, but this cannot be implied from the analysis in the present study. In the mental health setting, Daffern[30] reported that gender of staff around rostering and patient allocation was often considered, with the belief that male nurses can manage and deter aggression better than their female counterpart. They showed, however, that the number of incidents and severity had no relationship with staff gender, thus questioning the value of gendered allocation. The value of gendered allocation in the ICU needs to be investigated as research on gendered allocation is very limited.

While it is likely that other aggressive or violent incidents may have occurred, they were not recorded. A known problem around occupational violence is the underreporting of such events, and such underreporting is acknowledged by Alexander,[9] Beech,[11] and Perrone[15,31,32]. Results from the present study differ in comparison to Rippon[18] who reported that supervisors experienced more occupational violence than the general nursing staff. Results in the present study also do not support the findings from the State of Victoria: Department of Human Services[19] who found that healthcare professionals with less experience and lower education levels were at a higher risk of occupational violence at work. The present study showed that CCRNs were more at risk of occupational violence compared with relatively junior RNs. This could be because the risk for aggressive behaviour was identified early, and more senior staff members were allocated to the patient. This finding may also be related to the higher percentage of CCRNs than the RN ratios who work in the ICU setting, or because of staff allocation, with patients seen as more difficult to be managed allocated to the more experienced staff. CNSs, however, were not likely to be involved in Code Grey/Code Black activation incidents. This could be related to the nurse's allocation, staff skill mix to meet the requirements of the ICU, with CNSs often in a leadership role and in a supernumerary capacity. The present study results support the findings of the State of Victoria: Department of Human Services,[19] in that nurses were more likely to encounter occupational violence than medical staff and other healthcare professionals.[9,28,33]

Our study showed that verbal incidents were more likely to occur toward male nursing staff compared with female nursing staff ($n = 8$, 66.7% vs. $n = 7$, 20%). Female staff members, rather than male nursing staff, were more likely to be involved in physical incidents of violence ($n = 3$, 45.7%), and physical incidents were much more likely to be initiated by male patients rather than female patients; these results were statistically significant ($n = 17$, 48.6%; $p < 0.042$). While Arnetz[34] showed that being a male healthcare staff member was a risk factor for violence, they did not differentiate between verbal and physical violence. The present study partially supports this finding as more male staff members were subjected to verbal violence, while more female staff members were subjected to physical violence.

Our study also showed that female nursing staff members were more at risk of experiencing physical incidents ($n = 3$, 45.7%). This result differs from other published studies, for example, Arnetz et al. and Shepherd et al.[31,35] showed the opposite, in that male nurses were more at risk than female nurses when it came to physical assaults/violent behaviour and threats. The present study does, however, concur with Rippon,[18] State of Victoria: Department of Human Services[19] who showed that the risk to self and risk to others is similar and that risk of others was also highest followed by risk to self. Verbal abuse, however, in the State of Victoria: Department of Human Services[19] was more common than physical abuse, which is not supported by the findings of the present study. While the present study did find that physical abuse occurred more frequently, verbal abuse, toward the male nursing staff, was statistically significant.

4.2. Types of patients most likely to cause occupational violence

Drury[36] identified that those patients who were diagnosed as having taken a drug overdose or having received a head trauma were more likely to cause occupational violence. The present study also found that patients admitted with these pathologies were more likely to cause Code Grey/Code Black activation. The study showed that female patients ($n = 8$, 66.7%) compared with male patients ($n = 10$, 28.6%) were more like to cause Code Grey/Code Black activation, $p, < 0.20$. Of interest, there were no female patients diagnosed with an isolated head trauma. Male patients who presented with an isolated head trauma ($n = 9$, 25.7%) were likely to activate a Code Grey/Code Black, $p, < 0.22$.

4.3. Limitations

Although we examined all Code Grey/Code Black activation episodes over a 2-year period, the sample size remains small, and this could have some implications for generalisability. Of note, underreporting is an issue described with occupational violence, especially in the hospital setting,[20,37] and it may have also affected the results of this study. This in turn could have affected the number of incidents reported, which despite having increased did not show a statistical significance. Further retrospective studies are needed over a longer time span to increase the sample size. Despite these limitations and the need to replicate these findings across other ICUs, the findings presented in this study give an insight into the impact of the change in government targets on healthcare professionals and the incidence of occupational violence.

4.4. Recommendations for future practice

Specific recommendations to help reduce occupational violence in the ICU and to minimise the risk of harm to both patients and healthcare professionals are needed. Healthcare organisations must provide a safe environment for staff and also appropriate training for healthcare professionals on risk assessment and de-escalation techniques. An annual professional update for current healthcare professionals specific to the ICU would be valuable. Training has been shown to be effective in reducing incidents, improving staff morale, and optimising the response to incidents. These interventions have been shown to reduce serious incidents and minimised psychological harm to staff.[11] Training in itself, however, does not minimise the risk of occupational violence;[19] it improves response time, improves behaviour management, and in this way, contributes to improvements in staff safety. Addressing the underlying causes that can trigger aggressive and violent behaviours in patients with a particular diagnosis would contribute to a decrease in the incidence of such behaviours. Whether this is possible at the ED and ICU level or requires some systemic societal interventions would need further investigation.

Another suggested potential strategy that might reduce risk would be to enable alerts on admission to hospital. Patients having a previous history of violent behaviour or recurrent episodes could be flagged. While this could have the potential to alert the staff, it could stigmatise certain patients and potentially influence staff behaviour toward them such as has been shown in other conditions such as infectious disease.[38,39] Not only such stigmatisation can be detrimental to patient care, it could also potentially make staff less vigilant to other warning signs. For example, patients not identified as violent might be afforded less vigilance. Rather we argue that ensuring that an evidence-based approach to practice, policies, and procedures are used to identify any behaviour and respond to warning signs to prevent the need for Code Grey/Code Black activation before it occurs in the ED and ICU is the best approach to minimise the risk of harm to staff and patients. This will, in turn, enable the timely but safe transfer of patients to the appropriate care setting for ongoing treatment without this proving detrimental to staff and patient safety.

5. Conclusion

The introduction of benchmarks to measure performance in emergency care, such as the NEAT or Emergency Treatment Performance measures, may alter care pathways in one care setting and will, most likely, have an impact on other areas of practice as the patient journey progresses. There may be some unintended consequences from the implementation of the NEAT for both patients and healthcare professionals. Consequences may include discharging and transferring patients earlier before the NEAT, and thus, this could have an impact on the quality of care. Delivering care in a different setting has implications for the healthcare professional who needs to adapt care practices and to learn how to respond to such care needs. At times, this includes challenging and dangerous behaviours, and the priority for healthcare professionals is to keep themselves and their patients safe. The ICU is not immune to occupational violence. In this study, the incidence of violent behaviour, healthcare professionals subjected to these behaviours, and the characteristics of the patients exhibiting such behaviours were described. We found that there was a minimal increase in Code Grey/Code Black activation in the ICU since the introduction of the NEAT. Overall, this challenges the assumption that the introduction of the NEAT is the reason for the increased violence that healthcare professionals experienced. Other interesting insights were uncovered and included the gendered nature of the violence, and approaches to staff/patient allocation may also be significant for future research, for example, skill-based allocation rather than gender-based allocation. An important implication for clinical practice is the need for healthcare services to identify, investigate, and evaluate strategies to minimise the risk of harm to patients and staff in all care settings. Leaders, managers, and educators must ensure that healthcare professionals have the capability to assess and respond appropriately to the actual and potential risk and experiences of occupational violence in an increasingly changing and complex workplace environment.

Ethical approval

Full ethical approval was obtained from the study site and the university before the start of data collection (116/14 and FHEC14/066).

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CRediT authorship contribution statement

A. Pol: Conceptualization, Data curation, Writing – original draft, Writing – review & editing. **M. Carter:** Conceptualization, Writing – original draft, Writing – review & editing. **S. Bouchoucha:** Conceptualization, Data curation, Writing – original draft, Writing – review & editing.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.aucc.2018.10.003.

References

[1] Schuh N. 4-hour rule - feasible or flawed?. The NSW Doctor. 2012; March.
[2] Stokes B. Four hour rule program progress and issues review. Perth: Department of Health, Western Australia; 2011.
[3] Letham K, Gray A. The four-hour target in the NHS emergency departments: a critical comment. Emergencias 2012;24:69–72.
[4] Wales ECINS. Emergency Treatment Performance. 2017. Available from: http://www.aci.health.nsw.gov.au/networks/aci/administration/neat.
[5] Forero R, McCarthy S, Hillman K. Access block and emergency department overcrowding. Crit Care 2011;15(2):216. https://doi.org/10.1186/cc9998.
[6] Staib A, Sullivan C, Griffin B, Bell A, Scott. I. Report on the 4-h rule and national emergency access target (NEAT) in Australia: time to review. Aust Health Rev 2016;40:319–23. https://doi.org/10.1071/AH15071.
[7] The State of Queensland (Queensland Health). Queensland clinical senate 27-28 March 2014 meeting report and recommendation. In: Queensland Health, editor. National emergency access target: is 90% the right target? Queensland: The State of Queenland (Queensland Health); 2014.
[8] V van Heerden P, Blott JA, Pinder M, Cameron PD, Roberts PL, Brinkworth A, et al. Intensive care unit occupancy after the introduction of the emergency department 4-hour discharge rule at a tertiary hospital in Western Australia. Crit Care Resusc 2013;15(4):318–21.
[9] Alexander C, Fraser, Hoeth Richard. Occupational violence in an Australian healthcare setting: implications for managers. J Healthc Manag 2004;49(6):377–90.
[10] Alexy EM, Hutchins JA. Workplace violence: a primer for critical care nurses. Crit Care Nurs Clin 2006;18(3):305–12.
[11] Beech B, Leather P. Workplace violence in the healthcare sector: a review of staff training and integration of training evaluation models. Aggress Violent Behav 2006;11(1):27–43. https://doi.org/10.1016/j.avb.2005.05.004.
[12] Mayhew C, Chappell D. Workplace violence in the health sector - a case study in Australia. 2003. Available from: http://www.icn.ch/images/stories/documents/pillars/sew/sew_country_case_studies_australia.pdf.
[13] Smtih-Pittman MH, McKoy, Yvonne D. Workplace violence in healthcare environments. Nurs Forum 1999;34(3):5–13.
[14] Chapman R, Styles I. An epidemic of abuse and violence: nurse on the front line. Accid Emerg Nurs 2006;14(4):245–9. https://doi.org/10.1016/j.aaen.2006.08.004.
[15] Perrone S. Violence in the workplace. Canberra: Australian Institute of Criminology; 1999.
[16] Clark G. Organisational culture and safety: an interdependent relationship. Aust Health Rev 2002;25(6):181–9.
[17] Australian Nursing Federation. Media release: nurses tell the Napthine Government to stop accepting the unacceptable. 2013. Available from: http://www.anmfvic.asn.au/campaigns/news/43759.html.
[18] Rippon TJ. Aggression and violence in health care professions. J Adv Nurs 2000;31(2):452–60. https://doi.org/10.1016/j.jen.2007.01.015.
[19] State of Victoria: Department of Human Services. Occupational violence in nursing: an analysis of the phenomenon of code grey/black events in four Victorian hospitals Melbourne: policy and Strategic Projects Division. Victorian Government; 2005 [12 March 2014]. Available from: http://www.health.vic.gov.au/__data/assets/pdf_file/0008/17585/codeblackgrey.pdf.
[20] Kowalenko T, Gates Donna, Gordon Lee Gillespie, Succop P, Mentzel Tammy K. Prospective study of violence against ED workers. Am J Emerg Med 2013;31(1):197–205. https://doi.org/10.1016/j.ajem.2012.07.010.
[21] State of Victoria: Department of Human Services. Victorian taskforce on violence in nursing: final report. Melbourne: nurse policy branch. Victorian Government Department of Human Services; 2005. Available from: http://www.health.vic.gov.au/__data/assets/pdf_file/0007/17674/victaskforcevio.pdf.
[22] Local Hospital. Prevention and management of aggression. Melbourne. 2013. p. 1–16.
[23] Garnham P. Understanding and dealing with anger, aggression and violence. Nurs Stand 2001;16(6):37–42.
[24] World Health Organization. World report on violence and health: summary. Geneva: World Health Organization; 2002.

[25] Drugs and Crime Prevention Committee. Inquiry into violence and security arrangement in Victorian Hospitals and, in particular, emergency departments. Melbourne: Parliament of Victoria; 2011.
[26] Department of Health & Human Services. Code grey standards. State Government Victoria; 2014. p. 3.
[27] State of Victoria. Improving safety and security to Victorian hospitals: factsheet January 2015. In: Department of health & human services; 2015. p. 2.
[28] Roche M, Diers D, Dufflied C, Catling-Paull C. Violence toward nurses, the work environment, and patient outcomes. J Nurs Scholarsh 2010;42(1):13–22. https://doi.org/10.1111/j.15475069.2009.01321.x.
[29] Australian Nursing & Midwifery Federation (Victorian Branch). Nurses and midwives (Victorian public health sector) (single interest employers) enterprise agreement 2016-2020. Melbourne. 2017 [cited 2018]. Available from:, http://www.anmfvic.asn.au/~/media/files/ANMF/EBA 2016/Nurses-and-Midwives-Vic-PS-SIE-EA-2016-2020-amended.
[30] Daffern M, Mayer M, Martin T. Staff gender ratio and aggression in a forensic psychiatric hospital. Int J Ment Health Nurs 2006;15:93–9. https://doi.org/10.1111/j.1447-0349.2006.00408.x.
[31] Shepherd M, Lavender T. Putting aggression into context: an investigation into contextual factors influencing the rate of aggressive incidents in a psychiatric hospital. J Ment Health 1999;8(2):159–70.
[32] Mercer M. The dark side of the job: violence in the emergency department. J Emerg Nurs 2007;33:257–61. https://doi.org/10.1016/j.jen.2007.01.015.
[33] Chen KP, Ku YC, Yang HF. Violence in the nursing workplace - a descriptive correlational study in a public hospital. J Clin Nurs 2013;22(5–6):798–805.
[34] Arnetz JE, Arnetz BB. Implementation and evaluation of a practical intervention programme for dealing with violence towards health care workers. J Adv Nurs 2000;31:668–80.
[35] Arnetz JE, Arnetz BB, Petterson I-L. Violence in the nursing profession: occupational and lifestyle risk factors in Swedish nurses. Work Stress 1996;10(2):119–27. https://doi.org/10.1080/02678379608256791.
[36] Drury T. Recognizing the potential for violence in the ICU. Dimens Crit Care Nurs 1997;16(6):314–23.
[37] Kowalenko T, Cunningham Rebecca, Sachs Carolyn J, Gore Robert, Barata Isabel A, Gates Donna, et al. Workplace violence in emergency medicine:current knowledge and future directions. J Emerg Med 2012;43(3):523–31. https://doi.org/10.1016/j.jemermed.2012.02.056.
[38] Butt G. Stigma in the context of hepatitis C: concept analysis. J Adv Nurs 2008;6(62):712–24.
[39] Day C, Ross J, Dolan K. Hepatitis C-related discrimination among heroin users in Sydney: drug user or hepatitis C discrimination? Drug Alcohol Rev 2003;3(22):317–21.