



ORIGINAL ARTICLE

Assessing paediatric safeguarding in rural Australian health services

Lesley Enzor,¹ John van Bockxmeer¹ and Marshall Makate²¹Department of Hedland Health Campus Emergency, WA Country Health Service Pilbara, South Hedland, Western Australia and ²Department of Health Economics and Data Analytics, Curtin School of Population Health, Curtin University, Perth, Australia

Aim: Establish the incidence, burden and characteristics of paediatric safeguarding concerns in rural Australian emergency department practice.

Methods: Retrospective cohort study of burns, injury and poisoning presentations across 16 months involving 1472 paediatric cases.

Results: Five per cent of presentations had confirmed safeguarding concern. These were highest during the 2200–0600 staffing period. Mean age was 7.7 years, 43.8% were female. Multivariable regression models show age 2–6 years (odds ratio (OR), 3.27; 95% confidence interval (CI), 1.35–7.93); delayed presentation (OR, 2.3; 95% CI, 1.47–3.59); and police accompaniment (OR, 9.46; 95% CI, 2.61–34.26) are associated with increased safeguarding concerns. Most concerns (91.8%) related to injuries, largely musculoskeletal, wounds and head injuries. Thermal burns were more common than chemical and electrical.

Conclusion: Children aged 2–6 are at higher risk for harm than previously recognised and children aged 0–2 years were over-represented in staff-suspected concerns. Those accompanied by police had significant association with confirmed safeguarding concerns which were under-suspected by staff or assumed to have been already reported. In rural practice, ‘unreasonable delay’ was found to be a better measure of concern than a discrete time value. Transient family arrangements, unsecured accommodation, geographical isolation, cultural safety and unique home environments must be taken into when completing injury assessments. For regional health services to successfully identify children at risk, interagency collaboration, staff education and local patterns of concern should be targeted. Rostering changes should increase after-hours assessment capacity by specialty paediatric staff.

Key words: Australia; burn; emergency department; injury; paediatrics; safeguarding.

What is already known on this topic

1 Paediatric safeguarding concerns are prevalent in children presenting to rural Australian hospitals but often missed by clinicians and in emergency department data collection.

What this paper adds

1 Children aged 2–6 years are at far higher risk for harm from injury, burn and poisonings than previously recognised.

Safeguarding of Australia’s paediatric population is a priority of state child protection agencies, government, and non-government organisations.¹ Australia’s child protection systems (CPFS) assists 3% of children annually for safeguarding concerns related to neglect, physical, sexual and emotional abuse.^{2,3} Children living in rural Australia face inferior health and developmental outcomes relative to their urban peers and are three times more likely to be the subject of child protection substantiation.^{1,3} Aboriginal and Torres Strait Islander children account for 38% of the population

in remote areas and continue to be over-represented among those receiving child support services.^{1,3,4}

Acute presentations to health-care services are important opportunities to assess safeguarding concerns and prevent future harm through targeting ‘at risk’ families.² Emergency department (ED) assessments of children in rural and remote areas are usually undertaken by rural generalists supported by regional paediatricians.² Amongst medical and non-medical staff, there is variable training and expertise in identifying paediatric safeguarding concerns.⁵

EDs are often the first point of contact for acute paediatric injuries from maltreatment. Despite weak international evidence, and none for the rural Australian context, it is estimated that 2–10% of paediatric presentations are related to safeguarding concerns.⁶ The mean age of child abuse cases reported from EDs is known to be 6.4 years.⁷ In addition to injuries, physical abuse and neglect also manifests in burns and poisonings. It is estimated that 3% of all children presenting with burns and scalds are the result of abuse.⁸

Correspondence: Dr John van Bockxmeer, Department of Hedland Health Campus Emergency, WA Country Health Service Pilbara, Hedland Health Campus, 1-34 Colebatch Way, South Hedland, WA 6722, Australia. Fax: +61891741455; email: john.vanbockxmeer@health.wa.gov.au

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The importance of identifying paediatric safeguarding concerns cannot be overstated as a child suffering from non-accidental injury (NAI) returning to an unsafe environment has a 30–50% risk of further injury and 10% risk of death.⁹

A 2011 analysis of Western Australian (WA) ED presentations suggested that coding limitations resulted in poor quality safeguarding data and the scope of this issue is likely much larger than currently understood. The same research raised concerns that opportunities are being missed to identifying maltreatment and refer families for early intervention support.¹⁰

Prior research has focused closely on narrower definitions of child protection, maltreatment, NAI, abuse and intentional injury. The authors felt that these definitions did not represent safeguarding concerns seen firsthand which were not always the result of abuse or neglect. Nuanced factors related to geographic isolation, service delivery and cultural structures were not incorporated into previous research. The term ‘safeguarding’ is non-judgemental and child-centred with fewer stigmatising factors for families than ‘abuse’. A broader definition of ‘paediatric safeguarding’ was adopted by the authors to represent the range of issues covering all age groups observed in rural Australian clinical practice:

*The process of protecting children from abuse, preventing impairment of their health and development, and ensuring they are growing up in circumstances consistent with the provision of safe and effective care.*¹¹

This approach mirrors that of the Common Assessment Framework used in the UK when promoting welfare as outlined in Figure 1.¹²

Objectives

This paper seeks to:

- Establish the incidence, burden, and characteristics of paediatric safeguarding concerns in a rural Australian ED.
- Ascertain risk factors associated with these presentations.

- Identify challenges for staff, changes needed and future research opportunities.
- Highlight how a supportive trauma-informed lens can reduce stigma and integrate culturally safe practices in a rural paediatric environment to prevent systemic marginalisation.

Methods

This research involved a retrospective cohort study analysing all injuries, burns and poisoning presentations with potential for paediatric safeguarding concern to a rural ED site in WA. Analysis involved descriptive statistics including multivariable regression modelling.

The setting was Hedland Health Campus (HHC). This regional resource hospital manages approximately 27 000 annual ED presentations. It is led by rural generalists supported by a specialty inpatient paediatrics unit. The ABS statistical area index for relative socio-economic disadvantage for the HHC is 1, the most disadvantaged classification in Australia.^{11,13} The hospital is approximately 1600 km from the nearest tertiary centre.

All paediatric presentations to the HHC ED aged 16 years and under were considered in two 8-month blocks to account for seasonal variation from 1 January 2016 to 30 April 2018 extracted via webPAS ED (DXC technology). An upper age limit of 16 years was selected to align with state-wide health service paediatric definition.¹⁴ Cases with potential for safeguarding concern were defined by a presenting complaint or ED primary/secondary diagnosis code involving any injury, burn or poisoning. This aligned with state-wide injury risk assessment processes.

All other presentations and diagnostic codes were not audited as considered beyond the research scope.

Every case was manually reviewed by the investigation team via a chart analysis using standardised screening protocols to establish cases of suspected safeguarding concern which were further assessed to confirm if concerns were present.

During the period analysed, a local safeguarding working group was established and detailed ED screening proforma was completed for approximately 20% of all presentations with suspected concerns (see Appendix S1, Supporting Information). Routine minor ICT system updates and clinical forms changed during the period of analysis but were not expected to impact data integrity. Some additional metrics were captured as ED assessment processes evolved and more regular multidisciplinary meetings occurred. Case investigation checklists are provided in Appendix S1 (Supporting Information).

A delayed presentation was determined by clinician perception that ‘no satisfactory explanation’ resulted in protracted ED attendance. This definition accounted for the myriad of timing factors involved rural attendance discussed later in this paper. As a reference, to quantify exact delays observed, a convenience manual sample of approximately half the cases was completed.

Neglect was defined as poor care, lack of supervision, food insecurity, poverty, failure to provide clothing/shelter/medical attention or care to the extent that health, safety or development was at risk.¹²

In approximately 40% of suspected cases of concern identified by ED clinicians, broader case review involved specialist paediatricians trained in child protection, Aboriginal liaison officers and community members, social work, nursing and midwifery staff. The purpose of multidisciplinary involvement was to ensure a



Fig. 1 Framework for the assessment of children in need.

supportive non-punitive approach collaborating perspectives on health care and cultural safety reducing institutional biases.

Cases of suspected concern were subsequently cross-referenced by the investigation team (if not documented at the time of presentation) with information from family support and child protection agencies and community non-governmental organisations. As proposed in international guidelines and the National Framework for Protecting Australia's Children, this information helped establish confirmed safeguarding concerns.^{15–19} Active case management was defined in relation to the date of presentation.

A confirmed case was defined as having any of the following features:

- Known to family and child protection agencies as an active case of concern, for example: already being actively managed in the community with a case manager coordinating support programmes.
- Known to hospital paediatrics or community health services as an active case requiring intervention and management of symptoms and/or social factors related to neglect or safeguarding concern.
- Adverse outcome (surgical morbidity, mortality, admission for concerns) confirmed as a case by investigation team.
- Confirmation of concern through retrospective analysis by a specialty-led multidisciplinary case review meeting.

Statistical analysis

Multivariate logistic regression modelling was undertaken. The primary outcome of interest was suspected safeguarding concern. A dummy variable equals one if the presentation met any of the following criteria: (i) had a positive result on a safeguarding screening processes (if completed); (ii) positive chart review for concerning features captured by safeguarding screening process checklist/s; and (iii) admission to hospital due to concern and/or trained clinician gestalt and zero otherwise.

Categorical and continuous variables of interest were summarised with frequencies, proportions, mean and standard deviations, for the overall sample and stratified by whether the presentation in question was of potential concern or not. Regression models ascertained the factors associated with presentation of safeguarding concern and reported odds ratios together with their 95% confidence intervals (CIs). Statistical significance was implied at $P < 0.05$. Adjusted marginal probability effects were generated to compare the likelihood of paediatric safeguarding concerns by age group and time of presentation. Empirical models accounted for the possibility of heteroskedasticity and thus considered estimating the White-Huber standard errors to minimise the potential bias that might ensue. All analysis was conducted using Stata version 15.1.²⁰

Ethics approval

Ethics approval was granted by Aboriginal Health Council of WA (c) and West Australian Country Health Service HREC (RGS0000000357).

Results

The analysis sample comprised of 1472 presentations with complaints for burns, injury or poisoning. There were 248 (16.8%) cases of suspected safeguarding concern and 74 (5%) cases of confirmed safeguarding concern. There were approximately 7000 paediatric presentations during the study period. 43.8% were female, 32% identified as Aboriginal (not Torres Strait Islander) and 53.7% were aged older than 6 years. Two confirmed cases of safeguarding concern died during this research period: one from a confirmed NAI and one from suicide.

The average age of children in the analysis sample was 7.7 years. The fraction of presentations flagged as having suspected paediatric safeguarding issues was 16.8% ($n = 248$). The rate of confirmed safeguarding problems was 5% ($n = 74$) in the overall sample and 13.2% ($n = 10$) in the group presenting during 2200–0600 h (see Table 1).

Table 1 Descriptive statistics of the cohort with suspected and confirmed safeguarding concern

Variables	Overall sample		Staff scheduled work shifts (24 h)					
	N	%	0600–1400		1400–2200		2200–0600	
			N	%	N	%	N	%
Male child	827	56.2	348	56.4	446	57.3	33	43.4
ATSI identifying	479	32.5	179	29.0	256	32.9	44	57.9
Age (in years)†		7.7 (4.8)		7.9 (4.9)		7.4 (4.7)		9.7 (5.4)
Age category								
<2 years	109	7.4	46	7.5	56	7.2	7	9.2
2–6 years	572	38.9	224	36.3	330	42.4	18	23.7
>6 years	791	53.7	347	56.2	393	50.4	51	67.1
Suspected safeguarding concern	248	16.8	88	14.3	135	17.3	25	32.9
Confirmed safeguarding concern	74	5.0	24	3.9	40	5.1	10	13.2
Number of presentations	1472		617		779		76	

† Represents a continuous variable and mean (standard deviation) are reported. ATSI, Aboriginal and Torres Strait Islander.

Distribution of Specific Safeguarding Concern

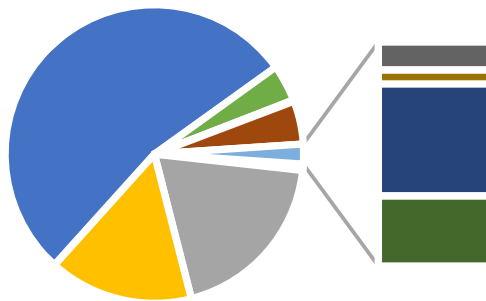


Fig. 2 Descriptive statistics of specific safeguarding concerns in rural paediatric population aged 0–16 years. Representative convenience sample, $N = 747$ presentations. (■), musculoskeletal injury (53.4%); (■), wound (19.2%); (■), head and facial injury (15.75%); (■), thermal burn (4.7%); (■), animal bite (4.0%); (■), accidental poisoning (1.1%); (■), poisoning unclear intent (0.7%); (■), physical abuse (0.4%); (■), sexual abuse (0.3%); (■), electrical burn (0.3%); (■), drowning (0.1%); (■), deliberate self-poisoning (0.1%).

A majority of safeguarding issues were related to injury (91.8%) with smaller percentages of burns (5.4%) and poisoning (2.8%). The distribution of specific concerns centred around musculoskeletal injuries (53.4%), wounds (19.2%) and head/facial injuries (15.7%). Poisonings were classified into deliberate self (0.1%), accidental (1.1%) and unclear intent (0.7%). Thermal burns far outweighed chemical and electrical burns comprising 4.7% versus 0.3% of concerns as outlined in Figure 2.

Table 2 compares selected characteristics of presentations flagged as having suspected or confirmed safeguarding issues and examines potential associations between these. Chi-squared test

or Fisher's exact test was used to examine associations and report probability (P value) values. The age of the child, reporting to CPFS, cases known to CPFS and admission to hospital are significantly associated with the prospect of having a suspected or confirmed safeguarding problem.

Figure 3 depicts the distribution of overall presentations of safeguarding concerns stratified by scheduled staff shifts. In this context there were 8 staff (medical and nursing) working 0800–1600 treating 25–35 patients, 6 working 1400–2200 treating 25–35 patients and 4 working 2200–0800 treating 10–15 patients. The majority of the presentations occurred during 1400–2200 time-scheduled shift ($n = 779$). The rate of confirmed safeguarding was higher during the 2200–0600 shift (40% (10/25 × 100); 29.6% (40/135 × 100) and 27.27% (24/88 × 100)) during 0600–1400 h. The relationship between child's age and suspected safeguarding exhibits a bimodal distribution with peaks seen before the age of 4 years and after the age of 12 years. Overall, we observed that children aged 0–4 years with safeguarding concerns present equally throughout shift patterns. Children aged 12–16 years with safeguarding concerns present disproportionately overnight.

Figure 4 depicts safeguarding concerns against the hour of presentation and the correlation between age across staff-scheduled shifts. A large fraction of presentations with safeguarding problems occur overnight where there are the lowest staffing ratios. In many similarly sized hospitals one generalist doctor covers the ED and all inpatient areas between 2200 and 0800. In the study site, this solo doctor was supported by an on-call specialist paediatrician. Most confirmed safeguarding issues present around 0300 h (33%, $n = 6$) and 25% ($n = 4$) at 0600 h.

Results of cases of suspected concern

Table 3 presents the results from a multivariable logistic regression model estimating the odds (95% CI) of suspected

Table 2 Summary characteristics of presentations with suspected and confirmed safeguarding problems

Variables	Suspected safeguarding			Confirmed safeguarding		
	N	%	χ^2 test† (P value)	N	%	χ^2 test (P value)
Male	140	56.5	0.93	41	55.4	0.89
Age category						
<2 years	66	26.6	$P < 0.001$	12	16.2	$P < 0.001$
2–6 years	113	45.6	0.02	28	37.8	0.85
>6 years	69	27.8	<0.001	34	45.9	0.17
ATSI identifying	94	37.9	0.05	41	55.4	<0.001
Delay in presentation	34	13.7	0.09	12	16.2	0.11
Reported to CPFS	24	9.7	<0.001	31	41.9	<0.001
Confirmed case known to CPFS	14	10.4	<0.001	25	47.2	<0.001
Admitted	76	30.6	<0.001	32	43.2	<0.001
Representation	13	5.2	0.03	5‡	6.8	0.68
Surgery	25	78.1	0.17	32	97.0	<0.001
Number of presentations	248			74		

† The χ^2 test measures the association between two categorical variables (in this case, each categorical variable and suspected safeguarding or confirmed safeguarding). ‡ In cases when the observed frequency counts in each cell are too low than recommended, Fisher's Exact test P value is reported. ATSI, Aboriginal and Torres Strait Islander; CPFS, Child Protection and Family Support.

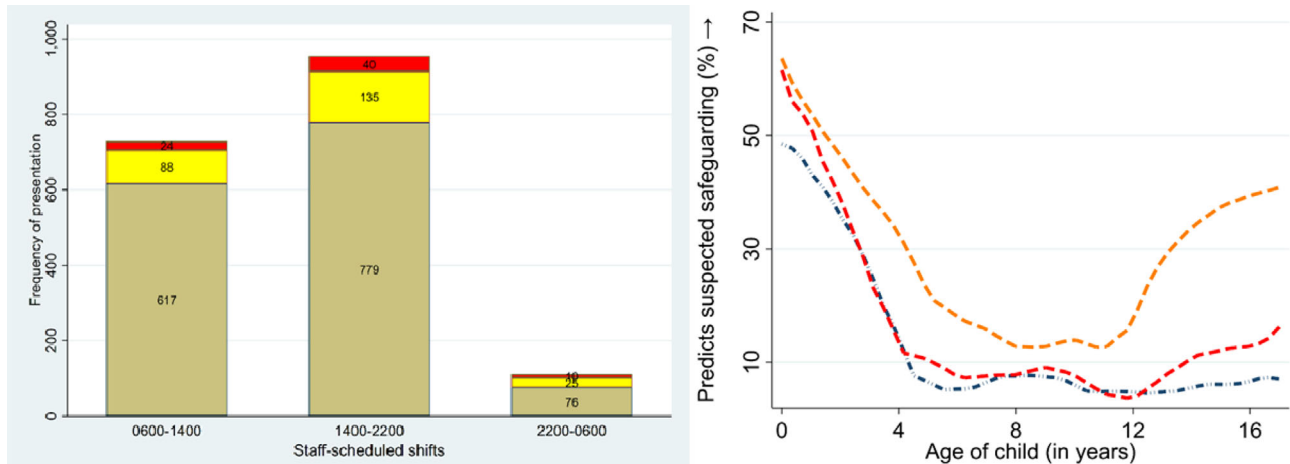


Fig. 3 Distribution of paediatric safeguarding cases by time of presentation stratified to match staff shift patterns in frequency (left) and percentages of suspected safeguarding concern by age and shift pattern in local polynomial regressions (right). (■), Overall; (■), suspected safeguarding; (■), confirmed safeguarding; (····), 0600–1400; (----), 1400–2200; (---), 2200–0600.

safeguarding concern. The results show that child’s age, delay in presentation, and presentation time are positively associated with increased odds of suspected concern. Compared to children 6 years and older, children younger than 2 years are 29.6 [95% CI, 13.62–64.48] times more likely to present with a suspected safeguarding issue statistically significant at the 5% level.

Results of confirmed cases of concern

Results show that children aged 2–6 years are 3.27 [95% CI, 1.35–7.93] times more likely to have a confirmed safeguarding issue when compared to those older than 6 years. Those accompanied by the police to the ED are 9.46 [95% CI, 2.61–34.26] times more likely to have a confirmed safeguarding problem.

The breakdown of methods confirming safeguarding concern is displayed in Table 4. A majority of cases (55.4%) were confirmed by multidisciplinary team (MDT) meeting and/or

investigator review and 21.6% were being actively managed by child protection agencies.

Delayed presentation

When discrete values were analysed, 95.6% of delayed presentations were outside the 2-hour window with a large portion of overnight delays (Fig. 5).

Discussion

EDs have a duty of care to recognise and promptly manage paediatric safeguarding concerns.²¹ In this study, we have adopted the concept of ‘paediatric safeguarding’ to represent issues observed in rural clinical environments encompassing a cross-cultural view of health and not simply focusing on abuse. This research reviewed all potential presentations of concern with injury, burn or poisoning across 16 months and found that 5% of

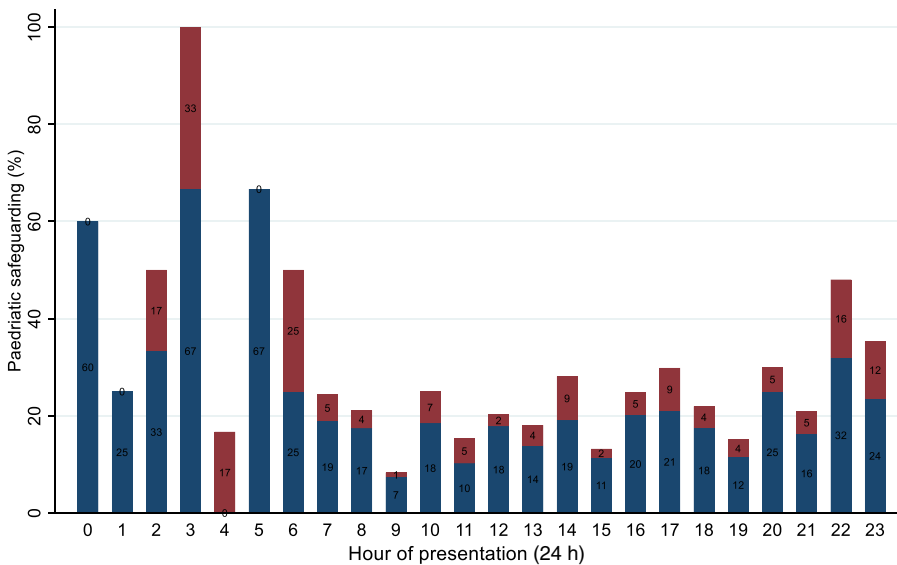


Fig. 4 Distribution of overall presentations and presentations of suspected safeguarding concern by presentation time (or triage time) in hours (24 h). (■), Suspected safeguarding; (■), confirmed safeguarding.

Table 3 Odds of suspected or confirmed paediatric safeguarding among children presenting at Hedland Emergency Department for complaints of burns, injury, and/or poisoning

Specification	Suspected safeguarding (N = 140)		Confirmed safeguarding (N = 74)	
	Odds ratio	95% CI	Odds ratio	95% CI
Male	1.05	[0.62, 1.76]	2.05	[0.90, 4.66]
Age category				
<2 years	29.64***	[13.62, 64.48]	4.09*	[1.03, 16.21]
2–6 years	2.76***	[1.65, 4.62]	3.27**	[1.35, 7.93]
>6 years (ref.)	1.00	[1.00, 1.00]	1.00	[1.00, 1.00]
Age category × male				
<2 years × male	0.52	[0.19, 1.44]	0.72	[0.15, 3.49]
2–6 years × male	1.21	[0.60, 2.46]	0.23*	[0.07, 0.73]
>6 years × male (ref.)	1.00	[1.00, 1.00]	1.00	[1.00, 1.00]
ATSI identifying	1.37	[0.97, 1.93]	2.38**	[1.41, 4.03]
Delay in presentation	2.30***	[1.47, 3.59]	2.87**	[1.38, 5.95]
Frequency of presentation				
One time (ref.)	1.00	[1.00, 1.00]	1.00	[1.00, 1.00]
2–3 times	1.00	[0.70, 1.43]	1.11	[0.65, 1.92]
4 or more times	0.53	[0.21, 1.33]	0.97	[0.24, 3.88]
Accompanied by the police	3.54	[0.96, 13.07]	9.46***	[2.61, 34.26]
Staff scheduled work shifts				
0600–1400	0.77	[0.55, 1.09]	0.73	[0.44, 1.22]
1400–2200 (ref.)	1.00	[1.00, 1.00]	1.00	[1.00, 1.00]
2200–0600	2.59**	[1.38, 4.86]	1.87	[0.81, 4.30]
Number of months since 1 January 2016 (seasonal trend)	1.04*	[1.00, 1.08]	1.05	[0.99, 1.11]
Number of presentations	1472		1472	
Prevalence of paediatric safeguarding problems	16.8%		5.03%	

* Significant at 10% level; ** Significant at 5% level; *** Significant at 1% level. The dependent variable in the first (second) column is a dummy variable equals one if it was a presentation of suspected (confirmed) paediatric safeguarding concern and zero otherwise. We included controls for interactions between triage year and triage month to capture the possibility for variability in presentations across years and months. ATSI, Aboriginal and Torres Strait Islander; CI, confidence interval.

cases could be attributed to confirmed safeguarding concerns. This is consistent with a previous international figure of 2–10%.⁶ The average age of concern in our sample was 7.7 years, closely consistent with that found in Australian research.¹⁰

Our data provide three main conclusions that are relevant for contemporary Australian practice.

Contextual factors associated with suspected safeguarding concerns

Some factors associated with suspected concern may represent non-concerning elements of standard rural practice not previously explored.^{7,22–25}

Table 4 Confirmation method of cases of safeguarding concern, N = 74

Safeguarding confirmation category	N	%
Active case with child protection agencies	16	21.6
Active case with paediatrics/community health	5	6.8
Adverse outcome related to presentation	12	16.2
Confirmation by MDT/investigator review	41	55.4

Most suspected safeguarding problems presented during the 1400–2200 staff shift period. This observation may reflect higher after-school ED visits where risk of injury relates to childhood activities. Rural communities can be geographically contained with children walking home unsupervised. Large co-parenting families encouraging explorative nature-based play may result in increased minor injuries.

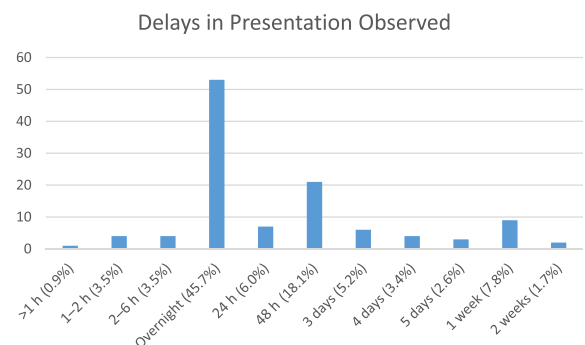


Fig. 5 Delays in presentation quantified for a representative convenience sample, N = 747.

Many cases of suspected neglect were the direct result of home safety and supervision issues. This may be attributable to accidents resulting from transient family arrangements, unsecured accommodation, and unique home environments in Northern Australia. Concerning factors easily flagged in the ED related mainly to injury mechanism and observed discrepancies on physical examination. It is important that staff rotating from urban areas have contextual awareness and appreciate social differences to stay alert to unexpected risks.

Examples in our sample included unsupervised falls on semi-rural properties, kitchen poisonings from materials related to home automotive repairs, increased exposure to fires/machinery and livestock. It was common for the investigators to review multiple injuries within a single household known to support services. On many occasions these injuries were not concerning; however, staff vigilance was needed to provide appropriate education resources.

Our data demonstrate that a delay in presentation is associated with significantly increased odds of having safeguarding concerns. Unaccompanied children had 10% higher rates of delayed presentation to ED with injuries, burns or poisonings. We observed delays due to significant travel distances to access health care and competing family priorities. Staff were encouraged to use regional knowledge to classify delays as being 'reasonably expected' given the presentation context.

A large portion of overnight delays observed was not necessarily indicative of concern. Without formal imaging or pathology services, some families utilised self-care options overnight rather than presenting after-hours. During the period analysed, an additional taxi company began operations and public bus services were introduced in the community and delays reduced.

One case flagged as a potential safeguarding concern had a 3-day delay in arriving for care. The child sustained burns walking through a campfire in an extremely remote area. It took multiple days of travel on unsealed floodways to reach the ED, when investigated this case was not confirmed as having safeguarding concerns.

We acknowledge that hesitancy accessing health-care services can be related to multi-generational trauma and hospitals should work on cultural safety to reduce barriers to care.²⁶

Differences between suspected and confirmed safeguarding concerns

This research was the first to compare suspected with confirmed cases of safeguarding concern. Analysis provides practice-changing implications rethinking previous approaches.

The following areas had statistically significant discrepancies between suspected and confirmed safeguarding concerns. We hypothesise these differences are accounted for by staff practice assumptions informed by research scarcity in this field.

Age of safeguarding concern

Non-verbal children (below 2 years) had the greatest risk, consistent with previous knowledge.²⁷ Our analysis revealed that children aged 2–6 years in rural Australia are at a similar risk for harm from injury, burn and poisoning as those below 2. Historical teaching promotes targeted screening of patients below 2 years,

reflected in a discrepancy between our suspected and confirmed cases in this cohort, (OR 29.64 vs. 4.09).

In the 2–6-year-old cohort we observed numerous cases of preventable harm. For example, an unsupervised quad bike accident requiring intensive care unit admission. Our experience suggests targeted prevention and education measures related to the following topics would be of greatest use for this age group in the rural context:

- Motorised vehicle safety.
- Supervision around farm, mining and automotive equipment.
- Footwear and protection from thermal burns.
- Safe disposal of glass, tins and batteries.
- Services to assist with aggressive domestic dogs.
- Medication storage and safety in multi-family dwellings.

Aboriginal status

An underestimation of suspected safeguarding concerns when compared to confirmed cases for Aboriginal patients existed. This aligns with commonwealth government data on the burden in this cohort.²⁸ Cognitive biases, a lack of cultural safety, a poor understanding of cultural protective barriers and reduced lived experience of staff may be causative explanations for this. The authors believe further research investigating evidence-based trauma-informed solutions in the rural Australian context is needed.

Police accompaniment

Police accompaniment had significant association with confirmed safeguarding concerns which were under-suspected by staff who may have assumed that a referral for support had already been made. This highlights the importance of integrated interagency teams working to ensure opportunities to support vulnerable children through community-based initiatives are not missed. This was particularly pronounced in older children who may benefit from telehealth and virtual care options in rural areas.

Staffing implications for health service providers

Overnight presentations were strongly associated with confirmed safeguarding concerns, when staffing ratios were halved. Rural paediatrics units may have staffing shortages in this period, offering call-back only services after 1800, potentially missing opportunities to identify children at risk. Stretched resources present barriers to completing comprehensive patient assessments.

Health service providers should acknowledge these risks, targeting rostering practices accordingly. Expedited access to specialist paediatrics input in busy evening periods, crisis care information and support for overnight admission may help reduce potential harm during the late evening and overnight hours.

Recommendations for rural teams to prevent future harm

Rural clinicians should be aware of local resources available to them, including community non-governmental organisations. In smaller towns, interagency collaboration for paediatric safeguarding is vitally important. Principles echoed in the National Framework for Supporting Australian Children include information sharing, joint decision-making and coordinated intervention.¹⁹ After-hours

collateral information on MyHealthRecord may help identify cross-jurisdictional histories.

Some specific recommendations from this project to prevent future harm include the following:

- Utilising existing education leaflets on fire, home, vehicle and farm safety whilst targeting prevention measures for injury in children aged 2–6.
- Reframing perceptions of safeguarding risk and expanding screening tools to older age groups.
- Addition of specialist paediatrics medical staff during evening shifts.
- A location on electronic medical record (EMR)/charts for alerts and information regarding prior safeguarding concerns.
- Community reference groups fostering interagency collaboration and reducing access barriers. Stakeholders should maintain a child-centred point of care and not be working in isolation.
- Aboriginal and cultural navigators in ED for evening/after school periods supporting families to navigate and address social determinants of health.
- Crisis care services data linkage to alert clinicians of active CPFS cases.

These suggestions would need to be evaluated with the scope outside the aims of this paper.

Limitations

After this research was conducted, the BuRN clinical prediction tool for burns indicating child protection concerns has been published and may have provided further evidence-based assessment to stratify suspected cases of concern.²⁴

The authors recognise that by basing our screening methodology on previously published parameters for safeguarding concern, patients with secondary safeguarding issues presenting with an unrelated concern not coded as an injury, burn or poisoning may be missed.²⁹

There is a cognitive bias risk defining all cases with active child support management as having confirmed concerns. This was minimised by only including presentations related injury, burn and poisoning and by utilising external investigators not involved in the patient's care.

Future research should focus on longitudinal outcomes and harmonisation of assessments across stakeholder groups. With the appropriate ethics and governance approvals, it would be useful to analyse ED presentations of all actively managed confirmed cases.

Conclusion

This project adds significant detail to the knowledge of paediatric safeguarding in rural Australian practice. EDs are often the first point of contact for injuries, burns and poisonings that may relate to NAI, neglect, abuse and future preventable harm.

We used a trauma-informed approach to examine 1472 suspected concerning paediatric presentations over a 16-month period and found a number of risk factors and characteristics in this cohort.

Five per cent of our cases had a confirmed safeguarding concern, 56.2% were male, the average age was 7.7 years, two patients died. Concerning musculoskeletal injuries, wounds and head/ facial injury were the most common concerning presenting complaint.

Children aged 2–6 years carry an under-recognised risk of harm and interventions targeting preventable concerns in this cohort should be supported. Conversely, there was an over-representation of staff-suspected concern in children aged 0–2 years, likely the result of prior education and research emphases.

Police accompaniment had significant association with confirmed safeguarding concerns which were under-suspected by staff or assumed to have been already referred. Older children presenting overnight have increased risk of confirmed concern and the highest burden of suspected cases present during the evening staff shift period.

Our project supports the understanding that delayed presentations are associated with confirmed and suspected concerns. Contextual factors must be accounted for in rural practice and 'unreasonable delay' was found to be a better measure than a discrete time value. Transient family arrangements, unsecured accommodation, geographical isolation and unique home environments must be taken into account.

Staffing changes should increase capacity for assessment and admission of high-risk patients by rural paediatric teams across evening and night periods. Future research should focus on coordinating efforts to support families in crisis and longitudinal patient-centred outcomes for confirmed cases of concern in a larger cohort.

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Appendix S1 Supporting Information