

Violence and Aggression in the Intensive care: What is the impact of Australian National
Emergency Access Target?

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Violence and Aggression in the Intensive care: What is the impact of Australian National Emergency

Access Target?

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 in order 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 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 prior to the introduction of the National Emergency Access Target up until 12 months following its implementation (2011 to 2013).

Results. A small increase in the number of Code Grey/Code Black activation was identified following the introduction of the target (pre = 18, post = 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 were found to be more likely to be involved in incidences of verbal violence ($p < .003$).

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.

Keywords: Aggressive Behaviour; Violent Behaviour; Code Grey/Code Black; Emergency Department; National Emergency Access Target (NEAT); Intensive Care Unit; Occupational Violence; Nursing.

Introduction

Occupational violence is a widespread problem in healthcare settings. The introduction of the National Emergency Access Target (NEAT), also known as the 'four hour 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 or not an ICU had an actual or perceived increased incidence of occupational violence following 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 upon EDs to meet the NEAT with patients previously managed in the ED being transferred to the ICU earlier (2).

The implementation of a four-hour target for EDs or Four Hour Rule Program (FHRP) initially started in the United Kingdom (UK) 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 four hours of arrival into the ED. The target was later adjusted to 98% to allow for patients to be kept in the ED in order 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

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183 stay, increased complexity in the planning and arrangement of patient transfers, for example, to wards
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185 that may not be equipped or otherwise prepared to provide the specialised and intensive care required
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187 (5, 8).
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191 There is some acknowledgement that occupational violence in the healthcare setting is already a
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193 serious issue (9-14). The manifestation of violence or aggression is considered to be complex and
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195 multifactorial, with contributing factors such as organisational, environmental and individual
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197 components being recognised as influential (15, 16). Examples of violent behaviours experienced and
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199 reported by nurses and midwives in Victoria included being bitten, kicked, punched, pushed,
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201 threatened with weapons and even included some death threats (17). In rural areas, Alexander (9)
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203 showed that the most frequent form of violence was verbal, followed by threatening behaviour,
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205 physical violence and sexualised behaviour. Gender differences were also reported, with male nurses
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207 proportionally more likely to receive higher rates of physical assaults or violent behaviour than female
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209 nurses (18, 19). Under reporting is another aspect surrounding occupational violence that is widely
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211 recognised in the healthcare setting (11, 15, 19-21). An explanation for underreporting could be the
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213 varying definitions of what constitutes occupational violence. Beech (11) highlighted that studies
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215 investigating workplace violence usually have different meanings and criteria for what is defined as
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217 occupational violence. For example, who is involved, what constitutes violence and where the
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219 incident takes place, all have an impact on whether or not violence is considered to be occupational
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221 violence. These varying and perhaps socially or culturally determined definitions make any
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223 comparison of the exact rates of occupational violence between countries or organisations
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225 challenging. The terms aggression and violence are often used interchangeably. The definition of
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227 aggression considered for the study was as defined by the health service: “any incidents in the clinical
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229 setting in which staff are threatened, abused or assaulted in circumstances arising out of, or in the
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231 course of, their employment” (22, p.3) . Violence is sometimes defined differently from aggression as
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233 it is more likely to have an intent to cause harm than aggression (23). There is sometimes an overlap
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235 between the two and as stated by the World Health Organization (WHO) (2002): ‘Defining it is not an
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237 exact science but a matter of judgement.’ (24, p.4).
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243 For the purposes of this study, the definition of occupational violence developed by the International
244 Labour Office (ILO) and the WHO in the healthcare setting has been adopted. Occupational violence
245 is defined as:
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249 Incidents where staff are abused, threatened or assaulted in circumstances related to their
250 work, including commuting to and from work, involving an explicit or implicit challenge to
251 their safety, well-being or health (25, p.10).
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257 Perrone (15, 26) highlighted that occupational violence in the healthcare setting remains mostly under
258 researched. Some research has taken place in the ED, mental health and nursing home settings, and
259 these areas have been shown to have higher rates of violence (27). There is still very little research
260 investigating occupational violence and the impact of the NEAT implementation on the ICU. This
261 lack of evidence means that the impact of new targets and this change to operational and clinical
262 practice has yet to be systematically evaluated in the ICU setting. The lack of research on this change
263 in practice creates the need to assess whether occupational violence was indeed actually increasing or
264 whether the effect of such violence were being felt more intensively due to time constraints placed
265 upon the ED by the NEAT implementation or other pressures. Healthcare facilities in Victoria,
266 Australia and further afield must ensure that the workplace is safe and minimises risk to the health of
267 its employees. In the State of Victoria, these responsibilities are governed by the Occupational Health
268 and Safety Act, 2004 (p.1025). It is important to note that new standards have recently been
269 developed in all Victorian hospitals in response to incidents of violence and aggression (22).
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283 ***Code Grey/Code Black activation definition***

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288 In Australia, emergency codes in healthcare are standardised (28) and there is one emergency code
289 used for aggressive behaviour, *Code Black*. In Victoria, however, another code was created as a
290 recommendation from the Inquiry into Violence and Security Arrangements in Victorian Hospitals
291 (19) in an attempt to standardise responses to violence further. A *Code Grey* is triggered by an actual
292 in-hospital aggressive behaviour while a *Code Black* is triggered when a weapon is also present or
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301 there is a serious threat to personal safety. The definition adopted for this study is slightly different in
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303 that a *Code Grey* was defined as any incident where a person threatens injury to others or themselves.
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305 This study was designed to investigate whether or not anecdotal concerns that patients with presenting
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307 conditions that might precipitate challenging behaviours were being transferred to the ICU earlier due
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309 to the constraints placed by the NEAT on the ED.
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314 The aims in this study were to: (i) determine the incidence of aggressive and violent behaviours
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316 exhibited by patients since the implementation of the NEAT in an ICU, (ii) identify the characteristics
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318 of patients exhibiting such behaviours and (iii) determine the healthcare professionals most at risk of
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320 being subjected to occupational violence in this setting.
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324 **Methods**

325 *Research design and setting*

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328 A before and after retrospective review of medical records over a 24-month period was conducted to
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330 evaluate the impact of the NEAT on aggressive or violent behaviours of adult patients in the ICU.
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332 This study was conducted in a 45-bed adult ICU, at a metropolitan tertiary hospital in Victoria,
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334 Australia. Over 2,500 patients are admitted to this unit yearly with a variety of conditions and acuity.
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336 On average, this ICU has 39 patients at any time, with a mix of ICU and High Dependency Unit
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338 (HDU) patients. Full ethical approval was obtained from the study site and the University prior to the
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340 start of data collection (116/14 and FHEC14/066).
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348 *Participants*

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351 Data from hospital medical records for a 24-month period between 2011 and 2013 were analysed. All
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353 records of adult patients (over 18 years) admitted to the ICU from the ED for whom a Code Grey or
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355 Code Black was activated in the ICU were included in the study, in keeping with the study's aims. In
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363 order to determine whether or not the implementation of the NEAT had an effect, patient records were
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365 sampled from 12 months before the NEAT implementation and 12 months after the implementation.
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367 A total number of 47 patient records were included, 18 pre and 29 post, out of a total of 823 records
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369 examined pre and 914 post NEAT implementation.
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371 372 373 *Data collection*

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375 There was no data collection tool suitable for this study. Data were therefore, collected using a
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377 purpose-designed tool. The tool was piloted before its use on medical records of three patients to
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379 evaluate its face and content validity. As all the information collected was objective or physiological
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381 patient data, this information was not open to interpretation and the tool was found suitable for use.
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383 The data were collected from the ICU observation chart, the hospital's electronic medical record
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385 system and the patient history. Code Grey/Code Black data were collected from the security database.
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387 Data collected included: Date and times of admission in the ICU and ED, gender, age, diagnosis,
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389 previous signs of violence or aggression whilst admitted in ED or ICU, were patients intubated in ED
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391 for agitation/aggression, time of intubation, sedation used for transfer to ICU, reason for admission to
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393 ICU, gender of staff involved in incident, type of staff involved, time and the type of incident.
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396 397 *Data analysis*

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400 The data were imported and analysed using SPSS 22.0 (IBM Corp. Released 2013. IBM SPSS
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402 Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp). Descriptive statistics were used to
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404 report patients' demographic characteristics. Inferential statistics, using Pearson's chi-square and
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406 Fisher's Exact test, were used to ascertain, which healthcare professionals were most at risk of
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408 occupational violence including differences in gender of healthcare professionals for verbal, physical,
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410 risk to self and risk to other incidents and their level of education. Data normality was checked prior
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412 to performing statistical testing. The data were examined for approximate normality by variable, using
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414 the Shapiro-Wilk, skewness and kurtosis statistics. The Shapiro-Wilk statistic test was significant,
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416 indicating approximate normality. In addition, the skewness and kurtosis z-values of ± 1.96 was also
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423 supportive of approximate normality of the variables. A p -value of < 0.05 was considered statistically
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425 significant for the Shapiro-Wilk, skewness and kurtosis statistics.
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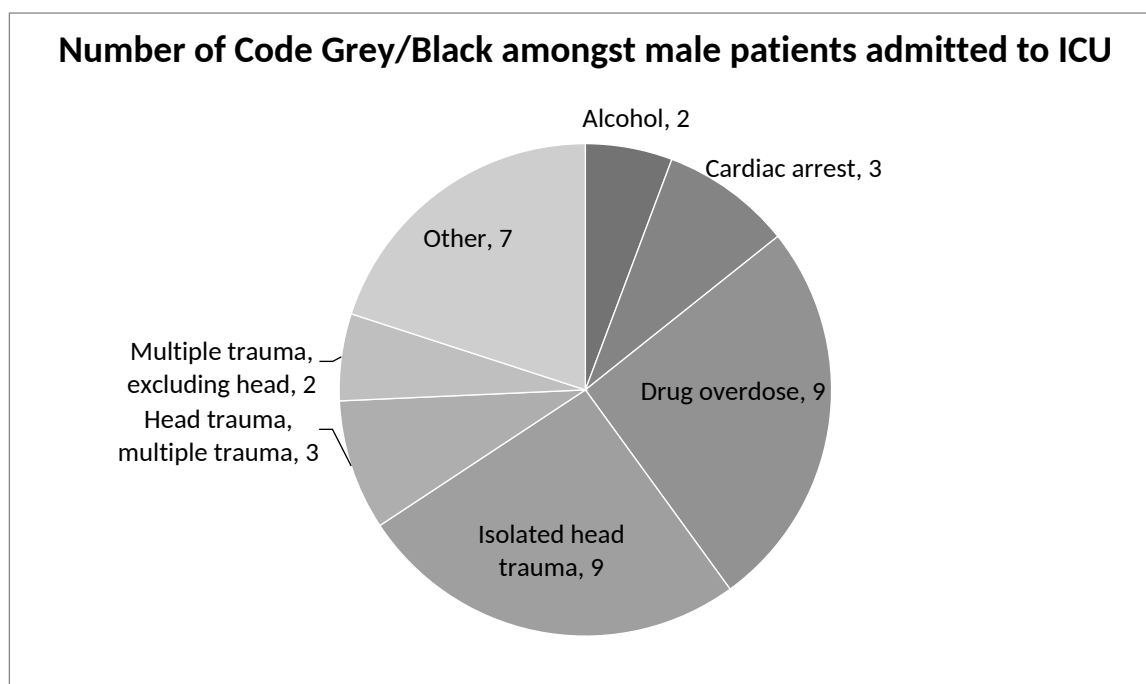
427 428 429 **Results**

430 431 432 *Incidence of Code Grey/Code Black 'activation' pre and post NEAT implementation*

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437 In the 12 months prior to the NEAT implementation timeframe the total percentage of Code
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439 Grey/Black activation that occurred was 2.19% ($n = 18$). The total percentage of Code Grey/Black
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441 activation that occurred in the specified timeframe post NEAT implementation was 3.17% ($n = 29$).
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443 There was a slight increase since the introduction of the NEAT of 0.98% Code Grey/Code Black
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445 activation, or the equivalent of 11 more Code Grey/Code Black activation patients that were admitted
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447 from the ED to the ICU ($\chi^2(1) = 1.598, p = .206$).
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449 450 *Diagnosis associated with a behaviour causing occupational violence*

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454 The most common type of admission from the ED to the ICU only for Code Grey/Code Black
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456 activation was for patients having taken a drug overdose, patients with isolated head trauma, patients
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458 admitted following a cardiac arrest, patients with a head trauma and multiple trauma, patients with
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460 multiple trauma but excluding a head trauma, seizures, alcohol misuse, asthma, bacterial pneumonia,
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462 congestive heart failure, drug overdose combined with alcohol as well as trauma, patients with a
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464 mechanical airway obstruction, pancreatitis, sepsis and burns. Figure 1, illustrates the number of
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466 Code Grey/Code Black activations associated with admission diagnosis for male patients, whilst
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468 Figure 2 is representing the same information for female patients.
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503 **Figure 1.** Pie chart for male patients illustrating the number of Code Grey/Code Black activation patients associated with
504 their different diagnosis, during the 24-month period.

505 *Note.* Other include bacterial pneumonia (1), drug overdose, alcohol and trauma (1), mechanical airway obstruction (1),
506 pancreatitis (1), seizure (1), burns (1) and sepsis (1).

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Number of Code Grey/Black amongst female patients admitted to ICU

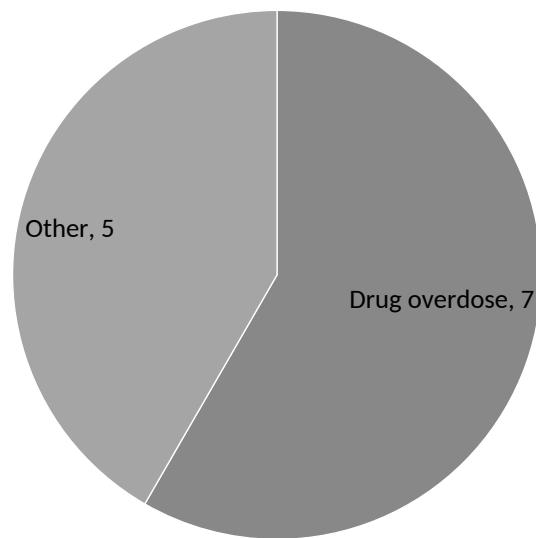


Figure 2. Pie chart for female patients illustrating the number of Code Grey/Code Black activation patients associated with their different diagnosis, during the 24-month period.

Note. Other include asthma (1), cardiac arrest (1), congestive heart failure, (1) and a combination of a drug overdose and alcohol (1) and seizure (1).

Average age of patients for Code Grey/Code Black activation

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

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

The average ED length of stay time pre the NEAT to admission in the ICU was 6.02 hours. Following the implementation of the NEAT the average ED length of stay reduced to 4.75 hours ($p = 0.325$).

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 (pre = 14; post = 21). Of these, 22 were intubated in the ED for management of agitation/aggression (pre = 11; post = 11).

Healthcare professionals at risk

In order to determine whether there was a difference between healthcare professionals involved in a Code Grey/Code Black activation and their level of qualification, the Fisher's Exact tests were performed due to assumption violations. As there were no incidents recorded for medical staff and Associate Nurse Managers (ANMs), only Registered Nurses (RNs), Critical Care Registered Nurses (CCRN) 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 to male RNs ($n = 4, 33.3\%$); male CCRNs ($n = 7, 58.3\%$) compared to female CCRNs ($n = 19, 54.3\%$) and male CNSs ($n = 1, 8.3\%$) compared to female CNSs ($n = 2, 5.7\%$). Full results are presented in Table 1.

Table 1

Associations between healthcare professionals gender and education levels

Qualification	Gender distribution (%)	<i>p</i> 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)	

Note. F = Female; M = Male; RN = Registered Nurse; CCRN = Critical Care Registered Nurse and 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 (EBA). CCRN are nurses that 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 months experience in the ICU(29)

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 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 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 2

Types of incident involving other patients

Type of Incident	Gender distribution (%)	<i>p</i> 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*
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)	

Note. Pre and post incidents 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.

Table 3

Types of incident involving healthcare professionals

Type of Incident	Gender distribution (%)	<i>p</i> value
Verbal violence	F 7 (20) M 8 (66.7)	0.03*
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)	

Note. * = statistically significant. Pre and post incidents 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.

Discussion*Incidence of Code Grey/Code Black activation compared to 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 prior to the NEAT implementation and 29 post 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.

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783 Interestingly, was the finding that the healthcare professionals most at risk overall for occupational
784 violence, were male CCRNs compared to female CCRNs. They were, however, close in percentage
785 terms of risk. In contrast, female RNs were more likely to be at risk than their male counterparts.
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787 Male CNSs compared to female CNSs were only slightly more at risk. When examining all nurses in
788 ICU, female nursing staff were however, more at risk compared to male nursing staff. Whether or not
789 patients identified as violent were preferentially allocated to male CCRNs rather than female CCRNs
790 while other patients were not preferentially allocated and still displayed episodes of
791 violence/aggression cannot be determined. This gendered pattern of patient allocation, with patients
792 identified at risk of disruptive behaviours allocated to male CCRNs, whilst other staff are allocated to
793 patients with a lower anticipated risk could be an explanation but this cannot be implied from the
794 analysis in the current study. In the mental health setting, Daffern (30) reported that gender of staff
795 around rostering and patient allocation was often considered, with the belief that male nurses can
796 manage and deter aggression better than their female counterpart. They showed, however, that the
797 number of incidents and severity had no relationship with staff gender, thus questioning the value of
798 gendered allocation. The value of gendered allocation in the ICU needs to be investigated as research
799 on gendered allocation is very limited.
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817 While it is likely that other aggressive or violent incidents may have occurred, they were not recorded.
818 A known problem around occupational violence is the underreporting of such events and such
819 underreporting is acknowledged by Alexander (9), Beech (11), Perrone (15), (31, 32). Results from
820 the current study differ in comparison to Rippon (18) who reported that supervisors experienced more
821 occupational violence than the general nursing staff. Results in the current study also do not support
822 the findings from State of Victoria: Department of Human Services (19) who found that healthcare
823 professionals with less experience and lower education levels were at a higher risk of occupational
824 violence at work. The current study showed that CCRNs were more at risk of occupational violence
825 compared to relatively junior RNs. This could be because risk for aggressive behaviour was identified
826 early and more senior staff members allocated to the patient. This finding may also be related to the
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843 higher percentage of CCRNs than the RN ratios that work in the ICU setting, or because of staff
844 allocation, with patients seen as more difficult to be managed allocated to the more experienced staff.
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847 CNSs however, were not likely to be involved in Code Grey/Code Black activation incidents. This
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849 could be related to the nurse's allocation, staff skill mix to meet the requirements of the ICU, with
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851 CNSs often in a leadership role and in a supernumerary capacity. The current study results support the
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853 findings of State of Victoria: Department of Human Services (19) in that nurses were more likely to
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855 encounter occupational violence than medical staff and other healthcare professionals (9, 28, 33).
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859 Our study showed that verbal incidents were more likely to occur towards male nursing staff
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861 compared to female nursing staff ($n = 8, 66.7\%$ vs. $n = 7, 20\%$). Female, rather than male nursing staff,
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863 were more likely to be involved in physical incidents of violence ($n = 3, 45.7\%$), and physical
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865 incidents were much more likely to be initiated by male patients rather than female patients, these
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867 results were statistically significant ($n = 17, 48.6\%$; $p < .042$). While Arnetz (34) showed that being a
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869 male healthcare staff member was a risk factor for violence, they did not differentiate between verbal
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871 and physical violence. The current study partially supports this finding, as more male staff were
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873 subjected to verbal violence while more female staff were subjected to physical violence.
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877 Our study also showed that female nursing staff were more at risk of experiencing physical incidents
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879 ($n = 3, 45.7\%$). This result differs from other published studies, for example Arnetz et al, and
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881 Shepherd et al, (31, 35) showed the opposite, in that male nurses were more at risk than female nurses
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883 when it came to physical assaults/violent behaviour and threats. The current study does, however,
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885 concur with Rippon (18), State of Victoria: Department of Human Services (19) who showed that the
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887 risk to self and risk to others is similar and that risk of others was also highest followed by risk to self.
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889 Verbal abuse, however, in the State of Victoria: Department of Human Services (19) was more
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891 common than physical abuse, which is not supported by the current study findings. While the current
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893 study did find that physical abuse occurred more frequently, verbal abuse, toward male nursing staff
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895 was statistically significant.
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905 *Types of patients most likely to cause occupational violence*
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909 Drury (36) identified those patients who were diagnosed as having taken a drug overdose or having
910 received a head trauma, were more likely to cause occupational violence. The current study also
911 found that patients admitted with these pathologies were more likely to cause a Code Grey/Code
912 Black activation. The study showed that female patients ($n = 8, 66.7\%$) compared to male patients (n
913 $= 10, 28.6\%$) were more like to cause a Code Grey/Code Black activation, $p, < 0.20$. Of interest, there
914 were no female patients diagnosed with an isolated head trauma. Male patients that presented with an
915 isolated head trauma ($n = 9, 25.7\%$) were likely to activate a Code Grey/Code Black, $p, < 0.22$.
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924 *Limitations*
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928 Although we examined all Code Grey/Code Black activation episodes over a 2-year period, the
929 sample size remains small and this could have some implications for generalisability. Of note,
930 underreporting is an issue described with occupational violence, especially in the hospital setting (20,
931 37) and it may have also affected the results of this study. This in turn could have affected the number
932 of incidents reported, which despite having increased did not show a statistical significance. Further
933 retrospective studies are needed over a longer timespan to increase the sample size. Despite these
934 limitations and the need to replicate these findings across other ICUs the findings presented in this
935 study give an insight into the impact of the change in government targets on healthcare professionals
936 and the incidence of occupational violence.
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948 *Recommendations for future practice*
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952 Specific recommendations to help reduce occupational violence in the ICU and to minimise the risk
953 of harm to both patients and healthcare professionals are needed. Healthcare organisations must
954 provide a safe environment for staff and also appropriate training for healthcare professionals on risk
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963 assessment and de-escalation techniques. An annual professional update for current healthcare
964 professionals specific to the ICU would be valuable. Training has been shown to be effective in
965 reducing incidents, improving staff morale, and in optimising the response to incidents. These
966 interventions have been shown to reduced serious incidents and minimised psychological harm to
967 staff (11). Training in itself however, does not minimise the risk of occupational violence (19), it
968 improves response time, improves behaviour management and in this way contributes to
969 improvements in staff safety. Addressing the underlying causes that can trigger aggressive and violent
970 behaviours in patients with a particular diagnosis would contribute to a decrease in the incidence of
971 such behaviours. Whether or not this is possible at the ED and ICU level or requires some systemic
972 societal interventions would need further investigation.
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985 Another suggested potential strategy that might reduce risk would be to enable alerts on admission to
986 hospital. Patients having a previous history of violent behaviour or recurrent episodes could be
987 flagged. While this could have the potential to alert the staff, it could stigmatise certain patients and
988 potentially influence staff behaviour towards them such as has been shown in other conditions such as
989 infectious disease (38, 39). Not only such stigmatisation can be detrimental to patient care, it could
990 also potentially make staff less vigilant to other warning signs. For example, patients not identified as
991 violent might be afforded less vigilance. Rather we argue that ensuring that an evidence-based
992 approach to practice, policies and procedures are utilised to identify any behaviour and respond to
993 warning signs to prevent the need for a Code Grey/Code Black activation before it occurs in the ED
994 and ICU, is the best approach to minimise the risk of harm to staff and patients. This will, in turn,
995 enable the timely but safe transfer of patients to the appropriate care setting for ongoing treatment
996 without this proving detrimental to staff and patient safety.
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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 prior to 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 as well as 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.

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Author contribution

AP, MC and SB all contributed to the study design. AP and SB completed data analysis, and all authors contributed to data interpretation and manuscript preparation. All authors approve the final manuscript for publication.

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MEMORANDUM

To: Dr Melody Carter – Department of Nursing

Student: Albertina Pol

From: Chair, La Trobe University Faculty Human Ethics Committee

Subject: FHEC acceptance of The Alfred HREC approved project – 116/14. FHEC14/066

Title: Management of aggressive or violent patients in a metropolitan adult intensive care unit

Date: 14 April, 2014

Thank you for submitting the above protocol to the Faculty Human Ethics Committee (FHEC). Your material was forwarded to the FHEC Chair for consideration. Following evidence of a full review and subsequent final approval by the **The Alfred HREC**, the FHEC Chair agrees that the protocol complies with the National Health and Medical Research Council's *National Statement on Ethical Conduct in Human Research* and is in accordance with La Trobe University's *Human Research Ethics Guidelines*.

Endorsement is given for you to take part in this study in line with the conditions of final approval outlined by The Alfred HREC.

Limit of Approval. La Trobe FHEC endorsement is limited strictly to the research protocol as approved by The Alfred HREC.

Variation to Project. As a consequence of the previous condition, any subsequent modifications approved by The Alfred HREC for the project should be notified formally to the FHEC.

Annual Progress Reports. Copies of all progress reports submitted to The Alfred HREC are to be forwarded to the FHEC. Failure to submit a progress report will mean that endorsement for your involvement in this project will be rescinded. An audit related of your involvement in the study may be conducted by the FHEC at any time.

Final Report. A copy of the final report is to be forwarded to the FHEC within one month of it being submitted by The Alfred HREC.

If you have any queries related to the information above or require further clarifications, please fhehealth@latrobe.edu.au. Please quote FHEC application reference number FHEC14/066.

On behalf of the Faculty Human Ethics Committee, best wishes with your research!

A handwritten signature in black ink, appearing to read "Owen M Evans". The signature is written in a cursive style with a period at the end.

Owen M Evans, PhD

Chair

Faculty Human Ethics Committee

Faculty of Health Sciences



ETHICS COMMITTEE CERTIFICATE OF APPROVAL

This is to certify that

Project No: 116/14

Project Title: Management of aggressive or violent patients in a metropolitan adult intensive care unit

Principal Researcher: Paul Ross

*was considered for Low Risk Review and **APPROVED** on 7 April 2014*

It is the Principal Researcher's responsibility to ensure that all researchers associated with this project are aware of the conditions of approval and which documents have been approved.

The Principal Researcher is required to notify the Secretary of the Ethics Committee, via amendment or report, of

- Any significant change to the project and the reason for that change, including an indication of ethical implications (if any);
- Serious adverse effects on participants and the action taken to address those effects;
- Any other unforeseen events or unexpected developments that merit notification;
- The inability of the Principal Researcher to continue in that role, or any other change in research personnel involved in the project;
- A delay of more than 12 months in the commencement of the project; and,
- Termination or closure of the project.

Additionally, the Principal Researcher is required to submit

- A Final Report on completion of the project.

Approval covers the project as described in the application (including any modifications made prior to approval). Low Risk projects are subject to audit and ethical approval may be withdrawn if the project deviates from that proposed and approved.

SPECIAL CONDITIONS

None

SIGNED:

**R Frew
Secretary, Ethics Committee**

Please quote project number and title in all correspondence

Author contribution

AP, MC and SB all contributed to the study design. AP and SB completed data analysis, and all authors contributed to data interpretation and manuscript preparation. All authors approve the final manuscript for publication.