

## ORIGINAL ARTICLE

## Perspectives of hospital emergency department staff on trauma-informed care for injured children: An Australian and New Zealand analysis

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**Aim:** To examine Australian and New Zealand emergency department (ED) staff's training, knowledge and confidence regarding trauma-informed care for children after trauma, and barriers to implementation.

**Methods:** ED staff's perspectives on trauma-informed care were assessed using a web-based self-report questionnaire. Participants included 468 ED staff (375 nursing and 111 medical staff) from hospitals in Australia and New Zealand. Data analyses included descriptive statistics,  $\chi^2$  tests and multiple regressions.

**Results:** Over 90% of respondents had not received training in trauma-informed care and almost all respondents (94%) wanted training in this area. While knowledge was associated with a respondent's previous training and profession, confidence was associated with the respondent's previous training, experience level and workplace. Dominant barriers to the implementation of trauma-informed care were lack of time and lack of training.

**Conclusions:** There is a need and desire for training and education of Australian and New Zealand ED staff in trauma-informed care. This study demonstrates that experience alone is not sufficient for the development of knowledge of paediatric traumatic stress reactions and trauma-informed care practices. Existing education materials could be adapted for use in the ED and to accommodate the training preferences of Australian and New Zealand ED staff.

**Key words:** child; emergency service, hospital; mental health; paediatrics; stress disorders, post-traumatic.

### What is already known on this topic

- 1 Approximately 15% of injured children develop persistent stress symptoms that impair functioning and development.
- 2 Emergency department (ED) staff are in a key position to help prevent persistent stress in injured children.
- 3 There is a lack of understanding and training in this area among ED staff worldwide.

### What this paper adds

- 1 This study of Australian and New Zealand ED staff demonstrates that there is a need and desire for training in persistent stress reactions and psychosocial aspects of acute health care in this region.
- 2 Additionally, this study shows that experience alone is not sufficient for the development of knowledge of persistent stress reactions following a paediatric injury.
- 3 The responses suggest specific topics of this education, such as the child's experience of pain increasing the risk of persistent stress reactions.

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In Australia and New Zealand, injury is one of the leading causes of hospitalised morbidity,<sup>1</sup> with over 100 000 children presenting to emergency departments (EDs) with injuries each year.<sup>2,3</sup> Childhood injuries can have profound and lifelong effects, including permanent physical disabilities and long-term cognitive or psychological difficulties.<sup>4</sup> Post-traumatic stress (PTS) is a

common psychological response after a childhood injury and can include symptoms such as intrusive thoughts, sleep problems and concentration difficulties.<sup>5–7</sup> PTS symptoms are distressing to the child and family and can result in impairment of functioning and delay the development of cognitive, social and emotional abilities.<sup>6–9</sup> The initial period following the injury is a critical window for the prevention or intervention of later PTS.<sup>10</sup> As such, paediatric ED staff have been recognised as having an important role in the prevention and management of PTS.<sup>11,12</sup>

Despite recognition of the impact of PTS, Australian paediatric emergency care clinicians report a lack of adequate psychosocial support provided to injured children and their families in EDs.<sup>1</sup>

To address this, researchers and clinicians have described the importance of providing ‘trauma-informed care’ in paediatric ED settings as a preventive approach to minimise the impact of emotional trauma.<sup>12</sup> Throughout this paper, ‘trauma’ refers to emotional trauma that may result from the accident, injury, illness or medical treatment, not physical injury. Trauma-informed care, as defined by the Substance Abuse and Mental Health Services Administration (SAMHSA), refers to the way in which organisations, and in this case ED staff and paediatric health-care systems, can prevent or minimise emotional trauma.<sup>13</sup> Specifically, a trauma-informed care approach in an organisation involves: understanding the widespread impact of trauma; being aware of the signs and symptoms of trauma in clients, families and staff; incorporating a knowledge of trauma into policies and procedures; and aiming to prevent further trauma.<sup>13</sup>

The provision of trauma-informed care in paediatric EDs minimises the risk of PTS, assists in managing the distress of injured children and their families, provides emotional support and promotes children’s mental and physical recovery.<sup>12,14,15</sup> Training in trauma-informed ED care may help improve outcomes for children.<sup>12,14</sup> Prior to implementing training programmes, it is important to establish ED staff’s current level of knowledge of trauma-informed care, their attitudes towards trauma-informed care and preferences for training in order to target the specific gaps in knowledge and meet the needs of the population. Previous research has examined ED staff practices and perspectives on trauma-informed care in hospitals in the USA<sup>16–18</sup> and in an international population,<sup>19</sup> indicating there is a lack of knowledge of psychological difficulties experienced by children following injuries and a lack of skills in promoting psychological recovery. However, the descriptions of international data provide little specific insight regarding levels of training or knowledge in trauma-informed care in Australia and New Zealand. The health-care systems in Australia and New Zealand differ from many of their international counterparts in the structure of training<sup>20</sup> and emergency care services,<sup>21</sup> the provision of publicly funded medical care, profile of paediatric injuries<sup>1,21,22</sup> and the geographical challenges of a dispersed population.<sup>21</sup> These characteristics of the EDs in Australia and New Zealand suggest that levels of training and training needs of staff in this region may differ from countries such as the USA.

The aim of the current study was to examine the perspectives of Australian and New Zealand ED staff on trauma-informed care. In particular, we aimed to understand: (i) what proportion of ED staff have received training in trauma-informed care and

their training preferences; (ii) ED staff’s knowledge of PTS in children; (iii) ED staff’s confidence in providing trauma-informed care; and (iv) what barriers to implementing trauma-informed care are experienced by ED staff.

## Methods

### Design

The data used in this study were extracted from a larger international data set for which data collection and study design procedures have been previously described.<sup>19</sup> The Human Research Ethics Committee of the Royal Children’s Hospital Melbourne approved the study (HREC 33085).

### Survey development and administration

ED staff’s perspectives on trauma-informed care were assessed with a web-based self-report questionnaire, available from the authors or via the Trauma Recovery website.<sup>22</sup> This self-report questionnaire<sup>19</sup> examined knowledge of PTS, confidence in providing trauma-informed care, whether the participant has had specific training in trauma-informed care and training preferences.

### Study population

Respondents were recruited via the Paediatric Emergency Departments International Collaborative<sup>23</sup> (PREDICT) and Pediatric Emergency Research Networks<sup>24</sup> (PERN), the College of Emergency Nursing Australasia and the College of Emergency Nursing New Zealand. A snowball approach to recruitment was utilised to obtain as many responses as possible from staff in areas with less participation in professional organisations; as such, we are unable to determine a response rate.

### Data analyses

Data were exported from SurveyMonkey and analysed using SPSS version 21 (IBM, Armonk, NY, USA). Values of  $P < 0.05$  were considered to be statistically significant. We calculated total scores for knowledge of PTS and confidence in providing trauma-informed care (full details have been previously described<sup>19</sup>). An a priori independent  $t$ -test was conducted to confirm that separate analysis of Australian and New Zealand ED staff was warranted from the international sample (see Appendix S1, Supporting Information).<sup>19</sup> We then conducted an a priori analysis of equivalence, which determined that it was appropriate to combine responses from Australia and New Zealand (see Appendix S1, Supporting Information).

We used descriptive statistics to describe respondent characteristics, knowledge, training status and preferences and barriers to implementing trauma-informed care. Multiple regression analyses were conducted to predict knowledge and confidence scores using profession (nursing, medical staff), years of experience, training in trauma-informed care and department (paediatric ED, combined ED, adult ED) as the predictors. Finally, we conducted  $\chi^2$  analyses to compare specific elements of medical and nursing staff’s knowledge of PTS and confidence in providing trauma-informed care.

**Table 1** Characteristics of survey respondents

	By profession		Total sample (n = 486)
	Nursing (n = 375)	Medical (n = 111)	
Age			
Mean (SD)	43.06 (11.13)	37.58 (7.50)	41.81 (10.66)
Gender, n (%)			
Female	333 (88.80)	56 (50.45)	389 (80.00)
Country, n (%)			
Australia	152 (40.53)	100 (90.09)	252 (51.53)
New Zealand	223 (59.47)	11 (9.91)	234 (48.47)
Location, n (%)			
Rural area	78 (20.8)	5 (4.50)	83 (17.08)
Suburban area	80 (21.33)	22 (19.82)	102 (20.99)
Urban area	217 (57.87)	84 (75.68)	301 (61.93)
Department, n (%)			
Paediatric ED	93 (24.80)	63 (56.76)	156 (32.10)
Combined paediatric and adult ED	243 (64.80)	41 (36.94)	284 (58.43)
Adult ED	39 (10.40)	7 (6.31)	46 (9.47)
Years of experience in patient care			
Mean (SD)	19.92 (12.09)	13.60 (8.00)	18.48 (11.59)
Previous training in trauma-informed care, n (%)			
No training	343 (91.47)	101 (90.99)	444 (91.36)
Have had training	32 (8.53)	10 (9.01)	42 (8.64)
Further training in trauma-informed care, n (%)			
Want training	359 (95.22)	98 (88.28)	457 (94.00)
Do not want training	7 (4.78)	13 (11.17)	29 (7.00)

ED, emergency department; SD, standard deviation.

## Results

The sample consisted of 468 ED staff (375 nursing staff and 111 medical staff) who were recruited from hospitals in Australia and New Zealand. Characteristics of the survey respondents are presented in Table 1.

### Training status and preferences

Over 90% of Australian and New Zealand ED staff had no training in trauma-informed care. Almost all respondents (94%) indicated a desire for training in trauma-informed care. Of the respondents interested in training, 46% indicated they would be able to commit 1–4 h to training in the next 6 months, 31% would commit 5–8 h, and 23% could commit more than 8 h. Most preferred in-person group training, in a single block, followed by an interactive website (see Table 2).

### Knowledge of post-traumatic stress

ED staff demonstrated varying levels of knowledge across the areas examined (see Table 3). For example, the majority of ED staff (86.6%) could correctly identify that an injured child, his or her siblings and parents are all at risk of PTS. However, only 2.8% of ED staff could correctly identify the prevalence of children who develop one or more symptoms of PTS in the first month following the injury of PTS. Compared to nursing staff, significantly more medical staff were aware that a child's pain

severity and his or her perception of threats to life both increase the risk for PTS.

The regression analyses showed that the combination of all variables significantly predicted knowledge of trauma-informed

**Table 2** Australian and New Zealand ED staff's training preferences (n = 457)

	First preference (%)	Second preference (%)
Group training in-person in one block of hours	30	23
Online: Interactive website (e.g. webinar, video examples, quizzes)	24	21
Online: Website and written information	17	17
Group training in-person spread over a number of weeks	12	14
Individual mentor sessions with an experienced clinician of my own profession	8	8
A book on the topic	6	10
Individual mentor sessions with a mental health clinician	3	7

All ED staff who indicated they want training in trauma-informed care. ED, emergency department.

**Table 3** Australian and New Zealand ED staff's knowledge of paediatric PTS, correct answers, *n* (%)

Statement	Total sample ( <i>n</i> = 486)	By profession		<i>P</i> value	<i>V</i>
		Nurses ( <i>n</i> = 375)	Medical ( <i>n</i> = 111)		
All levels of injury severities are at risk for traumatic stress	327 (67.2)	252 (67.2)	75 (67.5)	0.94	NA
All age groups are at risk for traumatic stress	249 (51.2)	195 (52.0)	54 (48.6)	0.54	NA
Child/Parents/Siblings are at risk	421 (86.6)	321 (85.6)	100 (90)	0.22	NA
Various behaviours (e.g. calm, frantic) can indicate risk	194 (39.9)	141 (37.6)	53 (47.7)	0.06	NA
Subjective life threat is risk factor	306 (62.9)	209 (55.7)	97 (87.3)	<0.00*	0.275
Pain is a risk factor	172 (35.3)	114 (30.4)	58 (52.2)	<0.00*	0.192
>50% of children report stress symptoms in first month post-injury	14 (2.8)	10 (2.6)	4 (3.6)	0.60	NA

\**P* < 0.05. *V* = Cramer's *V*; *DF* = 2; 0.07 = small effect; 0.21 = moderate effect; 0.35 = large effect. Responses were coded as correct/incorrect. *P* values and Cramer's *V* statistics are related to a  $\chi^2$  analysis of the difference in knowledge of PTS between medical and nursing staff. ED, emergency department; NA, not applicable; PTS, post-traumatic stress.

care and explained 5% of the variance in the model. The variables 'profession' and 'training' uniquely predicted knowledge scores (see Table 4), indicating that higher levels of knowledge were associated with being a physician and being trained in trauma-informed care. Years of experience did not predict knowledge of trauma-informed care.

### Confidence in providing trauma-informed care

Table 5 shows the mean confidence score for each element of trauma-informed care, with highest scores 3.76 and lowest scores of 2.45. Respondents were most confident about explaining

**Table 4** Multiple regression analysis of ED staff's knowledge of PTS and ED staff's confidence in providing trauma-informed care

ED staff's knowledge of PTS ( <i>n</i> = 486)			
Variable	<i>B</i>	SEB	$\beta$
Profession (nurse, physician)	0.66	0.16	0.19*
Department (adult ED, paediatric ED)	0.17	0.15	0.09
Years of experience in patient care	0.01	0.01	0.06
Training in trauma-informed care (no training, had training)	0.48	0.24	0.09*
ED staff's confidence in providing trauma-informed care			
Variable	<i>B</i>	SEB	$\beta$
Profession (nurse, physician)	-0.70	0.85	-0.04
Department (adult ED, paediatric ED)	3.00	0.79	0.18*
Years of experience in patient care	0.12	0.03	0.18*
Training in trauma-informed care (no training, had training)	4.30	1.22	0.17*

\**P* < 0.05;  $F(4,481) = 6.46$ , *P* < 0.00,  $R^2 = 0.05$ . Nurse, adult ED and no training were coded '0'. Physician paediatric ED and have had training were coded '1'. ED staff's confidence in providing trauma-informed care: *n* = 486. \**P* < 0.005;  $F(4,481) = 10.78$ , *P* < 0.00,  $R^2 = 0.08$ .  $\beta$ , standardised coefficient; *B*, unstandardised regression coefficient; ED, emergency department; PTS, post-traumatic stress; SEB, standard error of the coefficient.

procedures to children and parents and mobilising professional and social support for the child. Respondents were least confident in identifying those at risk and educating children and families about PTS reactions and accessing help. A  $\chi^2$  test was conducted to examine differences in confidence in trauma-informed care between professions (see Table 5). Compared to medical staff, nurses reported significantly higher degrees of confidence in helping children or parents to calm down by teaching relaxation, arranging for a support person to be available to the child, encouraging parents to mobilise their own support network and tailoring their approach to the families' culture or background. In contrast, medical staff reported significantly higher degrees of confidence in informing children about an injured or deceased family member and responding to children's or parents' questions about whether the child will die.

The regression analyses showed that the combination of all variables significantly predicted confidence in providing trauma-informed care and explained 8% of the variance in the model. The variables 'experience', 'department' and 'training' uniquely predicted confidence scores, demonstrating that higher confidence was associated with working in a paediatric ED, being trained in trauma-informed care and having more years of experience, albeit with small effects (see Table 4).

### Barriers to implementing trauma-informed care

The barriers to implementing trauma-informed care experienced by ED staff are displayed in Figure 1. Over 90% of respondents indicated that the issue of time constraint was a barrier to implementing trauma-informed care. This was closely followed by a lack of training; 90% of respondents identified a lack of training as a barrier to implementing trauma-informed care.

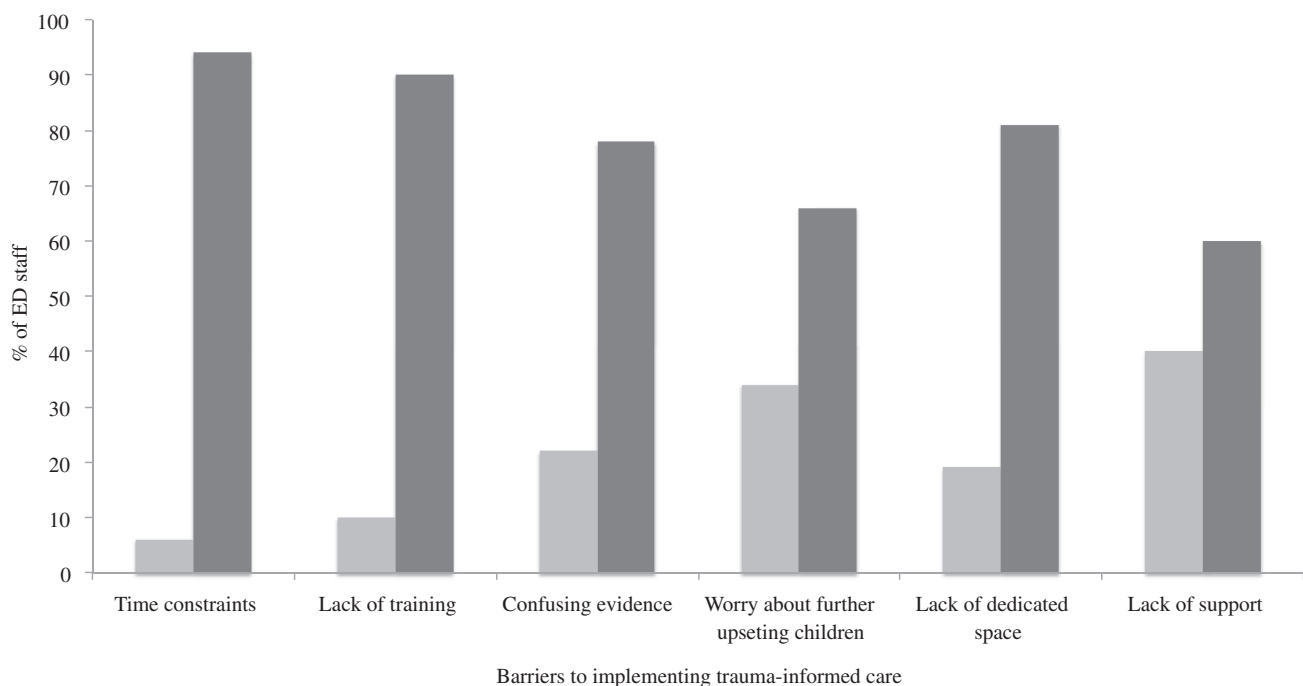
### Discussion

This study suggests that very few ED staff in Australia and New Zealand have received training in trauma-informed care. With the growing understanding of the impact of PTS and the benefits of trauma-informed care,<sup>7,12,25-27</sup> this represents an area for improvement in the education of future ED staff and for the professional development of the current workforce. The vast

**Table 5** Australian and New Zealand ED staff's confidence in providing trauma-informed care; mean (standard deviation) (four-point Likert-type scale)

Statement	Total sample (n = 486)	By profession		P value	V
		Nurses (n = 375)	Medical (n = 111)		
Respond calmly and without judgment to a child's or family's strong emotional distress	3.57 (0.54)	3.58 (0.29)	3.51 (0.05)	0.16	NA
Talk with children in age appropriate language	3.68 (0.53)	3.69 (0.02)	3.66 (0.05)	0.45	NA
Tailor your approach according to a family's cultural background	3.29 (0.63)	3.30 (0.03)	3.25 (0.05)	0.02*	0.13
Assess and manage pain in children	3.57 (0.56)	3.56 (0.03)	3.66 (0.5)	0.21	NA
Explain procedures to children and parents	3.76 (0.45)	3.73 (0.02)	3.73 (0.4)	0.34	NA
Inform a child about an injured/deceased family member	2.65 (0.84)	2.59 (0.04)	2.84 (0.7)	0.05*	0.13
Help a child/parent who is anxious to calm down by teaching relaxation	3.09 (0.75)	3.18 (0.38)	2.78 (0.07)	<0.00*	0.22
Assess a child's or family's distress, emotional needs and support systems	3.19 (0.70)	3.21 (0.03)	3.15 (0.06)	0.26	NA
Elicit trauma details from a child or family without them being exposed to more distress	2.83 (0.74)	2.81 (0.03)	2.87 (0.07)	0.34	NA
Respond to a child's or parent's question about whether the child will die	2.83 (0.81)	2.79 (0.04)	2.96 (0.08)	<0.00*	0.16
Liaise with staff who can provide practical assistance to a family (e.g. social work)	3.70 (0.52)	3.71 (0.02)	3.65 (0.05)	0.56	NA
Take action to get someone close (a parent, family member or friend) available to the child in the ED	3.72 (0.50)	3.76 (0.02)	3.57 (0.05)	<0.00*	0.20
Encourage parents to make use of their own social support system (family, friends, spiritual community, and so on)	3.48 (0.60)	3.52 (0.03)	3.33 (0.06)	0.02*	0.13
Educate children and families about common traumatic stress reactions	2.47 (0.82)	2.47 (0.04)	2.52 (0.07)	0.27	NA
Teach parents or children specific ways to cope with procedures in the ED	3.11 (0.72)	3.13 (0.03)	3.06 (0.06)	0.899	NA
Provide information to parents about emotional or behavioural reactions that indicate that the child may need help (when back at home)	2.45 (0.88)	2.46 (0.04)	2.45 (0.07)	0.365	NA
Educate parents or children about how to access mental health services if needed	2.79 (0.83)	2.78 (0.04)	2.88 (0.07)	0.209	NA
Manage your own emotional responses to children's pain and trauma	3.37 (0.62)	3.40 (0.03)	3.33 (0.06)	0.52	NA

\*P < 0.05. V = Cramer's V; DF = 2; 0.07 = small effect; 0.21 = moderate effect; 0.35 = large effect. Items were measured on a Likert-type scale (1 = not at all confident, 2 = a little confident, 3 = moderately confident, 4 = very confident). P values and Cramer's V statistics relate to a  $\chi^2$  analysis of the difference in confidence in providing trauma-informed care between medical and nursing staff. ED, emergency department; NA, not applicable.



**Fig. 1** Barriers to implementing trauma-informed care. (■), Not considered a barrier; (■), considered a barrier.

majority of respondents expressed a desire for training in trauma-informed care and reported they could dedicate time to such training. The common element of the preferred training modalities is an interactive and applied approach to learning. Therefore, training programmes for trauma-informed care should be developed to meet the preferences of ED staff in this region.

In this analysis, ED staff from Australia and New Zealand demonstrated varied knowledge of paediatric PTS reactions. While insight about the risk for family members was strong, weaknesses were identified in recognising behaviours that can indicate risk and distress and the relationship between the child's pain rating and his or her risk of PTS. Additionally, the results suggest that ED staff may lack awareness of the prevalence of psychological difficulties experienced by children exposed to an injury,<sup>16,18</sup> which may provide some explanation for a lack of awareness of tools for assessing PTS<sup>16,27</sup> and PTS symptoms. It is possible that this lack of awareness contributes to the comparatively lower levels of confidence found in these skills. Greater knowledge was associated with having had specific training in trauma-informed or psychosocial care. Of note, there was no relationship between years of experience or experience in a paediatric ED and knowledge of children's PTS reactions. This suggests that knowledge of children's PTS reactions does not develop with experience alone, further strengthening the argument for the need of widely distributed training in this region.

The majority of ED staff feel moderately confident in implementing aspects of trauma-informed care. Training in trauma-informed care, working in a paediatric ED and more years of experience were associated with more confidence in these skills. The common theme underpinning the skills associated with less confidence (educating children and families about trauma reactions and how to identify those at risk and access help) is that they are directly related to applying specific knowledge and understanding of PTS and trauma-informed approaches to care, whereas the skills associated with greater confidence (explaining procedures to children and parents and mobilising professional and social support for the child) can be adapted from other models of care practiced in EDs in Australia and New Zealand, such as procedural pain management, family-centred care and practitioner self-care. This suggests that training could focus on the areas of low confidence and support and reinforce the relevant areas of perceived competence. Differences across aspects of confidence in trauma-informed care varied between medical and nursing staff and reflected the differing roles between the professions in this region. For example, nurses may lead in engaging the child or family in relaxation techniques, whereas a physician's role would involve discussing prognosis. Profession-specific roles should be taken into account when developing training in this area.

The current study demonstrated some associations between demographic variables and knowledge and confidence scores; however, the small effect sizes suggest that there is no justification to target a particular group of ED staff in Australia and New Zealand. Rather, the lack of difference in knowledge and confidence levels across groups indicates that training and education in trauma-informed care is needed across the workforce. Existing education programmes that might address the confidence and competence needs of ED staff include psychological first aid (PFA) training,<sup>28,29</sup> resources from the HealthCare

Toolbox website<sup>30</sup> and the Trauma Toolbox for Primary Care.<sup>31</sup> Both the PFA training programme and Health Care Toolbox include interactive elements providing opportunities for ED staff to apply the knowledge and skills developed and receive feedback. This format meets the preference for brief interactive e-learning identified by ED staff in this region. In the evaluation and development of training in this area, preferences for brief training must be balanced with ensuring that ED staff are able to retain and incorporate the knowledge and skills learnt into their practice.<sup>32</sup> Further research is required to examine the efficacy and feasibility of available training programmes to support calls for widespread training in trauma-informed care.<sup>12</sup>

In addition to addressing the confidence and competence needs of Australian and New Zealand ED staff, education programmes and policy must consider the barriers that ED staff experience in implementing trauma-informed care. Almost all ED staff felt that time constraints and a lack of training were barriers to the implementation of trauma-informed care. Perceived time pressures have been previously identified as a source of stress for ED staff in this region.<sup>33,34</sup> Training programmes developed for Australian and New Zealand ED staff should aim to increase knowledge and skills in providing care in a trauma-informed way without increasing pressure on time and should provide clarity on the evidence for best practice.<sup>12,33</sup>

## Limitations

Several limitations of the study need to be taken into account. This study examined staff's knowledge and confidence regarding trauma-informed care; however, it did not provide information on the ability of respondents or the quality of trauma-informed care delivered by the respondents (respondents did have the option to indicate if they felt trauma-informed care was or was not part of their role). Furthermore, the use of self-report measures may have resulted in self-report biases, such as respondents portraying themselves positively, confounding the data. Due to the recruitment approach, response rates could not be calculated. Additionally, as participation was necessarily voluntary, respondents may have been more likely to express an interest in trauma-informed care, and although explicitly invited, it is possible that staff with negative views or limited knowledge in this area were not well represented.

## Conclusions

This study demonstrates that Australian and New Zealand ED staff have limited knowledge and confidence in the care of PTS in injured children. Very few clinical ED staff have received any training on PTS or trauma-informed care. Training in trauma-informed care should be seen as an essential component of education programmes in emergency nursing or medical training. Importantly, this study demonstrates that experience alone is not sufficient in the development of knowledge of PTS and trauma-informed care practices, suggesting the need for widespread training in the current workforce. Additionally, there is very little variation in knowledge of PTS reactions and confidence in trauma-informed care across demographic and organisational characteristics, indicating that a universal approach to training can be used

for ED staff interested in developing their knowledge and skills in this area.

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## Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's web-site:

**Appendix S1.** *A priori* analyses.



Underwater cat by Helen Hwang (age 15) from Operation Art 2016