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Evidence Check

Adolescents' and young adults' use of emergency departments

An **Evidence Check** rapid review brokered by the Sax Institute for NSW Kids and Families. May 2015.

NSW KIDS + FAMILIES

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This report was prepared by:
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Adolescents' and young adults' use of emergency departments

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Contents

1 Abbreviations and definitions

ABS	Australian Bureau of Statistics
ACEM	Australasian College of Emergency Medicine
AIHW	Australian Institute of Health and Welfare
AMA	Australian Medical Association
ARF	Australian Rules Football
AUDIT	Alcohol Use Disorders Identification Test
AWCH	Association for the Wellbeing of Children in Healthcare
AYAs	Adolescents and Young Adults (aged 12–24 years)
CAH	Centre for Adolescent Health
CAT	Community Action Team
CAMHS	Child and Adolescent Mental Health Service
CCTV	Close Circuit Television
CENA	College of Emergency Nursing Australasia
CHA	Children's Hospitals Australasia
CHW	The Children's Hospital at Westmead
COPS	Computerised Operational Policing System
CPG	Clinical Practice Guidelines
DNW	Did Not Wait
ED	Emergency Department
EDDC	Emergency Department Data Collection
EDIS	Emergency Department Information System
GP	General Practitioner
ICU	Intensive Care Unit
KALM	Kids Acute Liaison in Mental Health
LFS	Labour Force Survey
LHD	Local Health District
NDSHS	National Drugs Strategy Household Surveys
NHMRC	National Health and Medical Research Council
NSW	New South Wales
PREDICT	Paediatric Research in Emergency Departments International Collaborative
QISU	Queensland Injury Surveillance Unit
RACP	Royal Australasian College of Physicians
RCH	Royal Children's Hospital
RSQ	Risk of Suicide Questionnaire
SAMY	Service of Addiction Medicine for Youth
SIQ	Suicide Ideation Questionnaire
WHO	World Health Organisation

2 Executive summary

Emergency Departments (EDs) are of critical importance for the management of acute care needs, and play a pivotal role in the health system. However, increasing demand for care, complexity of care needs, and access block, have contributed to rising congestion in Australian EDs (1, 2). In NSW alone, presentations across all triage categories have risen in the last ten years, with presentations increasing by 3.3% per year on average since 2008 (3). There has been a steady increase of presentations by young people aged 12–24 years (adolescents and young adults (AYAs)) in EDs in NSW and internationally over the past decade. Many of these young people present with issues which could have been dealt with if they had sought treatment prior to or as an alternative to attending the ED. Further, there is some concern that EDs are often not well equipped to address the specific needs of this age-group.

Scope of review

The following four research questions guided this review:

Question 1: Presentations to EDs

a) For what health related reasons do AYAs attend EDs?
b) Are there presentations that could be considered avoidable in terms of reasons for attendance?
c) Have there been any changes in the pattern of use of EDs by AYAs over the last 10 years, and if so how might this be explained?
d) What are the main factors that influence AYAs use of EDs rather than other services?

Question 2:

Are EDs responding appropriately to AYAs who present to EDs?

Question 3:

What impact do AYAs place on staff and/or other resources of EDs?

Question 4:

a) What environmental and systemic strategies have been implemented to improve the service response to AYAs?
b) What strategies have been implemented by EDs and the health service system that have resulted in improvements in health outcomes for AYAs?

Methodology

The review examined English language international and Australian peer-reviewed empirical studies and grey literature published between 2004 and 2014 which addressed the research questions, as well as policy, guidance and reports on health interventions with young people. The literature was examined in terms of relevance to the review and the robustness of the methodologies and evidence.

Due to low numbers of publications in this area, all directly relevant Australian publications were included in the review. The evidence was assessed to be strong, moderate or weak. Strong evidence is provided by a systematic review, randomised trial, large-scale methodologically rigorous survey or other strong experimental design. Moderate evidence is provided by quasi experimental designs with no control groups or surveys with convenience samples. Weak evidence includes small-scale surveys or qualitative studies, descriptive case studies, anecdotal reports and expert opinion.

Overall the review found that the peer-reviewed literature in this area did not provide a comprehensive picture of the issue, and much of it is weak. Literature tended to be focused on a particular problem or specific intervention and did not look at the whole system, thus limiting the extent to which conclusions can be drawn about the reasons AYAs attend EDs and the potential effectiveness of efforts to reduce inappropriate attendance and improve the response to AYAS who do attend EDs. In addition, the experiences and views of young people are under-represented in the literature, and many of the assumptions made about this issue have not been adequately tested empirically.

Findings

Question 1(a): For what reasons do Adolescents and Young Adults (AYAs) attend EDs?

The top 10 ED principal diagnoses from 2009–10 to 2013–14 were summarised according to the International Classification of Diseases and Related Health Problems 10th Revision.[1] The main principal diagnoses for AYAs presenting at EDs in NSW have remained fairly constant over the past five years. Based on NSW Ministry of Health data for 2013–14, the top three principal diagnoses for males and females in this age-group are consistent although proportionally different: (1) Injury, poisoning and certain other consequences of external causes (male 48.5%, female 26.4%[2]); (2) Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (male 13.9%, female 25.5%); and (3) Factors influencing health status and contact with health services (male 7.1%, female 7.7%).

For males in this group, the subsequent ranked principal diagnoses are: diseases of the musculoskeletal system and connective tissue (6.6%); mental and behavioural disorders (4.7%); diseases of the respiratory system (4.5%); diseases of the digestive system (4.4%); certain infectious and parasitic disease (3.6%); diseases of the skin and subcutaneous tissue (3.5%); and no diagnoses recorded (3.2%). For females, subsequent ranked principal diagnoses are: diseases of the genitourinary system (7.3%); diseases of the respiratory system (6.2%); diseases of the musculoskeletal system and connective tissue (6.0%); mental and

[1] apps.who.int/classifications/icd10/browse/2015/en#/VI

[2] Note that percentages have been used here to show the distribution of principal diagnoses within the top 10 principal diagnoses recorded for 12–24 year old males (n=178,370) and females (n=168,352) presenting to the ED in the 2013/14 financial year. Source: Emergency Department Data Collection (NSW Health Information Exchange), Health System Information and Performance Branch, NSW Ministry of Health.

behavioural disorders (6.0%); diseases of the digestive system (5.6%); certain infectious and parasitic disease (5.2%); and pregnancy, childbirth and the puerperium (4.1%).

No information was provided for this review which compared AYAs to other age-groups and therefore it is not known whether the principal diagnoses are ranked similarly in other age-groups.

It should be noted that ED principal diagnoses relating to mental health are likely to be under-estimated using this classification. Presentations relating to mental health can fall under different categories, for example drug overdoses or injuries caused through drunkenness would be coded under *Injury, poisoning and certain other consequences of external causes*.

Question 1(b): Are there presentations that could be considered avoidable in terms of reasons for attendance?

There are different definitions of 'avoidable presentations' in the literature and each provides different estimates of the number of avoidable presentations. However, whichever definition is used, there is strong evidence that a considerable number of ED presentations are avoidable both in the 12–24 age-group as well as the general population in Australia and internationally (4-7).

The evidence that AYAs are over-represented in avoidable presentations is at best moderate. For example, ABS statistics indicate that this group is slightly over-represented compared to other age-groups (5); 29.1% of 15–24 year olds who attended EDs in Australia in 2012–2013 thought care could have been provided by a general practitioner (GP) for their last ED presentation, compared to 25.8% for the next highest age-group (25–34). However, these statistics are for Australia as a whole, and as the ABS does not use the same definition of 'avoidable' or 'preventable' as NSW Health, it cannot be concluded that AYAs are over-represented in NSW. There is no evidence that avoidable presentations have disproportionately increased for this age-group compared to other age-groups.

The AIHW (2014) recognises the difficulties of recording potentially avoidable presentations in EDs and is working to improve the specification of this indicator. Having recognised the limitations of the current indicator, the ABS has not included it in their *Australian Hospital Statistics*. This review finds that the data about AYAs' avoidable presentations could be improved.

Question 1(c): Have there been any changes in the pattern of use of EDS by AYAs over the last 10 years and if so how might this be explained?

According to figures provided to this review by NSW Health, the number of ED presentations[3] by young people aged 12–24 years in NSW has increased over the past 10 years from 257,046 presentations in 2003–2004 to 338,095 in 2013–2014[4], showing an increase of 32 percentage points. In particular, the number of ED presentations of females aged 16–24 years has increased since 2011–2012, and has overtaken that of males in the same age-group. There have been increases both in the numbers of individual AYAs presenting and in the average number of presentations per individual; therefore the overall increase is a factor of both. In terms of principal diagnostic category, the greatest increase between 2003–2014 has been in 'Mental and behavioural disorders', and this category is likely to be under-counted because other diagnostic categories,

[3] Includes all presentations including multiple presentations from the same individual to the same Local Health District.

[4] Based on data from 59 NSW Emergency Departments for which data is available from 2003/04 to 2013/14.

particularly 'Injury, poisoning and certain other consequences of external causes', may be recorded as the principal diagnosis (8).

The review found no strong evidence to explain the increase in AYA presentations to EDs. Although there has been a decline in use of GPs in NSW by this age-group, at least until 2007, (9), there is weak evidence of a direct link between this trend and ED presentations. There is no evidence to explain why this increase is being largely driven by young women aged 16–24 years; the analysis of the NSW Health Statistics provided by NSW Health for this review is the first to identify this group as driving the increased use of EDs in this age cohort.

Question 1(d): What are the main factors that influence AYAs use of EDs rather than other services?

A number of factors have been cited in the literature as barriers to AYAs accessing alternatives to EDs, including:

- Lack of awareness and/or information about alternative services (10-14)
- Cost (10)
- Transport (12, 14-16)
- Availability of primary health services (10, 12, 14, 16) and
- Attitudinal factors (10, 12-20).

Some attitudinal factors may explain, in part, why young people choose EDs in preference to other services, including anonymity, privacy, and confidentiality as well as structural factors such as opening times and waiting times. However there is no strong evidence that any of these factors have resulted in increased use of EDs by AYAs over recent years, and there is only weak evidence to indicate that any of these issues disproportionately affect AYAs rather than other age-groups.

Young people with chronic conditions are a group with particular health needs. The review did not find any empirical studies which specifically addressed ED issues for these young people as they transition from paediatric to adult care.

Question 2: Are EDs responding appropriately to AYAs who present to EDs?

Only one evaluation of youth-friendly practices in hospitals was identified by this review – the *Report on CHA (Children's Hospitals Australasia) Project on the Rights of Children and Young People in Healthcare Services. Sydney: Children's Hospitals Australasia* CHA (21). In 2010, the CHA analysed self-evaluations from 11 participating members, representing 15 facilities from across Australia, and New Zealand (eight of which were in NSW, of which four were hospitals and the rest community facilities), relating to the implementation of youth-friendly policies and practices. Overall health services were committed to the respect of children and young people's rights within their facilities and had taken concrete steps to address them (21). No information was supplied on the impact of these policies and no specific findings are given for EDs. No other systematic evaluations of youth-friendly practices were identified in the course of this review.

Research suggests that the needs of AYAs may overlap considerably with those of other age-groups attending EDs. They want to be seen quickly, treated with respect, be provided a degree of confidentiality and be provided with relevant information (22). They prefer the ED environment to be youth-friendly with access to TV or other forms of entertainment (22).

Further research should be undertaken to examine the extent to which EDs are responding appropriately and in particular whether 'appropriate' responses result in better outcomes for AYAs.

Question 3: What impact do AYAs place on staff and/or other resources of EDs?

Two major impacts on staff and/or other resources of ED were identified in the literature. Firstly, AYAs may be more likely to be violent than other age-groups, possibly as a consequence of their higher rates of ED attendance for issues related to alcohol and other drugs. However, the evidence that they are more violent in EDs than other age-groups is weak. In addition there is some evidence that the 25–30 year age-group is equally violent (23, 24). There is no evidence that violence by AYAs in EDs has increased in the past decade.

Overall, there is weak evidence that AYAs have a disproportionately negative impact on staff or on ED resources. Little research was found that specifically addresses this issue and further research needs to be done in this area. There is strong evidence that violence in EDs is a significant cause of stress for ED staff (25-27) but as stated above, this is not an issue limited to AYAs.

Question 4: What environmental and systemic strategies have been implemented to improve the service response to AYAs? And what strategies have been implemented by EDs and the health service system that have resulted in improvements in health outcomes for AYAs?

A wide-range of programs have been implemented in NSW to improve the service response to AYAs who access EDs, both in terms of programs targeting youth mental health, alcohol and substance abuse, and violence reduction, and those targeting specific populations or services, for example in Wyong, Campbelltown or Westmead.

The programs, projects and guidance being used in NSW EDs indicates an awareness of youth issues and a willingness of EDs in NSW to address the specific concerns, situations and experiences of young people. If implemented effectively, they are likely to make a difference both in terms of reducing preventable presentations and improving practice within EDs.

Children's Hospitals Australasia (CHA) monitors the rights of children and young people in hospitals and their latest report (21) indicates that there is moderate progress to achieving these rights. According to CHA every child and young person has a right:

1. To consideration of their best interests as the primary concern involved in his or her care
2. To express their views and be taken seriously
3. To the highest attainable standard of healthcare
4. To respect for themselves as a whole person, as well as respect for their family and the family's individual characteristics, beliefs, culture and contexts
5. To be nurtured by their parents and family, and to have family relationships supported by the service
6. To information, in a form that is understandable to them
7. To participate in decision making and, as appropriate to their capabilities, to make decisions about their care
8. To be kept safe from all forms of harm
9. To have their privacy respected
10. To participate in education, play, creative activities and recreation, even if this is difficult due to their illness or disability

11. To continuity of healthcare, including well planned care that takes them beyond the paediatric context.

Of the seven programs for which information was provided for this review, four have been evaluated, although none of the evaluations have examined the health outcomes of the programs. The Child and Adolescent Mental Health Service (CAMHS) Assertive Outreach Teams program and the Zero Tolerance Program (ZTP) are the only programs specifically provided in EDs. The CAMHS Assertive Outreach Teams programs have not been evaluated at all. The ZTP is not focused on AYAs, but is available to all ages.

These examples show some promise and may make a difference both in terms of reducing preventable presentations and improving practice within EDs. Nevertheless, the projects are rather fragmented (in both scope and delivery) and many are pilot projects; there does not appear to be an overall strategic approach to the issue, and the lack of a comprehensive evaluation in relation to these responses is notable.

Conclusions

In response to the research questions, NSW Health data provide strong evidence that presentations to EDs by AYAs, especially by females aged 16-24 years, have increased over the past decade. Yet AIHW data suggests that this is less so in NSW compared with other states (AIHW, 2014). Data also indicate that use of GPs by this age-group has declined over this period (9). There is weak to moderate evidence, however, that the reason for increased ED presentations is that AYAs prefer to use EDs than to access GPs or other primary health services, and no evidence of a direct link between the two. There is weak evidence that EDs are not responding adequately to AYAs, and weak evidence that AYAs place a disproportionate burden on staff. There is no evidence that ED's response to AYAs is inappropriate, and no evidence that stress placed on ED staff has increased over recent years. No rigorously evaluated interventions to improve the quality of services' response or to improve health outcomes of AYAs in EDs were identified.

Overall the review found a dearth of robust empirical studies which address the four research questions. Although there are a number of international and Australian documents which provide guidance to staff around how to manage difficult young people attending ED, these do not, on the whole, appear to be evidence-based, nor has their effectiveness been examined. The few studies which detail innovative approaches in EDs or programs to divert young people from EDs tend to be case studies rather than empirical studies. There is little data available about the numbers and rates of presentations by different demographic sub-populations of AYAs presenting to EDs.

Perhaps the most significant gap in the research is the lack of evidence examining whole of system health interventions for young people and their trajectory through the system. Thus it is not known, for example, whether the reduction in attendance at GPs by young people is linked to increases in ED attendance (i.e. whether those young people who would have previously attended GPs are now more likely to go to EDs). Similarly it is not known what type of interventions would reduce the number of ED presentations by AYAs. Any further research in this area must also recognise that the needs of AYAs are not homogenous; the needs of 12–18 year olds will be significantly different to those of 18–24 year olds, particularly when the role of the parent or carer lessens during their transition to adulthood.

3 Background

Emergency Departments (EDs) are of critical importance for the management of acute care needs, and play a pivotal role in the health system. However, increasing demand for care, complexity of care needs, and access block, have contributed to rising congestion in Australian EDs (1, 2). In NSW alone, presentations across all triage categories have risen in the last ten years, with presentations increasing by 3.3% per year on average since 2008 (3). There has been a steady increase of presentations by young people aged 12–24 (adolescents and young adults (AYAs)) in EDs in NSW and internationally over the past decade. Many of these young people present with issues which could have been dealt with if they had sought treatment prior to or as an alternative to attending the ED. Further, there is some concern that EDs are often not well equipped to address the specific needs of this age-group.

3.1. Use of EDs in Australia and NSW by young people

According to the AIHW, in 2013–2014 there were more than 7.1 million presentations to public hospital EDs across Australia, and over 2.6 million presentations in NSW alone. National presentations in the 15–24 year age-group, comprised 6.8% male and 7.6% female (total 14.4%) of all ED presentations. According to the ABS, 15–24 year olds make up 13.7% of the population (authors' calculation from Australian Bureau of Statistics (ABS) (28)). In comparison, in NSW ED presentations comprised 13.6% (6.6% male and 7.0% female, a total of *n*=360,516) in the same 15–24 year age-group, where the ABS reports this age-group makes up 13.0% of the population of NSW (authors' calculation from Australian Bureau of Statistics (ABS) (28)). A further 10.8% (*n*=147,451) presentations to EDs in NSW were made by 5–14 year olds (who represent 12.7% of the NSW population). Males present to EDs more than females across all age-groups (50.6% male, 49.4% female) but this trend is reversed for the 15–24 year age-group presenting to EDs (47.4% male, 52.6% female). The proportion of females in this age-group presenting to EDs is higher in all states, with NSW being the lowest at 51.2%, and ACT at the highest at 54.7%. (based on data available in Australian Institute of Health and Welfare (AIHW) (4), p.12).

In NSW, the health of Adolescents and Young Adults (AYAs) aged 12 to 24 years is managed by NSW Health. This age-group represents a period of considerable psychological, cognitive, emotional, spiritual and social development (29, 30). Compared with other groups, young people present challenges in regards to privacy, confidentiality, and informed consent (31, 32). Risky behaviours and attitudes tend to be exhibited during this time (33), meaning that young people as a group may present with specific needs for age-appropriate health care and support. There is a need for policy makers, health providers, and researchers to understand and respond to the needs of this group in order to address the challenges facing the provision of emergency care in Australia. This review will look at why young people present to EDs, and their particular needs for care and support. This review will also examine the available evidence on the extent to which NSW EDs have responded to the needs of adolescents and young adults.

3.2. Scope of review

The following four research questions guided this review:

Question 1: Presentations to EDs

a) For what health related reasons do AYAs attend EDs?
b) Are there presentations that could be considered avoidable in terms of reasons for attendance?
c) Have there been any changes in the pattern of use of EDs by AYAs over the last 10 years, and if so how might this be explained?
d) What are the main factors that influence AYAs use of EDs rather than other services?

Question 2:

Are EDs responding appropriately to AYAs who present to EDs?

Question 3:

What impact do AYAs place on staff and/or other resources of EDs?

Question 4:

a) What environmental and systemic strategies have been implemented to improve the service response to AYAs?
b) What strategies have been implemented by EDs and the health service system that have resulted in improvements in health outcomes for AYAs?

4 Methodology

The review examined international and Australian peer-reviewed empirical studies and grey literature published between 2004 and 2014 (in English) which addressed the research questions, as well as policy, guidance and reports on health interventions with young people.

Databases and search engines used for this literature review included Medline, Web of Science, PubMed, and The Cochrane Library. A number of keywords were searched, including 'young people', 'adolescent', 'teenager', 'emergency room', 'emergency department', 'accident and emergency', and 'youth-friendly'. On the basis of the initial literature search, the archives of the following journals were also scanned for this review: *Accident and Emergency Nursing, Annals of Emergency Medicine, Australasian Emergency Nursing Journal, Emergency Medicine Australasia, Journal of Adolescent Health, Journal of Emergency Nursing,* and *Paediatric Emergency Care*. These journals were selected due to their high volume of publications and subject-matter material relevant to this review.

Relevant publications from the Australian Institute of Health and Welfare (AIHW), the Australian Bureau of Statistics (ABS), Health Statistics NSW, the Productivity Commission, the Australasian College of Emergency Medicine (ACEM), the Australian Medical Association (AMA), the Centre for Adolescent Health (CAH), the Association for the Wellbeing of Children in Healthcare (AWCH), the World Health Organisation (WHO) and the Royal Australasian College of Physicians (RACP), were also canvassed for this review.

The literature was examined in terms of relevance to the review and the robustness of the methodologies and evidence. Both Australian and international research was included in this review, though priority was given to the use of Australian and in particular NSW literature and examples to address the research questions.

Relevant publications were downloaded and analysed using NVivo coding software. Research was then coded using a framework which combined axial codes (core research themes) and open codes (new or emerging research themes). A flexible analytic structure, this approach allowed not only analysis of the key research questions, but also for the emergence of new issues and themes. Functions in the NVivo program (e.g. Matrix coding queries, word search queries) also allowed the authors to assess the prevalence and depth of key and emerging issues and themes.

In addition to the published literature, NSW Health provided analysis of administrative data on EDs. Any findings in this review based on this analysis are clearly identified. The review also drew from the NSW Health data which is in the public domain and which was sourced from the Health Statistics website www.health.nsw.gov.au/hsnsw/pages/default.aspx.

Comment on the literature

Due to low numbers of publications in this area, all directly relevant Australian publications were included in the review. The evidence was assessed to be either strong, moderate or weak. Strong evidence is provided by a systematic review, randomised trial, large scale methodologically rigorous survey or other strong experimental design. Moderate evidence is provided by quasi experimental designs with no control groups or surveys with convenience samples. Weak evidence includes small scale surveys or qualitative studies, descriptive case studies, anecdotal reports and expert opinion. Data provided by NSW Health and the Australian Bureau of Statistics were all assessed as strong evidence.

Overall the review found that the peer-reviewed evidence in this area does not provide a comprehensive picture of the issue, and much of it is of weak. Evidence tends to be focused on a particular problem or specific intervention and does not look at the whole system, thus limiting the extent to which findings can be used to examine the reasons AYAs attend EDs and the potential effectiveness of efforts to reduce inappropriate attendance and improve the response to AYS who do attend EDs. For example, the literature focuses on either ED presentations related to one particular health issue (e.g. mental health, alcohol issues), and/or on presentations in one particular hospital or geographic location. Literature on Question 3 (impact on staff and resources) and in particular Question 4 (Strategies to improve services and outcomes) largely consisted of case studies. The experiences and views of young people are under-represented in the literature, and many of the assumptions made about this issue have not been adequately tested empirically.

The majority of the literature reported on methodological practices. Nevertheless there were some cases where insufficient information about research methodologies was included in the literature. Where these studies did provide further information or insight into pertinent issues, they were included in the review. However, as noted in the literature table (Section 5), caution should be exercised when using these studies in the absence of more comprehensive information about methodological processes.

In terms of the research questions addressed in this report, it should also be noted that in the research canvassed the age range of participants included can vary considerably. Some studies included in this review focused on 'younger' young people (e.g. adolescents), while some focused on young adults (e.g. people aged 18 years and over) – this is identified in the context of each study cited as appropriate. The variation between the age ranges used in the research studies means that many findings cannot be applied to the full 12–24 years age range used in this review. The literature indicates that the needs of adolescents differ considerably from those of young adults in many respects.

Finally, and related to the above point, the Australian empirical academic literature in this area has not addressed the cognitive, psychosocial and emotional development of young people across 12–24 year age range, the generalised differences in experiences and situations that exist within this age range, or how young people's needs and experiences in EDs might change and evolve as they grow older. Indeed, with the exception of a few studies (34), there has been little engagement with principles of youth-friendly practice at all within the academic literature. Thus there is a gap in the literature in providing a developmental perspective on the reasons for presentation to EDs and the experiences of EDs for young people.

5 Findings

Question 1: Presentations to EDs

Question 1(a): For what health related reasons do AYAs attend EDs?

Table 1 provides the top 10 ED principal diagnoses from 2009–10 to 2013–14 according to the International Classification of Diseases and Related Health Problems 10th Revision by male and female AYAs to EDs according to NSW Health statistics.[5]

Table 1: Top 10 ED principal diagnoses (males and females 12–24 years) to NSW Emergency Departments, in the 2013–14 financial year

Males			Females		
ED Principal diagnosis	**n**	**%**	**ED Principal diagnosis**	**n**	**%**
Injury, poisoning and certain other consequences of external causes	**86,513**	**48.5**	**Injury, poisoning and certain other consequences of external causes**	**44,505**	**26.4**
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified[6]	**24,742**	**13.9**	**Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified**	**42,973**	**25.5**
Factors influencing health status and contact with health services[7]	**12,619**	**7.1**	**Factors influencing health status and contact with health services**	**13,012**	**7.7**
Diseases of the musculoskeletal system and connective tissue	11,830	6.6	Diseases of the genitourinary system	12,255	7.3
Mental and behavioural disorders	8,394	4.7	Diseases of the respiratory system	10,387	6.2
Diseases of the respiratory system	8,031	4.5	Diseases of the musculoskeletal system and connective tissue	10,106	6.0
Diseases of the digestive system	7,828	4.4	Mental and behavioural disorders	10,024	6.0
Certain infectious and parasitic disease	6,386	3.6	Diseases of the digestive system	9,501	5.6
Diseases of the skin and subcutaneous tissue	6,324	3.5	Certain infectious and parasitic disease	8,741	5.2
No diagnosis recorded	5,703	3.2	Pregnancy, childbirth and the puerperium	6,848	4.1
TOTAL	**178,370**	**100**	**TOTAL**	**168,352**	**100**

Source: Emergency Department Data Collection (NSW Health Information Exchange), Health System Information & Performance Branch, NSW Ministry of Health

Although *Injury, poisoning and certain other consequences of external causes* was the lead principal diagnosis for both males and females, this diagnosis accounted for nearly half (48.5%) of the top ten male principal diagnoses, whereas it only represented a quarter (26.4%) of female top ten diagnoses. On the other hand

[5] apps.who.int/classifications/icd10/browse/2015/en#/VI

[6] This grouping includes symptoms, signs, abnormal results of clinical or other investigative procedures, and ill-defined conditions regarding which no diagnosis classifiable elsewhere is recorded (e.g. abdominal and pelvic pain, nausea and vomiting).

[7] This grouping includes occasions when circumstances other than a disease, injury or external cause classifiable to other categories are recorded as "diagnoses" or "problems" (e.g. persons encountering health services for examination and investigation, persons with potential health hazards related to communicable diseases).

Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified accounted for only 13.9% of male top ten diagnoses whereas it accounted for another quarter of female top ten diagnoses (25.5%).

It should be noted that ED principal diagnoses relating to mental health are likely to be under-estimated using this classification. Presentations relating to mental health can fall under different categories, for example drug overdoses would be coded under *Injury, poisoning and certain other consequences of external causes*, whilst mood disorders would likely be coded under *Mental and behavioural disorders*.

Summary question 1(a): For what health related reasons do AYAs attend EDs?

- The main principal diagnoses for AYAs presenting at EDs in NSW have been fairly constant over the past five years. The top three principal diagnoses for males and females in this age-group are:
    - Injury, poisoning and certain other consequences of external causes (male 48.5%, female 26.4%)
    - Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (male 13.9%, female 25.5%)
    - Factors influencing health status and contact with health services (male 7.1%, female 7.7%)

- For males in this group, the top three subsequent ranked principal diagnoses are: diseases of the musculoskeletal system and connective tissue (6.6%); mental and behavioural disorders (4.7%); and diseases of the respiratory system (4.5%)

- For females, the top three subsequent ranked principal diagnoses are: diseases of the genitourinary system (7.3%); diseases of the respiratory system (6.2%); diseases of the musculoskeletal system and connective tissue, and mental and behavioural disorders (both 6.0%).

Question 1(b): Are there presentations that could be considered avoidable in terms of reasons for attendance?

There are different definitions of 'avoidable' or 'preventable' presentations, and each one provides different estimates of the number of avoidable presentations.

Preventable ED presentations are commonly defined by the AIHW as 'potentially avoidable GP-type presentations to Emergency Departments'. This categorisation is determined with reference to three criteria:

- The patient was allocated a triage category of 4 or 5[8]
- The patient did not arrive by ambulance or by police or correctional vehicle
- At the end of the episode, the patient was not admitted to hospital, was not referred to another hospital, and did not die (AIHW 35: 15).

In 2012–13 there were approximately 2,176,612 potentially avoidable GP-type presentations to public hospital EDs in Australia, with 682,342 of these patients (31%) presenting in NSW public hospitals (AIHW 2013). The AIHW does not report on preventable presentations by age. It is not known, therefore, to what extent young people aged 12–24 are represented within the population of preventable presentations. However, in their 2014 report, the AIHW states that:

> Previously, reports in this series had reported NHA (National Healthcare Agreement) performance indicator #19: Selected potentially avoidable GP-like presentations in EDs, using an interim specification. The AIHW has been undertaking work to improve the specification of this indicator. This work has led to the AIHW deciding that the limitations of the current specification are such that it is not fit for purpose and that it should not be reported in Australian Hospital Statistics. The indicator may be improved in the future, for example, if new data can be used to improve the estimation of GP-like presentations. In that case, the AIHW would resume reporting of the indicator. (AIHW, 2014: 6).

The ABS Survey of Patient Experiences in Australia: Summary findings 2013–2014 shows that 29.1% of people aged 15–24 '…thought care could have been provided by a GP for most recent visit to emergency department'. This is the highest proportion for any age-group, 3.3% higher than the 25–34 age-group, the next highest group (5). This accords with international studies which show that young people are more likely than other age-groups to use ED for non-urgent medical care (1, 6, 7). This may suggest that young people are presenting with more preventable medical conditions than other groups (36). As a corollary to this point, data from the Centre for Epidemiology and Research, NSW Health shows that the numbers of young people in NSW aged 16–24 visiting the GP within the last 12 months decreased by 17% between 1997 and 2007 (from 88.3% to 71.3%). This trend was observed for both sexes, among persons across all quintiles of socioeconomic status, and across all geographic (urban, rural, regional) regions (9). Unfortunately no recent data was found for GP visits by AYAs in NSW, so it is not known whether this trend has continued. The ABS figures in Table 2 are for Australia and are not available separately for NSW, and there are some indications that ED presentations in other jurisdictions show a different trend to NSW. In Victoria increases in ED use are largely driven by young children and the aged, not AYAs (8).

[8] These are based on the National Triage scale. Relating to the urgency of care required, the scale has five categories:
- Triage 1: *Resuscitation*: Patient should be seen immediately
- Triage 2: *Emergency*: Patient should be seen within 10 minutes
- Triage 3: *Urgent*: Patient should be seen within 30 minutes
- Triage 4: *Semi-urgent*: Patient should be seen within 60 minutes
- Triage 5: *Non-urgent*: Patient should be seen within 120 minutes (ABS, 2013: 4).

There are some Australian studies which have examined this issue in more depth. Drawing from the Emergency Department Information System (EDIS) in NSW, and a survey of 397 patients from the Illawarra Health Area, Siminski and colleagues (36) found that patients aged 25 and under accounted for nearly half (47%) of preventable primary care[9] presentations (although patients aged 0–4 accounted for 14%). It was also found that young males were more likely than young females to be represented in the preventable presentations group. Key reasons given by young people aged 5–14 and 15–29 for presenting to the ED included: 'problem too urgent', 'see doctor and have tests/x-rays done in the same place', and 'easier to get to the ED'. Although the authors speculated that the high representation of young people in the ED might be due to a lack of 'trusting relationships' with GPs (36: 708), this study did not include detailed analysis of young people's decision making processes relating to the ED, information about if they had attempted to access other forms of health care such as GPs, or how the over-representation of young people might be addressed.

Another relatively large-scale study regarding the prevalence of preventable presentations of young people aged 12–24 to EDs in Australia was that of Gafforini and Carson (2013). Using the AIHW definition of 'preventable' cited above, the authors looked at in-hours and after-hours presentations within the Victorian Emergency Minimum Dataset for 2010–11, finding that there was a high proportion of triage 4 and 5 patients in younger age-groups compared to older groups, with patients aged 29 and under more likely to present in this category than other age-groups (37). However, this study was descriptive rather than explanatory, and the authors did not provide evidence as to why younger patients might present more at the ED. Freed, Gafforini (8), also using Victorian data, similarly found presentations of triage category 4 and 5 cases decreased with age whereas category 1 to 3 cases increased with age. The highest number of presentations were children, followed by 20–24 year olds. Thus AYAs were not in the highest category in absolute numbers or proportions of the population.

Another Australian study looked at the emergency presentations of children aged 0–15 who identified as Aboriginal, to a Sydney Children's Hospital. Of 1252 ED presentations, they found that nearly half (43.7%) were preventable (38)[10]. The authors argued that community engagement and access to culturally appropriate primary health care services would help address preventable presentations (38). However, the analytic focus of this study was on the Aboriginality of patients and how this interacts with health care use, rather than age-specific needs and circumstances of patients.

[9] The authors defined preventable primary care presentations as meeting the following criteria: (1) classification of Triage 4 or 5; did not arrive by ambulance; were self-referred; were presenting for a new episode of care; and were not expected to be admitted (according to the assessment of staff in the ED) (p. 701).

[10] The authors defined 'preventable' as either a disease or condition which could have been prevented (e.g. injuries and skin infections), or 'because access to timely, effective and appropriate primary care could have removed the need for ED presentation' (p. 449).

Possible lack of access to other services (based on time of presentation to EDs)

As indicated in Table 2, many young people aged 15–24 (31.6%) indicate that they attend EDs because they are open at times of the day when GP and other community health services are not available.

Table 2: Main reason went to hospital emergency instead of GP on most recent occasion, young people in Australia aged 15–24, 2013

Main reason	Number	%
Condition was serious/life threatening	192,600	42.3
Time of day/time of week	143,800	31.6
Sent to emergency by GP	24,200*	5.3
GP does not have required equipment/facilities	33,600	7.4
Waiting time for GP too long	11,200*	2.5
Other[11]	49,400	10.9
Total	454,800	100.0

* Denotes the figure has a 25% standard error rate and should be used with caution
Source: (ABS 5)

In order to examine the use of EDs at different times of day, the number of ED presentations from young people aged 12–24 years by triage category and hour of presentation was examined from 2009–10 to 2013–14 (shown in Figure 1).[12] The pattern of presentations by time of presentation and triage category was consistent over this time period and therefore only the most recent year of data is presented. In 2013–14 there were 384,450 presentations with the most common triage category being semi-urgent (n=191,278; 49.8%), followed by urgent (n=105,377; 27.4%), non-urgent (n=61,109; 15.9%), emergency (n=25,064; 7.4%) and resuscitation (n=1622; 0.4%). The highest frequency of presentations occurred during the hours of 11am–10pm (n=250,965; 65% of all presentations) (Figure 2 and Table 5). During the hours of 7am and 6pm over 65% of presentations from young people aged 12–24 years were triaged as 'non-urgent' or 'semi-urgent'.

[11] Includes confidence in hospital, ED recommended by someone, do not have a regular GP and closer than GP when needed.

[12] Using data from 96 NSW Emergency Departments for which data is available from 2009/10 to 2013/14. This analysis was undertaken by NSW Health for this review.

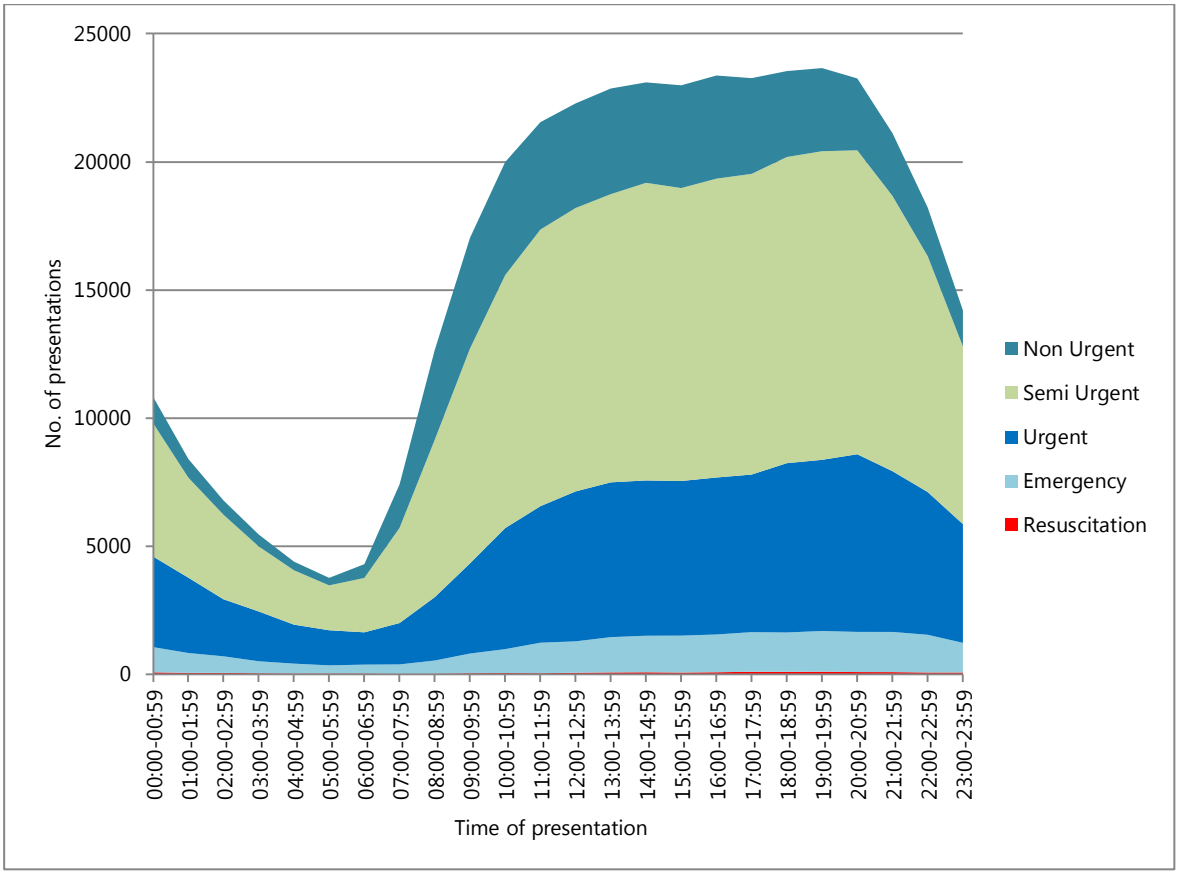

Figure 1: Emergency Department Presentations in NSW by 12–24 year olds, 2013–14, by hour of presentation and triage category

Source: Emergency Department Data Collection (NSW Health Information Exchange), Health System Information & Performance Branch, NSW Ministry of Health

Figure 1 indicates that the number of presentations by young people is concentrated between 11.00 and 21.00 and drops off considerably in the early hours of the morning. The proportion of non-urgent and semi-urgent presentations by young people is greater during working hours and in the early evening; certainly the data do not indicate a proportionately higher rate of non-urgent presentations out of hours.

The time of presentations (by six-hour time periods) was compared for young people aged 12–16 and young people aged 16–24 years, which revealed slight differences in the two groups (Table 3).Young people in the older cohort had a slightly higher proportion of presentations from midnight to 5:59am (12.3% compared to 5.7%) and those in the younger cohort had a slightly higher proportion of presentations in the noon–5:59pm time period (40.6% compared to 33.8%). Note that this data does not differentiate between days of the week – it might be that presentations at the weekend are higher for a number of reasons including increased sports activities (for the younger cohort), increased social activities, and the opening hours of GP clinics and other services.

Table 3: Emergency Department Presentations 2013–14, by time of presentation (six-hour time periods) and age

		Time of presentation				
		00:00-05:59	**06:00-11:59**	**12:00-17:59**	**18:00-23:59**	**Total**
12–16 years	n	6,793	25,944	48,166	37,844	118,747
	(%)	(5.7)	(21.8)	(40.6)	(31.9)	(100.0)
>16–24 years	n	32,576	56,806	89,363	85,726	264,471
	(%)	(12.3)	(21.5)	(33.8)	(32.4)	(100.0)
Total		**39,369**	**82,750**	**137,529**	**123,570**	**383,218**

Source: Emergency Department Data Collection (NSW Health Information Exchange), Health System Information & Performance Branch, NSW Ministry of Health

The proportion of presentations from each triage category was compared for young people aged 12–16 and young people aged 16–24 years, which showed that the proportion of presentations in each triage category was approximately the same across the two age-groups (Table 4). However, it does not appear that out of hours presentations by AYAs are over-represented compared to presentations during the working day.

Table 4: Emergency Department Presentations 2013–14, by triage category and age

		Triage category					
		Resuscita-tion	**Emergency**	**Urgent**	**Semi-Urgent**	**Non-Urgent**	**Total**
12–16 years	n	390	6,301	31,987	61,936	18,133	118,747
	(%)	(0.3)	(5.3)	(26.9)	(52.2)	(15.3)	(100.0)
>16–24 years	n	1,232	18,763	73,390	129,342	42,976	264,471
	(%)	(0.5)	(7.1)	(27.7)	(48.9)	(16.2)	(100.0)
Total		**1,622**	**25,064**	**105,377**	**191,278**	**61,109**	**383,218**

Source: Emergency Department Data Collection (NSW Health Information Exchange), Health System Information & Performance Branch, NSW Ministry of Health

Overall these studies indicate that a large number of presentations to EDs by all age-groups are avoidable and there is moderate evidence that AYAs are over-represented in 'avoidable' presentations to EDs compared to other age-groups, but that the extent of this over-representation varies by study and by definition of 'preventable'. However the evidence points to a view that any over-representation of AYAs in preventable presentations is relatively modest. Taken together these studies indicate that AYAs have some reluctance to visit GPs, and this may have an impact on their rate of presentation to EDs. However, no direct link has been established in the literature and it cannot be concluded that the reason for AYAs presenting to EDs with 'avoidable' or 'preventable' issues is that they lack access to GPs or prefer EDs to GPs or other primary health facilities. There is only weak evidence to indicate that AYAs disproportionately attend EDs at times when GPs are not available.

Summary question 1(b): Are there presentations that could be considered avoidable in terms of reasons for attendance?

- There is strong evidence that a significant number of ED presentations are avoidable in the 12–24 age-group
- When surveyed 29.1% of people aged between 15–24 '…thought care could have been provided by a GP for most recent visit to emergency department'
- Data from the Centre for Epidemiology and Research, NSW Health shows a 17% decrease in the numbers of young people aged between 16–24 visiting the GP within the last 12 months between 1997–2007
- There was a high proportion of triage 4 and 5 patients in younger age-groups compared to older groups, but the authors did not provide evidence as to why this was occurring
- The evidence points to a view that any over-representation of AYAs in preventable presentations to the ED is relatively modest.

Question 1(c): Have there been any changes in the pattern of use of EDs by AYAs over the last 10 years, and if so, how might this be explained?

Over the last 10 years, the number of presentations by AYAs to EDs, the number of AYAs presenting at EDs, and the proportion of the AYA population who present at NSW EDs have all increased (see Table 5, Table 6, Table 7, and Table 8). The NSW Population Health Survey estimated that in 2012, 26.8% of individuals aged 16–24 years visited an ED, up from 20% in 2004. It was further estimated that 23% of young people aged 9–15 visited an ED in this year, up from 16.6% eight years earlier (39). Similar data are not available for other age-groups.

Table 5: Estimated prevalence of emergency presentations by age, 2004–2012, NSW

Year	9—15 Years %	16—24 Years %
2004	16.6	20.0
2005	Not available	14.6
2006	17.0	12.7
2007	Not available	16.5
2008	23.8	20.5
2009	Not available	19.5
2010	21.6	26.3
2011	Not available	24.7
2012	23.0	26.8

Source: NSW Population Health Survey (SAPHaRI). Centre for Epidemiology and Evidence. Health Statistics New South Wales. Sydney: NSW Ministry of Health. Available at: www.healthstats.nsw.gov.au. Accessed (1.3.2015)

Extent of use of Emergency Departments by AYAs in NSW

The analysis of NSW Health administrative data were provided by NSW Kids and Families for this report (40). The number of ED presentations[13] by young people aged 12–24 years has increased over the past 11 years[14] from 257,046 presentations in 2003–04 to 338,095 in 2013–14 (Figure 2). In particular, the number of ED presentations of females in the 16–24 years[15] age-group has increased and since 2011–12 the number of ED presentations among females in this age-group has overtaken the number of ED presentations among males in the same age-group (Figure 2).

[13] Includes all presentations including multiple presentations from the same individual to the same Local Health District.

[14] Data from 59 NSW Emergency Departments for which data is available from 2003/04-2013/14.

[15] Age-groups used are 12–16th birthday and older than 16th birthday–24 years in accordance with the age cut-off for paediatric inpatient services.

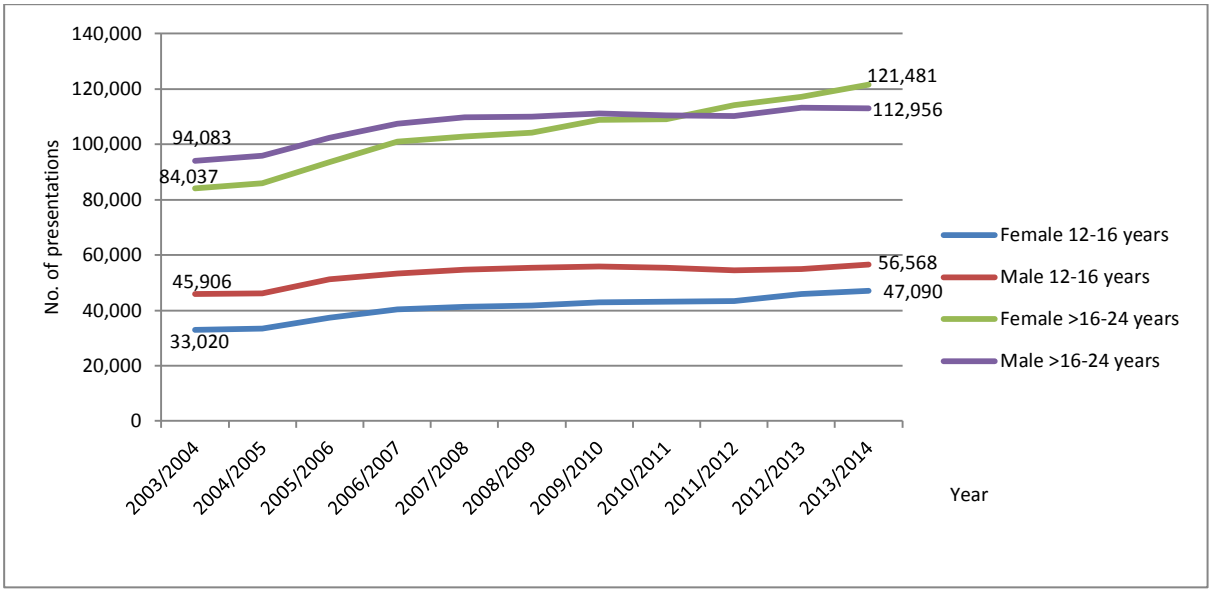

Figure 2: Number of presentations to NSW Emergency Departments by age and gender by financial year
Source: Emergency Department Data Collection (NSW Health Information Exchange), Health System Information & Performance Branch, NSW Ministry of Health

The number of individual young people (aged 12–24 years) who presented to EDs has increased from 187,059 in 2003–04 to 237,361 in 2013–14 (Table 6). This increase cannot be explained by population growth as the population trend for 12–15 year olds has been stable from 2003–04 to 2013–14.[16] Similarly, the population trend for 16–24 year olds has been stable over the past five years following a small increase between 2006–07 and 2008–09.

Multiple presentations to EDs increased modestly over the same time period. In 2003–04, 22.2% of young people who presented to EDs presented more than once during that financial year[17] – this increased to 24.2% of young people who presented to EDs in 2013–14. However, the number of AYAs presenting five times or more grew by 45 per cent.

[16] www.abs.gov.au/websitedbs/d3310114.nsf/home/Population%20Pyramid%20-%20Australia

[17] Multiple presentations to the same Local Health District during the financial year.

Table 6: Number of young people (aged 12–24 years) presenting to NSW Emergency Departments by number of presentations and financial year

No. of presentations	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	% Increase
1	145,526	145,989	156,810	168,336	168,948	171,116	174,752	174,004	174,406	177,344	179,827	24%
2	27,012	27,902	30,582	32,695	33,353	34,032	35,089	34,870	35,234	36,148	37,017	37%
3	8,175	8,308	9,181	9,652	9,964	10,195	10,507	10,498	10,661	11,082	11,530	41%
4	3,144	3,143	3,553	3,715	4,037	3,827	3,934	3,938	4,081	4,293	4,332	38%
5 or more	3,202	3,294	3,639	3,644	3,945	3,784	3,899	3,963	4,186	4,517	4,655	45%
Total no. of individuals	187,059	188,636	203,765	218,042	220,247	222,954	228,181	227,273	228,568	233,384	237,361	**27%**

Source: Emergency Department Data Collection (NSW Health Information Exchange), Health System Information & Performance Branch, NSW Ministry of Health

Interestingly Freed et al. (2015) indicated the absolute number of presentations to EDs in Victoria has grown by over 52% in the last 11 years, a far greater rate of increase than in NSW. As indicated above, this has been driven mainly by young children, not AYAs.

Reasons for increases in presentations

When examining why young people visit the ED, the literature has adopted two distinct approaches: (1) an examination of the prevalence of disease and injury which may lead to young people attending EDs (covered in this section), and (2) an examination of why young people might choose to attend the ED over other health care options, such as GPs, community health centres or specialists (covered in Question 1d).

Summary question 1(c): Have there been any changes in the pattern of use of EDS by AYAs over the last 10 years and if so how might this be explained?

- ED presentations by young people aged 12–24 years in NSW has increased by 32% over the past decade from 257,046 presentations in 2003–04 to 338,095 in 2013–14. The number of ED presentations of females in the 16–24 years age-group has overtaken that of males in the same age-group
- There have also been increases in the numbers of individual AYAs presenting and therefore the increases are a factor both of the number of AYAs and the average number of presentations per AYA
- The greatest increase has been in the category of mental health and behavioural disorders
- The review found no strong evidence to explain the increase in AYA presentations, nor why this increase should be largely driven by young women aged 16–24 years
- GP appointments by young people between reduced by 17% between 1997 and 2007 in NSW and it is not known if this trend has continued
- While there is strong evidence that presentations to EDs by AYAs, especially females aged 16–24, have increased over the past decade and that their use of GPs has declined over this period, there is no evidence of a direct link between the two
- There is weak to moderate evidence that the reason for increased ED presentations is that AYAs prefer to use EDs than to access GPs or other primary health services and no evidence of a direct link between the two.

Question 1(d): What are the main factors that influence AYAs use of Eds rather than other services?

Possible reasons for the growth in ED presentations by young people

As noted above, many of the studies identified in this review were relatively narrow in scope, and did not examine the relationship between ED presentation and the availability of alternative health services. In isolation these studies provide little insight about the prevalence of disease and injury of young people presenting to the ED. However, a number of issues continually emerged in the literature as possible key explanatory factors in the growth of young people's use of EDs in Australia. These included:

Drugs and alcohol

Increased risky alcohol use in adolescents and young adults (AYAs), in particular, was noted by many of the studies, both Australian (41-43) and international (44-46). Young men in particular were seen to be more likely to exhibit these behaviours (47-49). According to the NSW Chief Health Officer's Report:

> Emergency department visits for acute alcohol problems peaked between 2007 and 2009. In recent years, rates were similar in males and females but were substantially higher in those aged 18–24 years (327 per 100,000) than those aged 15–17 years (203 per 100,000). Given the diversity of health problems associated with alcohol misuse, and the associated challenges with capturing alcohol-related problems in ED data collections, the rates presented underestimate the true magnitude of this public health problem. (50)

Thus the statistics show a decline in alcohol and drug use since 2007, particularly amongst adolescents, although there was a slight rise amongst 18–24 year olds in 2012–2013. The National Drugs Strategy Household Surveys (NDSHS) showed that in 2013 fewer people in Australia exceeded the lifetime risk and single-occasion risk guidelines for alcohol consumption, compared to 2010 decline (35). Overall fewer 12–17 year olds were drinking alcohol; the proportion abstaining from alcohol increased significantly between 2010 and 2013 (from 64% to 72%). Almost five million people in Australia aged 14 or older (26%) reported being a victim of an alcohol-related incident in 2013 but the proportion had declined from 29% in 2010. Although the pattern regarding illicit drugs was more variable, there did appear to be an overall decline (35).

Interpersonal violence

Young people in Australia are increasingly at risk of physical and sexual violence (43, 51), as are young people internationally (27, 52). Between 1998–99 and 2006–07, hospitalisations of young Australian people aged 13–18 due to assault rose by 18 percentage points[18] (AIHW 53).

Mental health

Mental health presentations to the ED in NSW increased considerably for all age-groups between 1999–2006 (54). Mental health presentations can include neurotic, stress-related and somatoform disorders; mental and behavioural disorders due to substance use; mood (affective) disorders; and schizophrenia, schizotypal and delusional disorders (55). Though they can do little to shed light on the prevalence, many small scale studies also report that young people present at EDs with a variety of mental health issues, including anxiety, depression and schizophrenia (56-59). As indicated in Table 7 and Table 8, this trend continues, with presentations to EDs for mental and behavioural disorders rising from 6448 to 8394 for males aged 16–24 and 7732 to 10,024 for females aged 16–24 between 2009–10 and 2013–14, an overall increase of 33 percentage points for this age-group. It is not clear, however, that mental health is

[18] This report does not provide information on the actual number of hospitalisations.

deteriorating in the AYA population as a whole. Findings from the NSW Population Health Survey indicate that high or very-high levels of psychological distress, as measured by the Kessler 10 scale (a good indicator of overall mental health), have remained steady for males aged 16–24 and have declined slightly since 2009, as indicated in Figure 3.

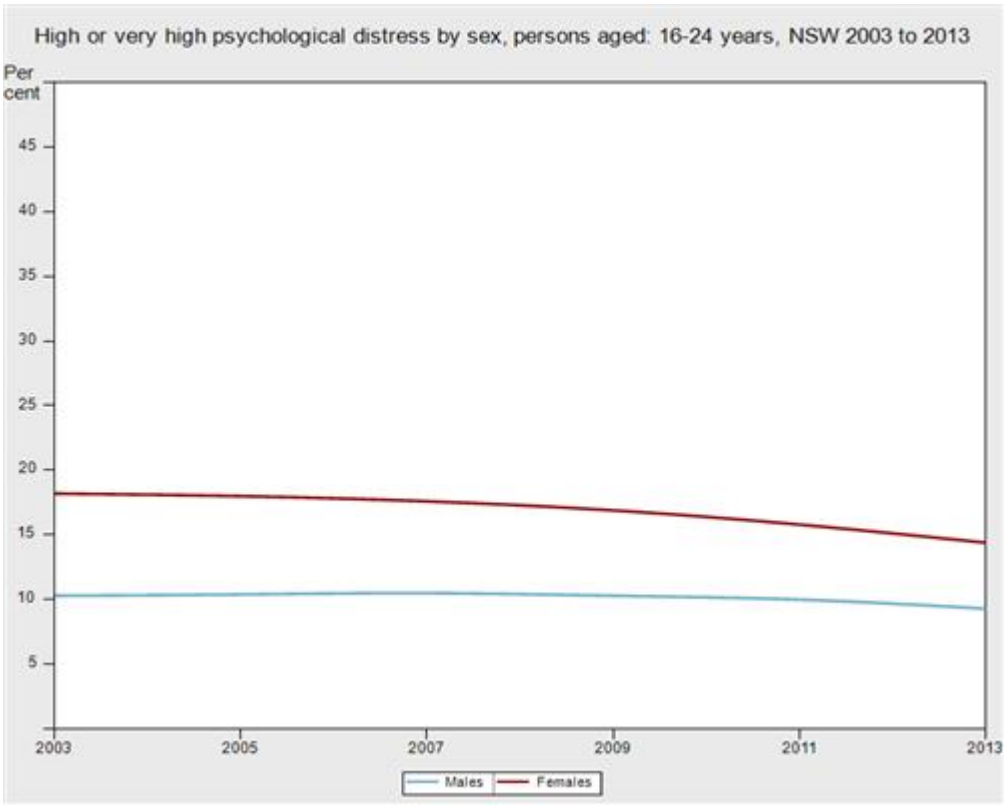

Figure 3 High or very high psychological distress by sex, persons aged: 16–24 years, NSW 2003 to 2013
Source: NSW Population Health Survey (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health
www.healthstats.nsw.gov.au/Indicator/men_distr_age/men_distr_age_trend

It is important to note that these issues can be interrelated. ED presentations resulting from interpersonal violence, for example, have been linked with alcohol use (24, 43), and mental health presentations are also correlated with alcohol and substance use (48, 49, 59). As noted above, however, both alcohol and substance use appear to be in decline amongst young Australians in recent years.

Chronic conditions

More young people are now living with chronic conditions which involve management at EDs. According to Sawyer, Drew (60):

> Numbers of young people with chronic conditions are growing. Improvements in survival typify many previously fatal conditions of childhood, such as cystic fibrosis, congenital heart disease, and spina bifida. Increasing incidence in adolescence is a feature of other conditions such as diabetes, mental disorder, HIV/AIDS, and cancer. Not only is cancer in young people on the rise, but also improvements in outcomes in adolescents and young adults for this disease lag behind advances that have been achieved for children and older adults.

This is also referenced by a recent report by the Bureau of Health Information, *Emergency department utilisation by people with cancer* (61), which says that 30% of people with cancer visited an ED in the year preceding diagnosis, and 40% of people with cancer visited the ED in the year following diagnosis. In addition, 10% of people with cancer made three or more visits to the ED in the year following diagnosis (BHI, 2014: 2). However these figures apply across the age range and not specifically to AYAs.

Types of presentations by AYAs at EDs in NSW

Data provided by NSW Health for this review was used to shed light on some of the patterns of presentation by young people at EDs in NSW.

Top 10 Emergency Department Principal Diagnoses

The top 10 ED principal diagnoses from 2009–10 to 2013–14 were summarised according to the International Classification of Diseases and Related Health Problems 10th Revision.[19]

From 2009–10 to 2013–14, *Injury, poisoning and certain other consequences of external causes* was the primary ED principal diagnosis for males aged 12–24 years, accounting for 48.5% of these top 10 presentations in 2013–14 in males aged 12–24 years (Table 7). The top 10 ED principal diagnoses for males aged 12–16 and those aged 16 to 24 years were also compared to explore differences; however, the top 10 ED principal diagnoses in both these age-groups were the same as those listed in Table 7.

It should be noted that ED principal diagnoses relating to mental health are likely to be under-estimated using this classification. Presentations relating to mental health can fall under different categories, for example drug overdoses would be coded under *Injury, poisoning and certain other consequences of external causes*, whilst mood disorders would be coded under *Mental and behavioural disorders*. Although mental health conditions account for a relatively small proportion of ED presentations for males in this age-group, they have risen by 30.2 percentage points between 2009–10 to 2013–14, more than any of the other top 10 principal diagnoses.

[19] apps.who.int/classifications/icd10/browse/2015/en#/VI

Table 7: Top 10 ED principal diagnoses (males 12–24 years) to NSW Emergency Departments by financial year

ED Principal diagnosis	2009-10	2010-11	2011-12	2012-13	2013-14
Injury, poisoning and certain other consequences of external causes	76,930	72,770	71,084	82,557	86,513
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified[20]	19,975	20,608	20,471	23,623	24,742
Factors influencing health status and contact with health[21] services	15,118	11,763	11,323	13,644	12,619
Diseases of the respiratory system	10,412	9,062	9,055	8,566	8,031
Diseases of the musculoskeletal system and connective tissue	10,916	10,657	10,470	11,779	11,830
Mental and behavioural disorders	6,448	6,072	6,287	8,088	8,394
Diseases of the digestive system	6,352	6,196	6,525	7,369	7,828
Certain infectious and parasitic disease	5,932	5,731	5,782	6,446	6,386
Diseases of the skin and subcutaneous tissue				6,501	6,324
No diagnosis recorded	10,756	14,472	12,376	7,154	5,703
Could not be mapped*	13,839	17,581	20,685		
Total	**176,678**	**174,912**	**174,058**	**175,727**	**178,370**

Source: Emergency Department Data Collection (NSW Health Information Exchange), Health System Information & Performance Branch, NSW Ministry of Health

Injury, poisoning and certain other consequences of external causes has been the top ED principal diagnosis for females aged 12–24 years since 2012–13, accounting for 26.4% of these presentations in 2013–14 in females aged 12–24 years (Table 8). The number of presentations for mental and behavioural disorders is higher for females than males, although the rate of increase is slightly lower at 29.6%. The top 10 ED principal diagnoses for females aged 12–16 and those aged 16–24 years were also compared to explore differences. The top 10 ED principal diagnoses in both these age-groups were the same as those listed in Table 8, with the exception of 'Pregnancy, childbirth and the puerperium' which did not feature as one of the top 10 ED principal diagnoses in the younger female cohort.

[20] This grouping includes symptoms, signs, abnormal results of clinical or other investigative procedures, and ill-defined conditions regarding which no diagnosis classifiable elsewhere is recorded (e.g. abdominal and pelvic pain, nausea and vomiting).

[21] This grouping includes occasions when circumstances other than a disease, injury or external cause classifiable to other categories are recorded as "diagnoses" or "problems" (e.g. persons encountering health services for examination and investigation, persons with potential health hazards related to communicable diseases).

Table 8 Top 10 ED principal diagnoses (females 12–24 years) to NSW Emergency Departments by financial year

ED Principal diagnosis	2009-10	2010-11	2011-12	2012-13	2013-14
Injury, poisoning and certain other consequences of external causes	35,275	33,928	33,718	40,986	44,505
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	32,556	33,028	34,801	39,383	42,973
Factors influencing health status and contact with health services	13,311	10,853	10,824	13,903	13,012
Diseases of the respiratory system	12,514	10,917	11,208	10,639	10,387
Diseases of the musculoskeletal system and connective tissue	8,038	8,131	8,321	9,393	10,106
Mental and behavioural disorders	7,732	7,203	7,293	9,664	10,024
Diseases of the digestive system	7,475	7,344	7,781	9,384	9,501
Certain infectious and parasitic disease	-	-	-	8,215	8,741
Diseases of the genitourinary system	11,353	11,304	11,504	12,011	12,255
Pregnancy, childbirth and the puerperium	-	-	-	-	6,848
No diagnosis recorded	11,506	15,586	14,044	7,608	-
Could not be mapped*	10,857	14,107	17,407	-	-
Total	**150,617**	**152,401**	**156,901**	**161,186**	**168,352**

Source: Emergency Department Data Collection (NSW Health Information Exchange), Health System Information & Performance Branch, NSW Ministry of Health

*Diagnoses had been mapped from the original code reported in the Emergency Data Collection: SNOMED-CT** or earlier versions of ICD to ICD10. For a number of presentations each year no map was found. No adjustment has been undertaken

** www.nehta.gov.au/our-work/clinical-terminology/snomed-clinical-terms

These tables provide information on the top 10 presentations and do not differentiate between preventable and non-preventable presentations.

The research literature notes there are many factors which lead young people to choose EDs over other available health services. These include:

- Personal/attitudinal issues; including anonymity, privacy, and, in some cases, a space where the patient can be treated without parental knowledge (31, 62, 63)
- Structural factors; opening times and perceived waiting times in particular are cited as reasons why young people might choose to present to EDs (64-66). Indeed, the Australian Bureau of Statistics' *Health Experiences: Patient Experiences in Australia* 2012 survey found that although young people gave multiple reasons for their attendance at EDs, nearly one-third (31.6%) of young people chose to attend the ED because of the time of the day or week.

Beyond examination of the medical issues which cause young people to present at EDs, the literature has also examined why young people might choose to attend the ED as opposed to other health care options, particularly GPs. Some of the key barriers cited in the literature on young people's access health care generally include:

- *Lack of awareness and/or information about alternative services*: young people may not be informed about the availability of other health services designed to support them (10-14)

- *Resources*: young people appear to be particularly sensitive to the issue of cost of services, which acts as a barrier for accessing services (10). Transport is also commonly mentioned, particularly for younger patients and young people living in areas with poor public transport (12, 14-16)
- *Availability*: waiting times for services, and particularly for specialist services, can act as a key barrier, especially for young people from disadvantaged backgrounds. Opening hours are also of significance for young people (10, 12, 14, 16)
- *Attitudinal factors*: the literature shows that young people may also display attitudes which can act as a barrier. These are various, but can include: not wanting to admit anything is wrong, fear of the unknown, fear of stigma, embarrassment or shyness, concerns about confidentiality and privacy, and, particularly in the case of young people experiencing mental health concerns, psychological issues such as anxiety about help seeking (10, 12-20).

None of these factors are specific to ED presentations. However, as described above, it is possible that some young people attend EDs because of their reluctance to access health services and therefore they wait until the situation is urgent before seeking medical attention.

Summary question 1(d): What are the main factors that influence AYAs use of EDs rather than other services?

- A number of factors have been cited in the literature as barriers to accessing alternatives to EDs. These include: lack of awareness and/or information about alternative services, cost, transport, the availability of primary health services, and attitudinal factors, such as anonymity, privacy, confidentiality, and structural factors such as opening times and perceived waiting times

- There is no direct evidence that any of these factors resulted in increased use of EDs by AYAs

- No studies were found which specifically dealt with EDs and the transition from paediatric to adult care.

Question 2: Are EDs responding appropriately to AYAs?

'Appropriate' in this review refers to responses that are tailored to the developmental needs of AYAs. It is now recognised that young people aged 12–24 have health care needs that differ from those of both older adults and younger children. Primarily, this is because the ages of 12–24 represent a time of significant change in psychological, cognitive, emotional, spiritual and social development (29, 30). As such:

> The overall approach to the emergency care of a minor must take into account the physical, mental, behavioural and emotional differences that exist between children and adults, and between children of different ages, intellect, and developmental stages (31: 620).

In addition, depending on their age and vulnerabilities, young people present unique ethical challenges for practitioners in regards to privacy, confidentiality, and informed consent (31, 34, 62).

Young people's needs for support and care are also shaped by the fact the adolescent years are a time when risky behaviours are first exhibited (33). This means that young people may present with different patterns of illness and injury which are related to risky behaviours (32).

In recognition of young people's unique needs, circumstances and situations as a group – and consistent with growing attention being paid to the provision of youth-friendly care globally (34) – there are now a number of guidelines and policies relating to the care of young people within EDs and the health system more generally in NSW. Relevant, selected guidelines appear in Appendix 1.

Taken together, these guidelines stress that EDs should:

- Uphold the rights and dignity of children and young people at all times
- Provide a safe, appropriate, youth-friendly health environment for young people
- Provide specialised staff, equipment and other resources, including standardised guidelines, to meet the needs of young people
- Ensure that health services for young people are accessible, acceptable, equitable, appropriate and effective (WHO 67).

In NSW, the primary policy relating to young people is the *Youth Health Policy 2011–2016: Healthy Bodies, Healthy Minds, Vibrant Futures*, released in 2010. The aim of this policy is to:

> 'guide the NSW health system to encourage and support young people to achieve optimal health and wellbeing, to ensure young people experience the health system as positive, respectful, supportive and empowering, and to achieve positive outcomes for young people that are organisationally effective' (68: 1).

Drawing from youth inclusive practices, this policy sits within a broader framework related to supporting young people in NSW across a range of domains, including *Keep Them Safe: A Shared Approach to Wellbeing; Caring Together: The Health Action Plan for NSW* and the *NSW Youth Alcohol Action Plan 2009–2013*. The principles governing the *Youth Health Policy* are: accessibility, youth participation, collaboration and partnerships, professional development, evaluation, evidence-based approaches, and sustainability. These principles are to guide the provision of health care to young people in NSW across a range of domains, including the ED.

Only one evaluation of youth-friendly practices in hospitals was identified by this review – the *Report on CHA (Children's Hospitals Australasia) Project on the Rights of Children and Young People in Healthcare Services. Sydney: Children's Hospitals Australasia* CHA (21). In 2010, the CHA analysed self-evaluations from 11 participating members, representing 15 facilities from across Australia, and New Zealand (eight of which were in NSW, of which four were hospitals and the rest community facilities), relating to the implementation of youth-friendly policies and practices. It was found that, overall, the participating health services were committed to the respect of children and young people's rights within their facilities, and had taken concrete steps to address and incorporate these rights (e.g. discussions with children regarding their treatment, availability of child appropriate resources; child-friendly areas) (21). However, no information was supplied on the impact of the implementation of these policies; the survey covered a range of facilities, not only hospitals, and no specific findings are given for EDs. No other systematic evaluations of youth-friendly practices were identified in the course of this review.

Broadly speaking, the youth guidelines outlined in Appendix 1 accord with the views and experiences of young people themselves. For example, a recent systematic review by Ambresin et al. (2013) of the evidence on indicators of youth-friendly health practices from the perspectives of young people uncovered the following key findings, many of which echo the guidelines outlined in Appendix 1:

- *Accessibility*: young people face barriers in terms of location and affordability
- *Staff attitude*: young people value the following characteristics in their health care providers: friendliness, competence, honesty, trustworthiness, respectfulness and supportiveness. The ability to provide holistic care is also valued
- *Communication*: clarity and amount of information is important, as are listening skills of health care providers
- *Medical competency of staff*: this was particularly important for pain management
- *Guideline-driven care*: including confidentiality, autonomy and transition to adult care
- *Age-appropriate environments*: including flexibility around appointments, separate physical spaces for young people, teen-orientated information provision
- *Involvement in health care*: young people should have a say in their own health care (34).

However, these findings are related to young people's experiences and viewpoints on the healthcare system in general. Further work is needed in order to understand what young people believe about their health needs and their experiences with EDs.

Therefore, studies reveal that young people's needs in EDs are similar to those of older patients, including privacy, confidentiality, ambiance, waiting times, levels of violence and noise in waiting rooms (69, 70). Whilst the experiences of adults in EDs are now well understood (see 69, 70), the literature on young people in EDs is notably less developed (34). Only a few studies identified in this review specifically surveyed young people about their subjective experiences in the ED. For example, an Australian study of 74 young people who had attended the ED found that young people identified a variety of factors in the ED which affected their experiences (22) including those relating to the medical services provided, comfort and functionality, facilities and entertainment, and welcome and ambience (see Figure 4 below).

1. Medical services:

- Timely assistance by staff
- A positive welcome
- Reception from staff
- Good quality information from staff and regular updates.

2. Comfort and functionality:

- A clean environment
- Not overcrowded and cramped
- Not too cold
- Affords visitors privacy
- Sufficient comfortable chairs
- Access to toilets.

3. Facilities and entertainments:

- Food and drink machines
- TV and reading material
- Activities and entertainments specifically for children.

4. Welcome and ambience:

- Colour, artwork and plants
- Distractions such as fish tanks
- Softenings such as carpet
- Music.

Figure 4: Key factors identified by young people after attending ED that affected their experiences

The report strongly recommends that there should be a separate ED waiting area for children and families and that this should be aesthetically appropriate as well as containing age appropriate activities for families while waiting. (AWCH 22). It should be noted, however, that the age-group surveyed was only relevant to young people under the age of 16. Fry and colleagues' (44) study of 323 adolescents presenting to the ED of an Irish hospital (which included a survey of 32 young people about their experiences), found that young people wanted to be seen quickly, wanted to be heard and respected by staff, and had a number of suggestions relating to the ED environment, particularly around entertainment. In a study in the USA, Rutherford and colleagues surveyed 100 young people aged 13–21, finding that issues of privacy and respect were critical to young people's satisfaction with the ED. Young people were also concerned about waiting times and ED ambiance and comfort (71). These findings also accord with the guidelines for youth-friendly care outlined in Appendix 1. However, young people express particular preferences for entertainment in the waiting room, including access to appropriate television channels, reading materials and the internet (44, 71).

Summary question 2: Are EDs responding appropriately to AYAs who present to EDs?

- The literature suggests that AYA's experiences in EDs are not always satisfactory, and that they sometimes present challenges to ED staff. The response may be different for different groups within this age range and the risk profile of adolescents is also different from that of young adults
- There is limited research on the expectations and experiences of AYA's in EDs
- AYAs in EDs want to be seen quickly, treated with respect, provided a degree of confidentiality and be provided with relevant information. They prefer a youth-friendly environment, with access to TV or other forms of entertainment
- There are few studies which identify the extent to which EDs are currently responding appropriately to AYAs. Further research should be undertaken to examine this and in particular whether 'appropriate' ED responses result in better outcomes for AYAs.

Question 3: What impact do AYAs have on staff and/or other resources of EDs?

This review revealed two major issues related to the strain placed on EDs by young people as a group. The most prevalent theme within the literature is the impact of the behaviour of young people once they enter the ED. That is, there appears to be a link between violence and young people presenting to the ED, both as a reason for attending EDs and as an issue within the ED (23, 43, 72). In their review of the literature relating to violence and aggression in the ED, for example, Hodge and Marshall (23) note that individuals aged 30 years and under were more likely to be aggressive and violent than other age-groups. There is also a gendered component to violence in the ED, with small-scale studies indicating that young males are more likely to be perpetrators of violence (23, 43). Other characteristics associated with violence include mental illness, alcohol/substance abuse problems, and a previous history of violent attack (23, 26).

It should be noted that this review identified no large-scale Australian data related to youth violence in EDs. In the absence of such data, little can be ascertained about the prevalence of youth violence in the ED, or the strength of the association between young people and violence.

The impact of youth violence can be quite significant for staff and for other patients. Small empirical studies show that the impacts on staff include 'compassion fatigue' (26), and mental stress and trauma (72, 73). The literature provides a number of strategies to address violence in the ED. The provision of security staff, particularly during the most active or high-risk times of the day, has been argued to be 'paramount' to ensuring the safety of patients, staff and property in the ED, not only in relation to young people but across the age range (23: 64). Morphet et al. (26) also found that nurses and other staff members believe that zero tolerance policies are most effective at reducing patient violence. Researchers working in this area have also recommended that staff should attend training around violence prevention strategies (23, 26), particularly relating to communication (26), though this is not specific to AYAs.

Secondly, as has been explored above, young people may be over-represented within the 'preventable' group of patients presenting to the ED although the evidence for this is moderate. This has direct monetary costs in terms of care – in 2009–10 the average cost of an ED presentation in NSW was approximately $396 (74: 15). There are also likely to be flow-on costs associated with preventable presentations in terms of time-based and other resources within the ED. However, this review has not identified any sources which directly calculated the costs associated with preventable presentations of young people aged 12–24 to the ED, or indeed the costs of and different processes used to treat AYAs in the ED compared to other patients. This is another significant gap in the literature.

Summary question 3: What impact do AYAs place on staff and/or other resources of EDs?

- There is weak evidence that AYAs are more violent in EDs than other age-groups, and some evidence that the 25–30 age-group is equally violent. There is no evidence that violence by AYAs in EDs has increased in the past decade
- There is weak evidence that AYAs have a disproportionately negative impact on staff or ED resources
- There is strong evidence that violence in EDs is a significant cause of stress for ED staff but as stated above, this is not only an issue for AYAs.

Question 4:

4(a) What environmental and systematic strategies have been implemented to improve the service response to AYAs?

4(b) What strategies have implemented by EDs and the health service system that have resulted in improvements in health outcomes for AYAs?

This section looks at responses within the ED to address issues which have been shown to be of particular relevance in young people's presentations. The focus of this section is specifically on programs, policies and projects targeted at young people. In addition there are a range of policies and guidance documents available from bodies ranging from the World Health Organisation (67) to the NSW Ministry of Health (68).

Youth mental health initiatives

In 2009, NSW Health released a reference guide on mental health for EDs (75). This contained a number guidelines for the treatment of children and adolescents which are consistent with both the youth-friendly guidelines outlined in Appendix 1, and the key findings reported by Ambresin and colleagues (34), including:

- Mental health assessments should be conducted in consultation with specialist paediatric and/or child and adolescent mental health staff whenever possible
- Where possible, young people should be seen alone for part of the assessment so that they are given the opportunity to provide sensitive information
- Confidentiality should be carefully explained to the young person
- Mental health assessment should consider the young person's social, educational, familial and peer contexts
- Staff should adopt a non-judgemental attitude (75).

CAMHS

The Child and Adolescent Mental Health Service (CAMHS) is designed to provide mental health programs for infants, children and young people aged under the age of 18. Services are delivered in both a community and hospital setting.' (76). CAMHS prioritises access for children, adolescents and families judged to be at highest risk for 'current or future impairment', as well as those 'with the greatest need for specialist intensive and often long-term mental health interventions, especially those who have been subjected to multiple risk factors for mental health problems' (77).

Within EDs, CAMHS Assertive Outreach Teams deliver triage, assessment, brief treatment and short-term case management to children and adolescents with moderate to severe mental health problems, and can refer to other mental health services.

In 2012 MH Children and Young People implemented Assertive Community CAMHS pilot teams in three Local Health Districts (LHDs) in NSW. The aim of the program is to deliver mobile community acute mental health services that are consumer-sensitive, responsive and provide timely, effective and high quality care. The target group for this pilot is NSW children and adolescents under 18 years who require an assertive community response mental health service. Two key objectives include reducing child and adolescent mental health ED presentations and to improving coordination amongst service providers involved in emergency and acute mental health care of children and adolescents.

Project Air

Project Air is a Personality Disorders Strategy headed by NSW Health and implemented by staff within the South Eastern Sydney and Illawarra Shoalhaven Local Health Districts and Justice Health. The project 'aims to enhance treatment options for people with Personality Disorder and their families and carers. [It] endorses an integrative collaborative relational approach and thereby promotes personality disorders-friendly health service'. The project offers training, complex case reviews and secondary consultation, and research services.

Project Air has also developed treatment guidelines for individuals with Personality Disorders in the ED. Such guidelines include: responding to the medical and physical needs of the patient as the first priority; determining whether or not a hospital admission is required; and determining the young person's level of risk. The Guidelines also note that young people engaging in self-harm or suicidal behaviours rarely exhibit a recurrent pattern. They state that it is preferable to avoid hospital admissions where appropriate, but to rather engage the person in community-based care (particularly if it provided quickly, within 1–3 days).

Whilst this project has produced a number of research publications none have specifically evaluated the effectiveness of guidelines and policies relating to the ED (79).

Alcohol and substance abuse initiatives

The Children's Hospital at Westmead established the *Service of Addiction Medicine for Youth* (SAMY) program in 2008. The program provides specialist staff and a psychologist to provide clinical services to adolescents who are using drugs and alcohol. Adolescents can be referred from the ED, hospital outpatient departments and external agencies. Young people are initially assessed for alcohol and substance issues. They may then be referred to other services, or a treatment plan may be developed. Patients between the ages of 10 and 18 may be referred to this service. An evaluation of the SAMY program has recently been published (80). This evaluation found that the ED was the largest referral source for young people. With 30% of adolescents referred to the SAMY program being 14 years or younger, it was argued that SAMY was providing a valuable service in terms of early intervention (80).

Violence reduction initiatives

Since 2003, NSW has had a mandatory 'zero tolerance' policy (ZTP) implemented in relation to violence in the ED. The purpose of this policy has been to ensure that in all violent incidents, action is taken to protect staff, patients, visitors and health service property from the impact of violent behaviour. The ZTP provides guidelines on risk management approaches, violence risk identification and assessment, violence risk control, and responses to violence as a whole-of-system approach to violence. For the ED in particular, the ZTP outlines: communication to patients regarding their rights and responsibilities (e.g. through pamphlets or flyers); all EDs should have emergency response procedures; and that all EDs should consider control strategies, which may include minimised public entry points, duress alarms, and strategic close circuit television (CCTV) monitoring (81).

There is some information about the ZTP from staff perspectives to be gleaned from qualitative literature. At this stage, however, some evidence indicates that staff feel that the ZTP is effective (23), whilst other studies have found that staff feel the policy is not particularly useful (82). A key concern uncovered by Pich and colleagues (82) is the fact that guidelines appear to be implemented inconsistently by managers.
It should be noted that none of these strategies have specifically targeted violence by AYAs, and, as mentioned in response to Question 3, AYAs are not the only or even the predominant group who behave violently in EDs.

Location specific initiatives

Youth Health Access Project (Wyong)

The Youth Health Access project developed in Wyong ED, is designed to target young people aged 14–24 years who frequently present to the ED. The purpose of this project is to provide young people access to alternative health services in the community, given that many young people within the Wyong ED are presenting with avoidable presentations, or health issues which could be addressed by other services. Young people were identified via the Wyong Social Work Department and by using Firstnet to identify young people who had presented to the ED at least eight times within the previous 12 months. Having been identified, young people were then contacted to discuss the availability of services, and to make appointments for young people to visit these services. The project was opened in October 2012 and concluded in April 2013. As yet, no evaluation of this service has been published.

Paediatric and assessment units (Wyong and Campbelltown)

In response to high levels of ED presentations by young people, two paediatric assessment units (PAUs) have been implemented at Wyong and Campbelltown. The PAUs are co-located within the ED, and treat young people aged 0–16 years. The PAUs are designed to identify preventable ED presentations of young people, providing short stay services, review appointments, telephone interviews and home visits. Key advantages of the PAUs are the fast tracking of care, and the referral to, and linking of, young people to alternative health services. An unpublished literature review found that the Wyong PAU has been found to be highly effective, and contributed to a 38% (*n*=470 per annum) reduction in paediatric admissions since its implementation (83). No further evaluations of the PAU project were identified.

Kids Acute Liaison in Mental Health (KALM) project (Westmead)

The Children's Hospital at Westmead has recently implemented the Kids Acute Liaison in Mental Health (KALM) project. KALM was established to provide a 'clear pathway and guideline' for all mental health presentations to the ED. The KALM program mandates that all mental health presentations are initially assessed in the ED using the Home & Environment, Education & Employment, Activities, Drugs, Sexuality Suicide/Depression tool, a Mental State Examination (MSE) or a risk assessment tool. Patients deemed to be at low-risk are treated by ED staff, while high-risk patients are all referred through to Psychological Medicine. The KALM project also introduced key performance indicators for response time to ED consultations (ranging between 30 and 60 minutes); established fortnightly meetings between the management of both departments in order to foster cooperation and collaboration; introduced the weekly auditing of all mental health presentations during the trial period; and developed information packages and tools for implementation for the KALM pathway. Analysis of data from the first eight weeks of the program found that quality of care and waiting times for mental health patients had improved considerably, as these patients were now shared between the two departments (ARCHI 84).

Summary question 4: (a) What environmental and systemic strategies have been implemented to improve the service response to AYAs? (b) What strategies have been implemented by EDs and the health service system that have resulted in improvements in health outcomes for AYAs?

- Some EDs are implementing targeted programs such as youth mental health, alcohol and substance abuse, and violence reduction, or targeted to specific populations or services, for example in Wyong, Campbelltown or Westmead

- These and other programs indicate an awareness of youth issues and a willingness to address the specific concerns, situations and experiences of young people. If implemented effectively, they are likely to reduce preventable presentations and improve practice within EDs. However, there does not appear to be an overall strategic approach to improving EDs' response to AYAs

- No rigorously evaluated interventions to improve the quality of EDs' response or to improve health outcomes of AYAs in EDs were identified and there is no comprehensive approach to evaluation.

6 Conclusion

This review covered numbers of young people presenting to EDs, reasons why young people present to EDs, potentially avoidable presentations to the ED within this group, youth-friendly practices and policies, the impact of young people on staff and other resources of EDs, and the environmental and systematic strategies that have been implemented to improve service response to young people.

In response to the research questions, NSW Health data provide strong evidence that presentations to EDs by AYAs, especially females aged 16–24, have increased over the past decade. Yet AIHW data suggests that this is less so in NSW compared with other states (AIHW, 2014). Data also indicate that use of GPs by this age-group has declined over this period. There is weak to moderate evidence, however, that the reason for increased ED presentations is that AYAs prefer to use EDs than to access GPs or other primary health services and there is no evidence of a direct link between the two. There is weak evidence that EDs are not responding adequately to AYAs and weak evidence that AYAs place a disproportionate burden on staff. There is no evidence that response to AYAs by EDs, or stress placed on ED staff has increased. No rigorously evaluated interventions to improve the quality of service response or to improve health outcomes of AYAs in EDs were identified.

More specifically, a number of key findings were identified in this review:

- The number of presentations to EDs in NSW has increased over the last 10 years, particularly presentations from young women aged 16–25
- A number of issues appear to be contributing to rising numbers of young people attending the ED, including risky behaviours, interpersonal violence, mental health issues and chronic illnesses. However, some issues associated with young people in the ED, notably alcohol and substance use, have decreased in recent years, and mental health problems in the general population of AYAs do not appear to have increased. No explanation has been provided in the literature for why female AYAs aged 16–24 should be responsible for increases in ED presentations
- Young people face barriers in accessing community health services such as GPs. There is a possibility that this is contributing to increased presentations at EDs, but evidence to date is weak. There is some evidence that young people are more likely than other age-groups to present with avoidable presentations, though the evidence is moderate and further data is needed to confirm this
- There is evidence that young people are more likely to impact staff and resources of the ED due to issues of violence and possibly other issues such as impatience and other disturbing behaviours. However the age range for increased violence in EDs appears to be 20–30, thus overlapping with the AYA age-group. The actual prevalence of violence and other disturbing behaviours by AYAs in EDs is not known
- The specific needs, situations and experiences of 12–24 year olds have been recognised in a number of guidelines and in the NSW *Youth Health Policy 2011–2016: Healthy Bodies, Healthy Minds, Vibrant Futures,* however no evidence has been produced to date on the extent to which EDs that implement these guidelines have made an impact on the experiences or health outcomes of people aged 12–24 in EDs in NSW

- Some EDs programs and projects have been implemented to address the specific needs of young people. In general these appear to be successful but there is not a strategic approach to this issue across EDs in NSW.

Overall the review found a dearth of robust empirical studies which address any of the four research questions. Although there are a number of international and Australian documents which provide guidance to staff around how to manage difficult young people attending ED, these do not, on the whole, appear to be evidence based, and nor has their effectiveness been examined. The few studies which detail innovative approaches in EDs or programs to divert young people from EDs tend to be case studies rather than empirical studies. Even the descriptive information about the rise of AYAs in EDs appears to be largely anecdotal, with little hard data available about the numbers and rates of presentations by different sub-populations and different conditions, or whether presentations could be avoided.

This review has identified a number of gaps in the existing literature. These include:

- Australian research which canvasses young people's views on their needs and experiences in the ED setting
- Studies which link the literature on the barriers that young people face in accessing alternative forms of health care, and, as a corollary to this, studies which look at why young people choose the ED over other types of care
- Studies which cover the commonalities for this age-group across different conditions, in particular mental health, substance misuse and chronic medical conditions.
- Information on preventable presentations by age; there may be very different issues for adolescents and young adults
- Studies that identify the characteristics of AYAs presenting five times or more at EDs in a 12 month period and the reasons for their presentations; in particular the extent to which they present with avoidable presentations
- Evidence of best practice in EDs and of the impact of different practices on staff, young people and other patients within the ED and the health care system more broadly
- Evidence of the effectiveness or cost effectiveness of programs to address the specific needs of young people in EDs terms of their impact on the wellbeing and hospital use of young people
- Evidence of how the good practice guidance has been implemented and of its effectiveness in addressing the experiences of young people in EDs and supporting ED staff in appropriately helping young people
- Evidence of the use of EDs by young people with chronic physical or mental health problems who are transitioning from paediatric to adult health provision, and whether such use reflects lack of access to other forms of service provision
- Comparisons between NSW and other jurisdictions, where the patterns of presentation to EDs by AYAs appear to be very different. It is not known why this should be the case and whether the changes over time in different jurisdictions have resulted because of policy and program changes or whether they are driven primarily by demographic changes in different states and territories.

Perhaps the most significant gap in the research is the lack of evidence which examines the whole system of health interventions for young people and their trajectory through the system. Thus it is not known, for example, whether the reduction in attendance at GPs by young people is linked to increases in ED attendance (i.e. whether those young people who would have previously attended GPs are now more likely to go to EDs). Similarly it is not known what type of interventions would reduce the number of ED

presentations by AYAs. Any further research in this area must also recognise that the needs of AYAs are not homogenous – the needs of 12–18 year olds will be different to those of 18–24 year olds, particularly when the role of the parent or carer lessens during their transition to adulthood.

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8 Appendices

Appendix 1: Selected guidelines on health services for children and young people

Author/Body	Title	Year	Details
Australasian College for Emergency Medicine	Statement on hospital Emergency Department services for children	2012	**Aim**: To 'establish minimum standards in the provision of services to children and young persons who attend EDs within Australia' (p. 1) **Key Points**: - That the design of the department should incorporate the particular social, emotional and physical needs of children and young people - That a registered nurse with adequate training and experience (at least 12 months) in the emergency management of children and young people should be available in the ED at all times - All triage nurses should be trained in assessing children and young people - A paediatrician, paediatric surgeon and anaesthetist with paediatric skills should be available as consultant staff on a 24-hourly basis - All EDs should be suitably equipped for the treatment of young people - Paediatric guidelines relating to the assessment and treatment of children and young people should be available in the ED at all times
Royal Australasian College of Physicians/Association for the Wellbeing of Children in Healthcare	Standards for the care of children and adolescents in health services	2008	**Aim:** To 'ensure that quality care is provided in an environment that is safe and appropriate for the age and stage of development of the child or adolescent' (p. 3) **Key Points**: - The rights of the child or adolescent must be upheld at all times, and they and their families should be treated with respect, sensitivity and dignity at all times - Children and adolescents should be cared for in a safe and appropriate physical environment which is 'designed, furnished and decorated to meet their needs and developmental age' (p. 5) - That children and adolescents are cared for with equipment that is 'specifically designed to meet their needs, size and developmental age' (p. 8) - Children and adolescents should have access to appropriately trained staff

The Royal Australasian College of Physicians	Working with young people – online resource	2014	**Aim**: A training resource designed to help trainees 'develop the knowledge, skills and attitudes required to deliver effective health care to young people' (p. 3) **Key Points**: - Adolescence is a time of considerable physical, cognitive and psycho-social development - An overview of key burden of illnesses in adolescents, including mental health issues and chronic illnesses - There are particular ethical and legal issues which apply to young people, including privacy and confidentiality, consent, and the assessment of cognitive ability and maturity for consent - Presents guidelines on therapeutic engagement - Presents guidelines on psycho-social assessment, including information on common risk and protective factors in adolescence - Presents guidelines on the promotion of self-management in adolescents, with a particular focus on adolescents who present with a chronic illness - Identifies principles for the transition of adolescents to adult care
World Health Organisation	Making health services adolescent-friendly: Developing national quality standards for adolescent friendly health services	2012	**Aim**: To set out 'the public health rationale for making it easier for adolescents to obtain the health services that they need to protect and improve their health and well-being, including sexual and reproductive health services…it is also tailored o national epidemiological, social, cultural and economic realities, and provides guidance on identifying what actions need to be taken to assess whether appropriate standards have been achieved' (p. v) **Key points**: - Adolescents have particular needs for health services, due to both their developmental age, as well as their heightened proclivity for risk behaviours - Adolescent health should be considered holistically; the influence of different individuals and institutions (e.g. family, friends, teachers, religious leaders, politicians) on the health and wellbeing of this group needs to be acknowledged - The provision of appropriate health care is key to ensuring the health and wellbeing of young people - Health workers have a key role to play in the health and wellbeing of adolescents - Adolescent friendly health services should be accessible, acceptable, equitable, appropriate, and effective - Provides guidelines for the development of national standards for health services according to the five principles outlined above. Guidelines include the establishment of shared definitions and understandings relating to adolescent health; the development of national standards; and

			preparatory work needed to implement evaluation of adolescent friendly health services
Children's Healthcare Australasia	Charter on the Rights of Children and Young People in Healthcare Services in Australia	2010	**Aim**: To 'ensure that children and young people receive healthcare that is both appropriate and acceptable to them and to their families' **Key Points**: - Every child and young person has the right to consideration of their best interests as the primary concern of all involved in his or her care - Every child and young person has the right to express their views, and to be heard and taken seriously - Every child and young person has the right to the highest attainable standard of healthcare - Every child and young person has the right to respect for themselves as a whole person, as well as respect for their family and the family's individual characteristics, beliefs, culture and contexts - Every child and young person has the right to be nurtured by their parents and family, and to have family relationships supported by the service in which the child or young person is receiving healthcare - Every child and young person has the right to information, in a form that is understandable to them - Every child and young person has the right to participate in decision-making and, as appropriate to their capabilities, to make decisions about their care - Every child and young person has the right to be kept safe from all forms of harm - Every child and young person has the right to have their privacy respected - Every child and young person has the right to participate in education, play, creative activities and recreation, even if this is difficult due to their illness or disability - Every child and young person has the right continuity of healthcare, including well-planned care that takes them beyond the paediatric context
Australian College of Children & Young People's Nurses	National Standards for the care of children and adolescents	2009	Guidelines are aimed at 'achieving the best possible paediatric care in all parts of the state…health professionals should use the guidelines to ensure that local communities have access to a range of services which are appropriate to their needs'. (p. 1) **Key points**: - Children and adolescents should only be hospitalised if necessary - Appropriate integration and coordination of hospital and community-based services in order to improve the care for children and adolescents and decrease the need for hospital admission - Special needs of children and adolescents must be acknowledged and addressed, including

			Aboriginal liaison officers, interpreters for children and young people from culturally and linguistically diverse backgrounds, and the needs of young people with developmental delay - EDs should: • Ensure the safety and security of young people • Minimise waiting times for children and adolescents, with reference to the guidelines set out in the National Triage Scale • Ensure the processes for fast-tracking the care of children and adolescents are in place • Require appropriate staffing levels for peak demand • Ensure the skills and competence of staff treating children and adolescents • Should ideally have separate children's waiting areas, with play equipment, and provide appropriate recreational activities for children and adolescents • Must have a separate area equipped with paediatric-sized equipment to conduct procedures such as correct oximeter probes, blood pressure cuffs, scales and thermometers • Utilise the NSW Paediatric Clinical Practice guidelines where clinically relevant • Ensure that planning for major events is undertaken and considers the needs of children and adolescents • Should address infection control issues for paediatrics • Should develop appropriate models of care for addressing the needs of children and adolescents, similar to the Aged Care Services in Emergency Teams (ASETS) models. • Design briefs for new or refurbished EDs should include the elements described above, with input from appropriately skilled medical and nursing personnel

Sources: (67, 85-88)

Appendix 2: Literature table

This section provides a detailed review of selected publications related to the use of EDs by young people aged 12–24 in Australia. The review covers authors, year, type of strategy, target group, study methods, study findings, level of evidence, quality of evidence, and a summary of the evidence.

The following criteria were applied in the course of this review:

- Both academic and grey literature was included in this review
- Only sources providing empirical data, or reviewing the empirical data, were reviewed – not editorials or opinion pieces
- Published, peer-reviewed evaluations of ED programs were included in this review
- All sources published before 2004 were excluded from this review
- Statistical sources, such as publications from the Australian Bureau of Statistics, the Australian Institute of Health and Welfare, and NSW Health, were not included in this review
- All non-Australian sources were excluded from this review
- The decision was made to exclude sources related exclusively to prevalence and reasons underpinning for the hospitalisation of young people, rather than their use of the ED. Though hospitalisation and ED use can be related, unless the relationship was explicitly stated in the study it was judged to fall outside the purview of this review
- Studies which related to ED use but did not examine young people's use, or provide information on ED use by age, were excluded from this review
- Sources related to the impact of violence were included in this review, after a literature search indicated that young people are more likely to be perpetrators of violence within the ED
- Though sources related to barriers to other health services, in particular GPs, were included in the main report, they were not included in this review unless they explicitly linked ED use with barriers faced by young people or their families.

Acworth J. et al. (2009). Patterns of presentation to the Australian and New Zealand Paediatric Emergency Research Network. Emerg Med Australas 21(1): 59-66.

Author(s)	Acworth J, Babl FE, Borland M, Ngo P, Krieser D, et al.
Year	2009
Type of strategy	Cross-sectional study of paediatric ED visits
Target group	Policy makers, service providers
Study methods	Descriptive observational study of patient attendances during one calendar year (2004) at ED of 11 Paediatric Research in EDs International Collaborative (PREDICT) hospital network in Australia and New Zealand Included 11 hospitals in total, including many in large cities (Sydney, Melbourne, Auckland, etc.) All children aged 0–18 years presenting to the ED of PREDICT (Paediatric Research in Emergency Departments International Collaborative) member sites and entered onto the departments' existing ED electronic patient information systems between 1 January 2004 and 31 December 2004 were eligible for inclusion. For mixed ED, only data for patients aged up to 18 years were included. Data were obtained from the single existing electronic ED database at each site. Data elements included total number of presentations; presentations by age-group, sex, ethnicity, time of day, triage category; number of admissions by age-groups; mean and median age of patients; mean length of stay in the ED; mode of arrival and disposition; and most common diagnosis. Analyses were performed using Microsoft Excel or STATA (version 10.0, Stata, College Station, TX, USA)
Study findings	The mean age of children presenting was 4.6 years (range of means across sites: 4.1–5.2 years) and 55% were male. Sixty per cent of presentations were for children under five years of age. The Average duration of stay in the ED was three hours Data on ED diagnoses were available for nine of the 11 PREDICT sites (for 314,025 presentations). 15–18 year olds comprised 4% (*n*=14,121) of all presentations and 10–14 year olds comprised 15.4% (*n*=54,272) of all presentations. 51.9% of all presentations were Triage 4 and 15.4% were Triage 5 The most frequent diagnoses for 10–14 year olds were (in order): abdominal pain, non-specific; fractured forearm; gastroenteritis; asthma, acute; and viral illness, acute. For 15–18 year olds the most frequent diagnoses were: abdominal pain, non-specific; toxic effect of substance, including alcohol; psychiatric or behavioural problems; gastroenteritis, acute; and asthma, acute
Level of evidence	This is a large-scale study. A total of 351,440 ED presentations by patients 0–18 years old occurred during the study period. Annual visits per site ranged from 17,843 to 53,744. The median was 29,524

Quality of evidence	Data quality is high due to the collection from a single source at each site. Data is consistent across sites as all hospitals used the Australasian Triage Scale (ATS). A limitation of the data is that PREDICT members are primarily urban hospitals, meaning that this study cannot speak to any differences in young people's ED presentations in urban, rural, and regional areas
Summary of the evidence	This is the first study to describe a large sample of paediatric ED patients in Australia and New Zealand that provides information related to patient demographics, timing and nature of visit, diagnosis and disposition. Data is drawn from multiple sites, and is robust, though it does not cover rural or regional EDs. A limitation of this study for the current project is that it does not include young people aged above 18. The analysis also does not use categories which correspond directly to young people aged 12–24

Ambresin A-E, Bennett K, Patton GC, Sanci LA and Sawyer SM. (2013). Assessment of youth-friendly health care: a systematic review of indicators drawn from young people's perspectives. J Adolesc Health 52(6): 670-681.

Author(s)	Ambresin A, Bennett K, Patton GC, Sanci LA, Sawyer SM
Year	2013
Type of strategy	Literature review
Target group	Clinicians, policy makers
Study methods	Data from each article included country, study design, sample size, response rate, setting, domains of adolescent-friendly health care, measurement instruments, key findings, and limitations
Study findings	Identified four different constructs used to investigate young people's perspectives on health care, namely: (1) satisfaction with health care; (2) patient-centred care; (3) experiences of care; (4) and quality of care Identified eight core domains of adolescent-friendly care (pp. 678-9): (1) accessibility (particularly of significance for low-income countries); (2) staff attitude (staff should be friendly, respectful, supportive, honest and trustworthy; (3) communication (particularly important was clarity and amount of information); (4) medical competency, especially around pain management; (5) guideline-driven care; (6) age-appropriate environment; (7) involvement in health care – young people stressed their need to be involved in their own health care; (8) health outcomes. Outcomes will depend on the particular health requirements of the young person Adolescent health needs highly heterogeneous across different contexts, 'reflecting different economic, sociocultural and developmental contexts' (p. 680)

Level of evidence	The authors identified 1,044 potential titles, of which 22 studies were reviewed in total: 15 quantitative studies, six qualitative studies, and one-mixed methods study
Quality of evidence	Evidence quality is high due to extensive and comprehensive search process. Search was restricted to studies published in English or French. Only spanned up to 2000. The age range included by the authors was 10–24 years, which is quite broad Authors acknowledge that 10 of the quantitative studies reviewed did not meet their standards for rigorous methodology. The 10 studies with poor methodology were included, however, 'to extract maximum information in order that studies from diverse countries and settings could be included' (p. 673), in order to ensure universality of approaches
Summary of the evidence	This is a systematic review which was able to identify aspects of health care which are important to young people. In contrast with many other studies, this study used a relatively broad definition of young people, spanning 10–24 years. In drawing from the international literature, this study is also able to provide insight into the cultural dimensions of youth-friendly practices. However, this study is limited in that it relates to the health care system as a whole, with no examination of the ED context in particular. There is also no discussion of youth practices within an Australian context

Association for the Wellbeing of Children in Healthcare (2010). The experience of waiting in an Emergency Department: what's it like for children and their families? Gladesville, Association for the Wellbeing of Children in Healthcare.

Author(s)	Report prepared by Dr Kate Bishop
Year	2010
Type of strategy	Survey
Target group	Doctors, policy makers
Study methods	Researchers visited one ED in metropolitan Sydney to conduct surveys with young people who were presenting to the ED, their parents, and staff. For children aged five and under, a drawing task was developed so that they could have input also
Study findings	In total 74 surveys were completed. 22 respondents were aged 24 years or younger, and 52 respondents were aged 25 years or over. Sixteen of the survey participants were patients, 19 were staff, 23 were parents and 16 were listed as 'other'. Approximately 28 of the respondents came from non-English speaking backgrounds The ED was listed as 'poor' by 36%, 'okay' by 28%, and 'good' by 18% of the respondents. Three features that were consistently mentioned as features that were liked were: the TV, a large number of chairs, and friendly staff. Features that were disliked were: the size of the room, with many feeling it was too small and

	narrow; the length of the waiting time; the dullness of the environment; the lack of child friendliness; and the uncomfortable chairs Participants recommended: quicker assessments of patients as they arrived; the reduction of patients' waiting times; improved functionality of the ED (e.g. increase the size of the ED); and the improvement of the facilities available to patients (e.g. adding a children's area); improving the welcomeness and ambiance of the ED
Level of evidence	Relatively small sample size drawn from only one hospital
Quality of evidence	There is a notable lack of information provided about the methodology employed around the analysis of the data. There is also a lack of information provided about the demographics of the sample
Summary of the evidence	Whilst this research provides some insight into the experiences of young people within the ED, its usefulness is limited by a relatively small sample size, drawn from only one hospital

Bell L, Stargatt R, Bosanac P and Castle D. (2011). Child and adolescent mental health problems and substance use presentations to an Emergency Department. Australas Psychiatry 19(6): 521-5.

Author(s)	Bell L, Stargatt R, Bosanac P, Castle D
Year	2011
Type of strategy	File audit of ED information system
Target group	Doctors, practitioners, policy makers
Study methods	File audit of the ED information of a large public hospital conducted over a 12 month period. All presentations by children and adolescents with mental health problems were retrospectively identified by ED staff from the ED information system, (the MEDTRAK database). Those patients who were: (i) aged under 18 years, (ii) presenting to the ED in 2006, and (iii) presenting with substance misuse and/or mental health problems without an identifiable medical cause were included in this study. In order to obtain further information on the management of patients upon departure from the ED, researchers made use of the Child and Adolescent Mental Health Services (CAMHS) RAPID database was accessed. Analyses looked at a number of measures including age, gender, diagnostic presentation, assessment, referral and disposal
Study findings	The study identified 44 substance misuse, 128 mental health and 82 comorbidity presentations (254 presentations). Most presentations occurred after business hours. The majority of cases were referred to the hospital by self, family or friend. Almost a quarter of the patients presented with 'challenging' behaviours. The authors identified these as aggression, uncooperativeness, non-compliance with treatment, agitation, or threatening behaviour. The mental health group were more likely to be a behavioural problem in the ED, and had the highest suicide

	risk It was found that in some cases mental health issues and substance abuse issues were interlinked. The average age of these presentations was 15–16 years, and more females than males presented. Mental health presentations included self-mutilation, overdoses, and threat to self-harm. Alcohol was by far the most common substance used by the substance abuse presentations, followed by medication and illicit drugs Over half of all cases of mental health and comorbidity presentations were referred to a Child and Adolescent Mental Health service. Around one fifth of ED patients were already using these services. About half of the substance misuse presentations were referred through to their GPs While all mental health and comorbidity presentations were seen in the ED by either the CAT (community Action Team) or CAHMS teams, few of the substance misuse group were seen by CAT and none was seen or referred to CAMHS services
Level of evidence	Hospital has an annual ED presentation of 67,000 patients. Data collection took place over a relatively large time span. However, data only drawn from one hospital
Quality of evidence	Only included young people presenting with substance abuse/mental health issues without an identifiable medical cause, thereby excluding some groups of young people who present with these issues. The main strengths of this study are that it addresses a hitherto, sparsely evaluated topic, and that it does so using a naturalistic design. There is a potential lack of concordance between triage coding and DSM-IV, as acknowledged by the authors. Only canvassed young people aged under 18 years
Summary of the evidence	This study reveals that young people can present particular challenges for EDs around mental health and substance abuse. This study suggests that while young people with mental health concerns appear to be receiving referrals, substance misuse issues may be going unaddressed. However, this research draws from data from only one hospital and therefore caution should be exercised when generalising findings

Blake D F, Dissanayake DD, Hay RM and Brown LH. (2014). 'Did not waits': a regional Australian Emergency Department experience." Emerg Med Australas 26(2): 145-52.

Author(s)	Blake D, Dissanayake DD, Hay RM, Brown LH
Year	2014
Type of strategy	Prospective study
Target group	Policy makers
Study methods	Study was conducted at Townsville Hospital, which has an ED which treats 65,000–70,000 patients annually. Study ran from June 2011 to July 2012. A convenient two-week period was selected for each calendar month. Patients who received nurse initiated care but left before assessment were coded as 'left after treatment commenced' and not included in this study. Did not wait (DNW) patient data, including age, sex, date and time of presentation, Australasian Triage Scale category, presenting problem, alcohol or drug use, mode of arrival, treatment provided by Queensland Ambulance Service, and waiting time, was extracted from the Emergency Department Information System (EDIS) DNW patient contact details were entered into a questionnaire. Six attempts were made to contact each patient one week after the initial ED presentation. Patients were excluded on the basis of: difficulty speaking English, if phone contact was felt to be particularly detrimental, or if consent was unobtainable Contacted patients were also asked about any presentations for medical care since their initial ED visit; reason(s) for leaving the ED before seeing a doctor; their present state of health; and suggestions for improving ED services Non-response bias was calculated using the x-squared test and *t*-test
Study findings	During the study period, 72,555 patients presented to the ED. Of these 3669 (5.1%) DNW to see a healthcare professional. On the enrolment days there were 14,920 presentations and 648 (4.3%) patients who DNW The mean age of DNW was 35.2 years (*n*=415), whilst the mean age of paediatric patients was 4.7 years (*n*=233). The majority of paediatric DNW's presented with Triage 4 (90.1%) and Triage 5 (7.3%) issues, and the same was true of adults (81.0% and 11.3% respectively) Just over half of DNW sought additional medical treatment. Most patients presented for follow-up care outside of the study protocol Most DNW patients left because they were 'fed up' with the waiting. A further 19% left because they felt better. Other reasons for leaving included needing to go to work or pick up children, an inadequate waiting room environment (e.g. being cold or hungry)

Level of evidence	Study conducted at an ED which treats 65,000–70,000 patients annually. During the study period, 72,555 patients presented to the ED. Study conducted over one year
Quality of evidence	During the study some patients who presented to triage but who left before registering with the administration officer were being deleted from EDIS. Once discovered this practice was changed but some patients who should have been classified as DNW are missing from the data The exclusion of patients with improper language skills means that an analysis of the extent to which cultural and linguistic diversity impacts on DNWs. Whilst the authors were able to use the EDIS to determine if non-participating DNW patients had re-presented to the ED, they were unable to track referrals to GPs or private hospitals
Summary of the evidence	This study provides insight into why patients might leave the ED without being seen, and includes demographic and patient information. Though young people were included in this study, there is no particular focus on young people or the reasons that young people might not wait in the ED; nor is there analysis of this group as compared to other DNW groups. The information is drawn from one regional hospital only. The authors do not provide information relating to the profile of this hospital compared to other hospitals in the state or in Australia more generally. This study was included because other research has revealed that young people might be overrepresented in the DNW category

Booth ML, et al. (2004). Access to health care among Australian adolescents young people's perspectives and their sociodemographic distribution. J Adolesc Health 34(1): 97-103.

Author(s)	Booth ML, Bernard D, Quine S, Kang MS, Alperstein G, Bennett DL
Year	2004
Type of strategy	Focus groups
Target group	Policy makers, service providers
Study methods	Purposeful sampling was employed to recruit both high school students and students no longer at school. Students were selected from a variety of sites across the state: five metropolitan, one regional, one coastal, two inland rural and one remote rural. Sites selected on the basis that they represented 'most aspects' of Sydney metropolitan area and rural/regional NSW, including the full range of SES. Contacts at schools were asked to select 'average' group of 10 boys or an 'average' group of girls from Year seven or Year eight, Year nine or Year 10, and Year 11 and Year 12. Focus groups were then conducted, in single gender groups due to the fact that some health issues may be gender-sensitive. In total, 81 focus groups were conducted in 28 schools across NSW from September 2001 to March 2002. Thirty five groups of boys and 46 groups of girls were interviewed

Study findings	Most young people defined 'health' in relation to physical health, rather than mental health. Females were more likely than males to advance a broad definition of health. Approximately half of all young people did not seek help with their health issues, whether from formal (e.g. GPs, service providers) or informal (friends, family) sources. Because young people defined health primarily in physical terms, they thought that GPs, medical centres, and EDs as the most appropriate formal sources of help Females sought help more than males. Knowledge of services (e.g. psychologist services, Centrelink) and what they provided was limited amongst all young people in this study. Out of school young people were much more likely to be aware of what services were available to help them. The following issues were key barriers for young people accessing services: confidentiality, embarrassment, feeling vulnerable/scared/ stupid/ashamed/too proud to admit a problem, lack of knowledge about the service, inadequate transport, inconvenient opening hours No clear associations found between SES and definitions of health, health issues, sources of support for health concerns, or reported barriers to receiving health care
Level of evidence	Relatively large scale qualitative study, with 81 focus groups conducted. Sample drawn from across SES spectrum and across multiple sites
Quality of evidence	Sample was selected by teachers and may therefore be biased to young people with good school attendance and/or good relationships with teachers. Study also relies on teachers' definitions and conceptions of 'average' young people
Summary of the evidence	Whilst this study does not look specifically at barriers for young people accessing the ED but rather the health care system more generally, it does provide insight into some of the key barriers and, in particular, the fact that both help seeking and definitions of health are gendered A notable finding is that because definitions of health tend to be framed in physical terms, young people tend to identify the ED as an appropriate source of health care. Limitations include the fact that the data is now 10 years old and the study does not include young people aged 18 years and above, who may face different barriers to health care

Crowe LM, Anderson V, Catroppa C and Babl F. (2010). Head injuries related to sports and recreation activities in school-age children and adolescents: data from a referral centre in Victoria, Australia. Emerg Med Australas 22(1): 56-61.

Author(s)	Crowe LM, Anderson V, Catroppa C, Babl F
Year	2009
Type of strategy	Retrospective chart review
Target group	Clinicians
Study methods	A retrospective chart review of all patients with head injuries over a one year period (January to December 2004) at Royal Children's Hospital (RCH) ED, Melbourne, Victoria, Australia, was conducted Children who had presented for treatment after sustaining a head injury during the study period were identified from the electronic ED database using the following codes: 'fracture of skull and facial bones' (S02.0–.9), 'sprain and strain of joints and ligaments of other and unspecified parts of the head' (S03.5), 'intracranial injury' (S06.0–.9), 'crushing injury of the head' (S07.0–.9), 'traumatic amputation of part of the head' (S08.0–.9) and 'other and unspecified injuries of the head' (S09.0–.9) The present study analysed accidental injuries in children aged between six and 16 years.
Study findings	A search of the codes and criteria identified 406 cases. There were 398 presentations to the ED, eight children were admitted directly to Intensive Care Unit (ICU) and two children died in ICU. The majority of these patients (70%) were male, arrived by private car, sustained a mild HI and were discharged home The main sporting activity engaged in when sustaining a HI was Australian Rules Football (ARF), followed by cricket and equestrian activities. For ARF, 87% of HI occurred in the autumn and winter months Similar to the US data, sport and recreation activities are a major cause of head injuries in school-age children and in this setting was the most frequent cause of paediatric head injuries. The next most common activity when sustaining a head injury was general transport, which included motor vehicle and bicycle accidents
Level of evidence	RCH has an annual ED census of 67,000 and is the only tertiary paediatric trauma centre in Victoria, serving a population of approximately 1.5 million children. Of all presentations, 406 cases were identified
Quality of evidence	The dataset is based on retrospective analysis of ED records, which will underestimate the magnitude of sport-related head injuries across the community, as acknowledged by the authors. Although researchers followed recommendations for chart reviews, data quality relies on the original recording by clerical or medical staff and mechanisms might have been miscoded or under-recorded. The large number of ARF-related HI might be due to a high rate of

	exposure within the community, rather than an inherently higher rate of head injuries in ARF. Data is now 10 years old
Summary of the evidence	This study indicates that ARF is a major cause of head injuries for young people presenting to a Victorian ED. In terms of this project, the authors do not contextualise head injuries amongst young people and it would appear from the data presented (406 cases versus 67,000 annual presentations) that sport-related head injury presentations are low. As the data is drawn from only one site, caution should be exercised when attempting to generalise to other EDs. Further, this study is limited to young people aged 6–16 years. Data is now 10 years old

Dalton S and Babl FE (2009). Paediatric emergency guidelines: Could one size fit all? Emerg Med Australas 21(1): 67-70.

Author(s)	Dalton S and Babl F
Year	2009
Type of strategy	Policy and guidelines review
Target group	Policy makers, hospital administrators
Study methods	A survey of the clinical practice guidelines (CPG) development process was under-taken at research network (PREDICT) of 13 paediatric EDs in Australia and New Zealand with a combined annual census of 360,000 patients. A questionnaire was developed based on National Health and Medical Research Council (NHMRC) recommendations, regarding guide-line development, dissemination, implementation and evaluation. The questionnaire was piloted at two sites and reviewed by site representatives from all PREDICT sites. It was then emailed to the clinician in each ED most involved with the guideline creation process
Study findings	Representatives at all 13 PREDICT sites completed and returned the questionnaire (response rate 100%, *n*=13). All hospitals surveyed used CPGs in EDs and 12/13 had guidelines specifically designed for use in ED. Each department had an average of 77 current guidelines (range 5 to 220, median 70). Approximately five new guidelines were created each year Of the 13 departments surveyed, 10 had a guideline committee. Committees comprised primarily of ED consultants (13/13), paediatricians (9/13) and nurses (9/13). Guidelines were written by ED consultants in most cases (12/13) with subspecialist review (8/13). Three of thirteen sites had a CPG project manager and there were no instances of dedicated secretarial support Most departments developed CPG for frequent presenting conditions (13/13) or infrequent serious conditions (10/13). In many cases, the generation of a guideline was in response to identified problems or incidents (10/13) The average department held guideline committee meetings six times a year for 60 min with approximately seven clinicians in attendance. Guidelines were

	frequently accessed from external sources before local adaptation (10/13). Literature references were not often included (3/13) and only one site included levels of evidence in CPGs Following the development of CPGs, only 6/13 of hospitals surveyed had formal teaching packages associated with CPGs. Less than one-third of sites considered implementation (4/13), evaluation (4/13) or eliciting and incorporating user feedback (3/13) as part of the CPG development process The development of ED clinical guidelines requires significant resources. Paediatric EDs are producing small numbers of duplicative CPGs with variable evidence base. Many departments already access and modify guidelines from external sources, a process that could be formalized through the development of evidence-based and updated collaborative guidelines
Level of evidence	Scope of the study is relatively small study, as it draws from only 13 hospitals (though it should be noted that these hospitals are located in large urban areas, including Sydney, Melbourne, and Auckland). Paediatric hospitals only service patients up to age of 18, so this study does not pertain to (older) young people. There is an overrepresentation of urban hospitals in the sample
Quality of evidence	Quality of the instrument is likely to be high due to piloting and use of an existing, quality-tested survey
Summary of the evidence	This study provides insight into the development of CPGs at paediatric EDs. The study indicates that CPGs tend to be developed with reference to emerging issues in the ED. A key finding is that there appears to be a relatively low level of evaluation and research, relating to CPGs in paediatric departments, and that, generally they are based on variable evidence bases. This is, however, a relatively small-scale study limited to only 13 hospitals, servicing only young people aged below 18

Descallar J, Muscatello DJ, Weatherburn D, Chu M and Moffatt S. (2012). The association between the incidence of Emergency Department attendances for alcohol problems and assault incidents attended by police in New South Wales, Australia, 2003-2008: a time-series analysis. Addict 107(3): 549-56.

Author(s)	Descallar J, Muscatello DJ, Weatherburn D, Chu M, Moffatt S
Year	2012
Type of strategy	Multiple sources of data, including the EDDC database and police assault data.
Target group	Clinicians, policy makers
Study methods	The ED Data Collection (EDDC) is a database recording selected details of attendances to up to 91 hospital EDs across NSW. Due to limited data completeness for some hospitals in the study period, 56 EDs of the 91 available at December 2008 were used in this analysis. While there are 141 EDs in NSW, the 56 included EDs represent most of the larger public hospitals and accounted for 75% of all ED attendances in NSW. For the study period 1 January 2003–31 December 2008, the researchers assembled time–series of weekly counts of ED attendances that were assigned a provisional ED diagnosis relating to an acute alcohol problem Weekly count time–series of alcohol attendances in people aged 15 years and over were prepared for each of: total attendances; attendances to urban hospitals (Sydney, Newcastle and Wollongong combined); attendances to rural hospitals (all non-urban); attendances in 15–24-year-olds; and attendances in 15–24-year-old males and 15–24-year-old females Police assault data was obtained from the NSW Police Computerised Operational Policing System (COPS). Two sets of assault data were available: records of assaults reported (incidents) and records of persons against whom legal proceedings for assault were initiated (people of interest). For the same period as the ED series, the following weekly count time–series of assault records were prepared: total incident assault reports; domestic and non-domestic incident assault reports; incident assault reports in urban areas (defined as assaults in the Sydney, Newcastle and Wollongong areas); incident assault reports in rural areas (all non-urban); persons of interest aged 15 years and above; persons of interest aged 15–24 years; male persons of interest aged 15–24 years; and female persons of interest 15–24 years. To assess the relationship between the impact of excess alcohol consumption in the population and assault incidents reported to police, the researchers correlated the weekly total ED alcohol attendances in people aged 15 years and above with each of weekly total incident reports of assault, and total incident reports of domestic and nondomestic assaults To assess the specific relationship among young males and females, the following pairs of time–series were correlated: total persons of interest aged 15 years and above with total ED attendances in the same age-group, and people of interest aged 15–24 years with ED alcohol attendances in persons aged 15–24 years. The

	analysis was repeated in 15–24- year-olds in males and females separately
Study findings	During the period 1 January 2003 to 31 December 2008, there were 56,404 ED attendances for acute alcohol problems in people aged 15 years and above. There were 17,120 ED attendances in people aged 15–24 years and 39,284 in people aged 25 years and above. Among ED attendances in males, 24% (8645) were in 15–24-year-olds. In females, 41% (8475) were in 15–24-year-olds There were 44,968 visits to EDs for alcohol problems in urban areas, and 11,439 visits to EDs for alcohol problems in rural areas. Time–series show that peak ED attendances for acute alcohol problems, assault incidents and persons of interest arrested for assaults occurred during weeks of New Year celebrations (Fig. 1) The Poisson regression showed that an extra 100 attendances in one-week to EDs for acute alcohol problems in people aged 15 years and above was associated with an 11% increase [95% confidence interval (CI): 7–15%] in the number of reported assault incidents in NSW for the same week Among males aged 15–24 years, an increase in 100 attendances to ED in one-week was associated with an increase of 39% (approximately 57) in the number of persons of interest in the same week. Among females in the same age-group, there was an increase of 66% (approximately 23) in the number of persons of interest
Level of evidence	This is a large-scale study, drawing data from approximately 56 EDs and representing 75% of all ED presentations in NSW. Further, this study took place over a notably large time scale of five years. This study also includes police data meaning that the authors are able to link assault data with assault presentations in the ED
Quality of evidence	The time scale means that the study was able to control for seasonal and event-based (e.g. New Years) effects over the medium to long term. The authors note that, a limitation of the police data, in that only about 40% of assaults are reported to police, therefore, this study is not able to account for all assaults
Summary of the evidence	This study indicates that there is a clear association between assault rates and presenting to the ED, and that, furthermore, this association is stronger for young people aged 15–24 years, particularly females. The data is robust, relatively large-scale and drawn from five years of data, minimising the impact of seasonal and event-based factors

Duncan C, et al. (2013). Emergency Department presentations by Aboriginal children: issues for consideration for appropriate health services. J Paediatr Child Health 49(9): 448-50.

Author(s)	Duncan C, Williams K, Nathanson D, Thomas S, O'Meara M, Zwi K
Year	2013
Type of strategy	Review of ED files
Target group	Doctors, policy makers
Study methods	Conducted a review of the Sydney Children's Hospital ED presentations for Aboriginal children aged 0–15 years residing in the South Eastern Sydney Local Health District from 2005 to 2008
Study findings	There were 1252 presentations to the SCH ED by 453 Aboriginal children Young people were admitted in 172 (13.7%) presentations, and admitted and discharged within the ED in 96 (7.7%). For a further 30 (2.4%) presentations, the child departed in other circumstances; they did not wait, left at their own risk or left for another facility. Less than half of the 453 children (208; 46%) presented only once. One hundred sixty-six children (37%) presented two to four times, and 79 children (17%) presented five or more times. Six presented 13 times or more, with one child presenting 17 times during the study period. Of the 1252 presentations, 477 (43.7%) were potentially preventable (defined as where the condition or disease could have been prevented, or because access to 'timely, effective and appropriate care' could have removed the need for ED presentation (p. 449))
Level of evidence	Sample drawn from one site only. The authors do not provide evidence comparing the presentation of Indigenous children with population data, so it is not known whether this sample is representative of Indigenous children and young people in the area
Quality of evidence	Data collected over a three-year period, meaning that event-based or seasonal factors are unlikely to have affected the data significantly. No information provided contextualising the number of presentations of Indigenous children compared to non-Indigenous children. The author's definition of 'preventable presentations' is not consistent with other definitions advanced in the literature, including that of the Australian Institute of Health and Welfare
Summary of the evidence	This study provides insight into the presentation of young Indigenous people aged 0–15 years at a Sydney ED. A key finding of this study is that nearly half of all presentations were potentially preventable, though it must be noted that this definition differs from that of other research, including that by the AIHW. This study is limited to young people aged 15 years and under

Gafforini S and Carson N (2013). Primary-care type presentations to public hospitals: a local in-hours and after-hours population comparison. Melbourne, Medicare Local and Victorian Department of Health.

Author(s)	Gafforini S and Carson N
Year	2013
Type of strategy	Literature review, stakeholder interviews, multivariate analysis using the Victorian Emergency Minimum Dataset
Target group	Policy makers
Study methods	Multiple methods were utilised for this report. A literature review was conducted in stages, looking for 'studies [that] addressed complex system and behavioural issues related to ED presentations for primary health care needs, particularly after hours' (p. 11) Stakeholder interviews were conducted with two Medical Locals, four hospital participants, and one community health service The authors also conducted a population-based, retrospective analysis of patients recorded within the Victorian Emergency Minimum Dataset (VEMD) for the 2010–11 reporting period. This data contains patient-level demographic, administrative and clinical data relating to presentations to Victorian public hospitals within 24-hour EDs. In investigating the relationships between triage 4–5 presentations and a range of determinants of health,the study sample included residents of the two Medicare Locals who attended one or more of the four study hospitals (Austin, Northern, The Royal Melbourne Hospital and St Vincent's Hospital) The data was analysed using IBM SPSS Statistics 20
Study findings	In total 138 articles, reports and editorials were reviewed. A total of 1,406,600 ED presentations were recorded in 2010–11 Key findings: - Patients allocated triage 4 or 5 are more likely to seek care at the closest or most accessible ED; as a corollary to this, the further away a patient lives from the ED the less likely they will present to the ED with a triage 4 or 5 - Slightly more females than males present with triage 4 and 5 when adjusted for age - A higher proportion of triage 4 and 5 are found within the 0–29 age-group - There are more after-hour triage 4 and 5 presentations, particularly within the 15–29 year age-group - There is no significant difference between Aboriginal and Torres Strait Islander people and the rest of the population in terms of after-hours

	access patterns - NESB residents were slightly less likely to present with a triage 4–5 condition than the rest of the population
Level of evidence	This report draws on multiple sources of data, including large-scale data from the VEMD over a one-year period, which includes comprehensive demographic information. Multivariate analysis undertaken means that weight of factors influencing triage 4–5 presentations were assessed using quantitative data analysis software
Quality of evidence	Articles sourced for the review were restricted to free publications or those accessed via the Department of Health, meaning that a number of articles published within the last few years were not available to the research team. Information relating to age is presented in pre-determined categories
Summary of the evidence	This study mapped patterns of patient travel to EDs for low-urgency conditions, and investigated factors that influence primary-care presentations to EDs in Victoria. Key findings related to young people are: a higher proportion of triage 4–5 presentations observed in the 0–29 age-group, and more after hours triage 4–5 presentations in the 15–29 age-group. A limitation of this study is that information is not broken down by age; rather, respondents are grouped into categories that do not correspond with the 12–24 age-group. The use of multiple data sources, which included a large-scale dataset of presentations to EDs in Victoria, mean that the findings are salient

Havard A, Shakeshaft AP and Conigrave KM. (2012). Prevalence and characteristics of patients with risky alcohol consumption presenting to Emergency Departments in rural Australia. Emerg Med Australas 24(3): 266-76.

Author(s)	Harvard A, Shakeshaft AP, Conigrave KM
Year	2012
Type of strategy	Two surveys, one of ED presentations and one of general community members
Target group	Clinicians
Study methods	Survey took place in EDs in five rural hospitals in NSW. The participating communities were all involved in the Alcohol Action in Rural Communities (AARC) project, which is a randomized controlled trial of a community-wide approach to reducing alcohol-related harm. The ED sample comprised of patients who presented to five EDs between March and December 2009. A general community sample was also utilised, comprising of residents aged 18 to 62 years who were enrolled to vote with the Australian Electoral Commission. Patients were recruited from ED departments by staff and researchers, and the survey was conducted over the telephone, and also face-to-face in some cases Community members were randomly selected from the electoral role using skip

	sample theory; surveys were mailed, with a reply paid envelope, between March 2005 and September 2005 Alcohol consumption was measured using the Alcohol Use Disorders Identification Test (AUDIT), with a total AUDIT score of eight or more defining risky drinkers. Individuals were additionally categorised according to the Australian Alcohol Guidelines that were in place at the time of the study was planned. Participants were allocated a long-term risk of harm depending on number of drinks per week A total of 1054 people were recruited from the ED and took part in this study. A total of 761 surveys were completed and returned by the community sample
Study findings	Rates of risky drinking in the ED were significantly higher in than in the general population. According to the AUDIT, 39% of all ED patients met the criteria for risky alcohol use, compared with 20% in the general population. In addition, ED patients display significantly higher rates of hazardous consumption, dependence symptoms, and alcohol-related harm. However, according to the guidelines regarding risk of long-term harm, rates of at-risk drinking were equivalent in ED patients and the general population, both measured at 6% The odds of being a risky drinker were found to be considerably higher amongst patients aged 18 to 29 years (54%) than those aged 40 to 62 years (28%). The odds of risky drinking were also considerably higher amongst men than women (54% versus 21%). Marital status was correlated with risky drinking, with 55% of never married patients classified as risky drinkers versus 31% of those living with a partner. Triage category was also associated with risky behaviour: 30% of patients assigned a triage category ranging from potentially life-threatening to immediately life threatening were identified as risky drinkers, whereas 42% of patients with less urgent categories were drinking at risky levels
Level of evidence	Sample from both ED and the community moderately large
Quality of evidence	Because this study drew from AARC communities, it is possible that rates of risky drinking, both in ED patients and in general populations, are lower than in the general community. Community sample does not include those individuals not registered to vote. The author does not address the issue of whether rurality is known to affect drinking levels; comparability and representativeness of the sample is not addressed
Summary of the evidence	This study reveals an overrepresentation of people with risky drinking behaviours in the ED. Risky drinking presentations to the ED were found to be more likely for males, for those who had never been married, in those patients presenting in lower triage categories, and in younger (18–29 years) age-groups. In terms of the salience of these findings, a major limitation that the author does not address is the fact that this study took place in AARC communities, which may have had an impact on risky drinking levels. Further, the author did not include individuals aged under 18 in the study

Hodge AN and Marshall AP. (2007). Violence and aggression in the Emergency Department: a critical care perspective. Australian Critical Care 20(2): 61-7.

Author(s)	Hodge AN and Marshall AP
Year	2007
Type of strategy	Literature review/policy analysis
Target group	Policy makers
Study methods	No detailed information supplied on methodology
Study findings	As an occupation, ED nurses are particularly likely to be exposed to violence. The four main factors found to influence violence in the ED are: alcohol, drugs, waiting times, and organic disease conditions. Nurses require specialised training in violence de-escalation techniques. Given the prevalence of violence in the ED this should be a priority for health policy makers
Level of evidence	A lack of information regarding methodology means that this assessment is unable to be undertaken
Quality of evidence	Critically, no information supplied about the methodology of the study, including search words used to filter the literature. Policy analysis restricted to the state of NSW
Summary of the evidence	This research consists of a literature review and is focused on in the prevalence of violence in the ED, the impact of this violence, and the impact of NSW's 'Zero Policy'. Whilst this study provides valuable information about violence in the ED in NSW, and does cite several studies both from Australia and overseas, there is a lack of information supplied about the methodology of this literature review

Hooper SM, Woo JW, Sharwood LN, Babl FE and Long EJ. (2012). Prevalence of suicidality in asymptomatic adolescents in the paediatric Emergency Department and utility of a screening tool. Emerg Med Australas 24(5): 540-6.

Author(s)	Hooper SM, Woo JW, Sharwood LN, Babl FE, Long EJ
Year	2012
Type of strategy	Survey
Target group	Doctors, policy makers
Study methods	Prospective concurrent validity study. Convenience cohort of adolescents presenting to a tertiary paediatric ED in Melbourne between June 2007 and February 2008. All adolescents aged 13–18 who presented to the ED when a mental health worker was present were considered eligible for this study. Patients excluded on the basis of: if presentation was for a primary mental health concern; if there was a recent (one year or less) history of mental health illness (self-defined); if they were currently seeing a mental health practitioner; or if they were too unwell to be assessed. Mental health concerns were defined as 'any presenting complaint requiring psychiatric or mental health assessment' (p. 541). Patients were administered either the Risk of Suicide Questionnaire (RSQ) or Suicide Ideation Questionnaire (SIQ)
Study findings	A convenience sample of 100 young people participated and also completed a questionnaire. Mean age of participant was 14.5 years, and 60% were male. Did not find significant suicidality in young people who do not have a past history of mental health concern and did not come to the ED with a mental health concern
Level of evidence	Relatively small sample of 100, drawn from only one hospital
Quality of evidence	Only covers young people who presented when a mental health worker was present. Excludes young people aged under 13 and those aged over 18. The findings may be skewed not only by small sample size, but also by selection criteria, which explicitly excludes young people with a history of mental health concerns or who came to the ED as a result of mental health concerns. This is a limitation that is acknowledged by the authors (p. 543)
Summary of the evidence	This is a small scale study from one Melbourne hospital which found that young people without a history of mental health concerns or who came to the ED as a result of mental health concerns do not have display signs of significant suicidality. Methodologically, this is a small scale study, however, so caution should be exercised in drawing definitive conclusions from this study alone

Starling J, Bridgland K, and Rose D. (2006). Psychiatric Emergencies in Children and Adolescents: an Emergency Department Audit. Australas Psychiatry 14(4): 403-7.

Author(s)	Starling J, Bridgland K, Rose D
Year	2006
Type of strategy	Analysis of files from an ED information system
Target group	Doctors, practitioners, academics, policy makers
Study methods	A descriptive study of young people aged 2–17 years. Data was obtained from a large paediatric teaching hospital in Western Sydney. Files were collected for 10 months, and scanned for symptoms of a psychological disorder, including deliberate self-harm, deliberate overdose, suicidal ideation, behavioural disorders, including aggression and medical presentations with a severe level of distress requiring intervention. Data collected included demographic information, symptoms at presentation, medical and psychiatric history, and past treatment. Details about the young person's assessment and treatment in the ED were also analysed
Study findings	There were approximately 291 presentations of 239 children and young people, at an average of 7 presentations per week. Approximately 22% (*n*=55) of these were seen in the ED between two and five times across the study period. The majority of young people were brought to the hospital by family and friends, though approximately 20% arrived via ambulance and 3% via other professional services (e.g. Department of Community Services) Children with psychological emergencies accounted for 0.8% of the total number of ED presentations (291/35 789), or 0.5% if those with acute distress and medical presenting symptoms were excluded. The median age at presentation was 12.6 years and just over half (54%) were female Of the 239 first presentations, the most frequent was a medical problem with coexisting psychological factors, including severe distress (38%) or a suspicious injury or illness (11%) (Table 1). Almost one-third presented with acute emotional disturbance; this included overdose (9%), other deliberate self-harm (5%), suicidal ideation (6%), acute emotional distress such as panic disorder (8%), psychosis (2%) and eating disorder (0.4%). The final group constituted behavioural disorders, including aggression (8%) and other behavioural disturbances (11%) Seventy-two per cent (172) returned home after the initial ED consultation. Of the other five patients, two were transferred to another hospital and three went to alternate care Less than half (44% or 105/239) of these children were referred to CHW psychiatry. Children presenting with an acute emotional disorder were significantly more likely to be referred More than half of the children presenting to ED had no previous contact with

	mental health services Authors found that there were many gaps in the psychosocial history taken by the ED doctor. There was a particular lack of information about abuse or neglect
Level of evidence	The sample for this study is relatively small and was drawn from only one site
Quality of evidence	This study is limited in terms of the age range: only young people aged 17 years and under were included. Data was not complete for every case file, as ED doctors did not necessarily complete a total history for each young person
Summary of the evidence	This study sheds light on types of emergency mental health presentations by young people, with a particular focus on presenting issues and the demographic characteristics of young people with mental health issues. A key finding of this study is that the ED doctors were not collecting full psychosocial histories, and were particularly failing to collect information about abuse and neglect. The salience of this study is limited by the small sample size and the fact that respondents were drawn from one hospital only

Laing AJ, Sendall MC and Barker R. (2013). Alcohol-related violence presenting to the Emergency Department: Is 'glassing' the big issue? Emergency Medicine Australasi Emerg Med Australas 25(6): 550-7.

Author(s)	Laing AJ, Sendall MC, Barker R
Year	2013
Type of strategy	Descriptive cross-sectional observational study using injury surveillance data collected in public hospital EDs
Target group	Policy makers, service providers, clinicians
Study methods	The study population consisted of patients aged 12 years over and above who presented to one of 29 participating hospitals between January 1999 and December 2011. Cases included victims and perpetrators of alcohol-related violence. Sites participated on a voluntary basis. The regional Queensland distribution for the data collected was: 60% regional, 30% urban and 10% remote. Regional is overrepresented; both urban and remote are underrepresented A preliminary search was conducted in the QISU database for all potential alcohol-related injury presentations between 1 January 1999 and 31 December 2011, spanning all patients aged 12 years and over. A combination of alcohol-related search text terms (including misspelling and acronyms), International Classification of Diseases Codes and the major injury factor code for 'alcohol' were employed to identify cases. Case validation was performed by trained QISU coders reading the triage text field. Cases of alcohol-related violence and aggression were reviewed and categorised as interpersonal violence or aggression, then further sub-categorised according to the mechanism/object involved. The involvement of glass in alcohol-related violence was identified by

	searching triage text fields for the terms 'glass' 'bottle', 'stubby', 'window' and 'mirror'
Study findings	From 1 January 1999 to 31 December 2011, 4629 injury presentations involving alcohol-related violence were identified, comprising of 'assaults' (*n*=4300; physical assaults including drink spiking and sexual assault) and 'aggression' (*n*=329, verbal aggression and object violence excluding interpersonal physical violence). Involvement of glass was identified in 11% (*n*=512) of all presentations because of alcohol-related violence. 'Glassing' accounted for 373 cases, 8% of alcohol-related violence and 9% of all alcohol-related assaults Median patient age was 26 years, with patients aged 18–24 years accounting for 36% (*n*=1654) of all injury presentations because of alcohol-related violence. Similarly, the median age for 'glassing' was 25 years, with 18 to 24-year-olds also accounting for 36% (*n*=133) of all cases. A downward trend occurs in presentation as age increases for both violence and 'glassing' groups Men represented 72% of all injuries because of alcohol-related violence presenting to Queensland EDs. Further, 28% of all presentations were men aged 18–24 years old. The male proportion is similar among 'glassing' presentations: 70% (*n*=263), with men aged 18–24 years accounting for 27% of all 'glassing' presentations The majority of injury presentations are triage category 4 (57%, *n* = 2631). Only 3% (*n* = 156) were classified as high acuity requiring treatment in less than 10 min. Sixty-four per cent (*n* = 237) of 'glassings' were classified as tirage category 4, with 3% (*n* = 12) categorised as high acuity cases
Level of evidence	The level of evidence is high, as this study employs use of a large-scale dataset across a large time scale (12 years)
Quality of evidence	Large time scale. Regional hospitals are overrepresented, urban and remote underrepresented. Because this study was conducted over 12 years, the data is unlikely to be impacted by seasonal or event-based outliers
Summary of the evidence	This research examines the issue of alcohol-related violence in the ED; and, within this category, the issue of 'glassing'. The methodology is robust. The sample is relatively large, and the study took place over a 12 year time period, meaning that seasonal and/or event-based factors are unlikely to have impacted the quality of the data. Key findings are: young people aged 18–24 comprise of most injury presentations because of alcohol-related violence; young people are similarly overrepresented in 'glassing' incidents; further, within these categories, young men are overrepresented. A limitation of this study is that it fails to contextualise both alcohol-related violence and glassings in reference to other types of ED presentations

Lau J BC, Magarey J and McCutheon H. (2004). Violence in the Emergency Department: A literature review. Australas Emerg Nurs J 7(2): 27-37.

Author(s)	Lau JBC, Magarey J, McCutcheon H
Year	2004
Type of strategy	Literature review
Target group	Policy makers and service providers
Study methods	A search of electronic databases was performed (CINAHL, Medline and PsycInfo) with various key words (e.g. violence, aggression, assault and abuse) to identify key research papers related to violence in the ED
Study findings	EDs are widely considered to be high-risk areas for violence. The authors argue, however, that estimating the prevalence of violence in the ED is 'impossible' because of the ambiguity of the term 'violence', the inconsistency of measures used to investigate violence, the wide variation in the way violent incidents are reported and recorded, and the underreporting of violence Verbal and physical violence are common in EDs, but verbal violence is the most common type of violence to which staff are subjected. Physical violence usually co-exists with verbal violence. Whilst patients are primarily the main aggressors, relatives and visitors can also be aggressors Researchers have reported that the majority of patients involved in violent incidents are young males Within the health care professions, nurses are at the greatest risk of patient violence. Some researchers have indicated that staff with certain characteristics (such as being young, inexperienced, of small physical size and female) are more prone to violent attacks Staff who are under constant and prolonged exposure to inadequately handled violence suffer long-term psychological impact, such as feelings of bewilderment, anger, helplessness, fear, loss of confidence, burnout, and self-blame. Violence may also impact negatively on patient's perceptions regarding the quality of care that they receive Intrinsic factors related to increased risk of violence are: age, gender, physiologic and metabolic disorders such as disorientation and confusion due to drugs and alcohol intoxication, pain, frustration and anxiety, and previous history of pyshiatric illness or violent attack. External factors include: long waiting times, inability to obtain desired services, over-crowding, lack of access to information This review identified two major types of violence management strategies used in hospitals: one that focuses on the micro level of patients and staff (e.g. preventative measures, restraint, medication and seclusion, staff training, stress management, formal counselling) and the other that concentrates on the macro

	or hospital-wide level (e.g. proper reporting systems, and security measures). However, few studies have evaluated the effectiveness of violence management and prevention strategies and the existing evidence is contradictory
Level of evidence	No information given about the number of studies, search terms or criteria
Quality of evidence	As above, limited information given about the numbers of studies canvassed or the methodology
Summary of the evidence	This literature review identifies key themes related to the issue of violence in the ED. Amongst other findings, this review noted that the majority of patients involved in violent incidents in the ED are young males; that physical violence usually co-exists with verbal violence; and that nurses are most at risk of patient violence. However, this article provides limited details on the methodology of the literature review. As such, caution should be exercised in drawing definitive conclusions from this study alone

Loudoun R and Allan C (2008). The effect of time of day on injury patterns amongst adolescents in Australia. Appl Ergon 39(5): 663-70.

Author(s)	Loudon R, Allen C
Year	2008
Type of strategy	Multivariate analysis
Target group	Academics, policy makers
Study methods	Study draws on data collected from the Queensland Injury Surveillance Unit (QISU) and published and unpublished data from the Australian Bureau of Statistics (ABS). For the QISU data, triage nurses collected information from patients presenting at 17 remote, provisional and metropolitan Queensland hospital EDs. These departments cover a quarter of the Queensland population with approximately 80 percent ascertainment. The QISU data were collected by triage nurses for all persons presenting for treatment in the ED in selected hospitals. For each patient, the triage nurse collected demographic information on age, gender and industry of injury (classified according to the Australian Classification of Industries). Information was also recorded about the type of activity that patients were engaged in when they sustained an injury, including leisure activities, vital activities (such as eating and drinking), house work, educational activity, sport, childcare and paid work. These categories were used to create an interval scale from one to five of injury severity The QISU data were supplemented by unpublished data from the ABS on working time arrangements. Data were collected throughout Australia in November 2003 as a supplement to the ABS monthly Labour Force Survey (LFS). These data were used to control for the possible influence of uneven work patterns across the day, and across different age-groups, on the frequency of

	work related injuries To examine relationships between injury frequency, age and work-hours data were firstly plotted on a graph to give a visual representation of injuries by time of day. Following this, crude occupational injury ratios were calculated Multivariate analyses were employed where possible to control for the influence of gender and industry
Study findings	Between 1999 and 2006, QISU recorded 29,479 injuries presenting at hospital EDs where the stated activity when injured was working for income; 3201 of these injuries were from workers aged 19 years and under. For youths and adults, the highest incidence of injury occurred during the day. However, female night workers under 19, compared to adults and male workers under 19, tend to have a higher portion of incidences during the night shift. Night work accounts for 42 per cent of all injuries to female workers under 19 yet less than 4 percent of women in this age-group work these shifts Male and female youths have an increased risk of injury on the night shift. Youths account for 4% of all male night workers yet they are responsible for 10% of injuries presented on these shifts The results indicated that work hours were related to severity of injury with workers presenting with more severe injuries on the day shift. There was also a significant relationship between industry and severity of injury. Age was not related to severity of injury and there was no significant interaction between age and work hours Overall findings indicate that youth are between three and five more likely to sustain an injury during night work than their adult counterparts
Level of evidence	ABS provides nationally representative, methodologically robust data. The QISU also covers a relatively large population. Time span of six years
Quality of evidence	Relatively robust data, particularly from the ABS. The authors note that characteristics of individuals working in our study region were very similar to the characteristics of the Australian population in terms of the industry composition of employment and gender and age structure. (p. 667) Study conducted over a relatively large time span of six years
Summary of the evidence	This study indicates that young people who sustain injuries at work are more likely to present to the ED after injuries sustained at night. Further, the results indicate that injury severity is related to the time when young people perform work, with night workers more likely to suffer these injuries. The data is robust, drawn from relatively large-scale datasets and over a large time scale

Morphet J, et al. (2014). At the crossroads of violence and aggression in the Emergency Department: perspectives of Australian emergency nurses. Aust Health Rev 38(2): 194-201.

Author(s)	Morphet J, Griffiths D, Plummer V, Innes K, Fairhall R, Beattie J
Year	2014
Type of strategy	Survey
Target group	Policy makers, nurses
Study methods	Participants drawn from the College of Emergency Nursing Australasia (CENA). This is the peak professional body for Australian emergency nurses. Three main groups of participants: nurse unit manager, triage nurses, and non-triage nurses. There rounds of surveys administered using the Delphi technique. In the first round, participants provided information about their experiences with people who initiate violence. In the second and third rounds, the survey asked participants about people, causes, acts and strategies for change. Quantitative responses to each round analysed using median and interquartile ranges, and returned to the participants for comment until consensus had been achieved
Study findings	A number of variables contributed to violence in the ED, including long waiting times, substance use, and alcohol. People affected by drugs and alcohol in particular, were reported by all groups as being the most common source of violence in the ED Predominant forms of violence included physical assault, verbal abuse, and threat of physical violence It was found that nurses themselves can also contribute to violence in the ED through poor communication techniques. Many participants identified that security staff were a key factor in preventing violence in the ED. Other strategies for reducing violence included introducing or enforcing a zero violence policy; and educating staff in how to identify and manage aggression
Level of evidence	A total of 157 participants for Round one, 132 participants in Round two, and 158 in Round three. Participants were drawn from across Australia
Quality of evidence	Survey was quite comprehensive. The Delphi technique means that themes can be initially identified, and then queried and examined. However, relatively small number of participants took part in this study
Summary of the evidence	This study provides evidence about the number of nurses Relatively small numbers of nurses. No evidence presented specifically about young people. This study has been included in this review because (a) it is relatively recent and (b) other studies have linked violence in the ED with young people

Phillips NL, et al. (2014). Addressing adolescent substance use in a paediatric health-care setting. J Paediatr Child Health 50(9): 726-31.

Author(s)	Philips NL, Silsbury C, Zehetner A, Klineberg E, Towns S, Steinbeck K
Year	2014
Type of strategy	Retrospective review of patient files
Target group	Policy makers
Study methods	A retrospective review of all referrals to the Service Addiction Medicine for Youth (SAMY) program over a four year period (July 2008 to June 2012). Data reviewed included referral characteristics, patient demographics, details of the ED presentation, clinical characteristics recorded in the patient medical files, SAMY service involvement, and re-presentations within three months
Study findings	A total of 200 adolescent were referred to SAMY over the study period. Referrals were primarily from the ED (73.5%). Eight of these patients were referred more than once. Gender distribution was similar. The mean age at first presentation was 15.0 years The most frequently identified drugs were: alcohol, 165 cases (82.5%), cannabis, 114 cases (57.0%), nicotine, 91 cases (45.5%), ecstasy, 23 cases (11.5%), amphetamines in 21 cases (10.5%). Just under half the sample reported some form of mental illness, with mood disorders the most common (and more common in females than males) Of the 200 adolescents, an appointment with SAMY was made for 126 individuals (63.0%), and 92 of these attended (73.0%), though 14 of these were seen as inpatients during their stay on the hospital wards Quantitative analysis revealed that those more likely to engage and attend an appointment with SAMY included those with polysubstance use, amphetamine use, chronic illness, any mental health diagnosis, and a mood disorder. Those less likely to engage in treatment were individuals referred from the ED, Indigenous Australians, and those with a history of presentation of aggression
Level of evidence	Relatively small sized sample
Quality of evidence	Authors note a number of limitations of the data, including no consistent measures of nicotine dependence; substance use was often reliant on self-report or parent/carer report; mental health diagnoses were from history and self-report only; and outcome measures were often difficult to ascertain (p. 31)
Summary of the evidence	This research provides information on the characteristics and circumstances of young people who were referred to the SAMY program. Key findings include that young people with alcohol and cannabis issues were more likely to be referred to SAMY, and that less than half of the sample (*n*=92) actually attended the SAMY program. Limitations of the study include a relatively small sample,

	and inconsistencies with the data itself, as acknowledged by the authors

Pich J, Hazelton M and Kable A. (2013). Violent behaviour from young adults and the parents of paediatric patients in the Emergency Department. Int Emerg Nurs 21(3): 157-62.

Author(s)	Pich J, Hazelton M, Kable A
Year	2013
Type of strategy	Qualitative study
Target group	Policy makers and service providers
Study methods	This was a qualitative descriptive study. Data were collected by interviewing participants using a semi-structured interview schedule In Part one of the study a survey was distributed to all members of the College of Emergency Nursing Australasia (CENA) nationally (n = 1150). Expression of Interest for participating in Part II of the study was included at the end of the survey Eleven Registered Nurses volunteered and were recruited as a result of this purposive recruitment strategy. The participants included seven female and four male participants, with a median age of 44 and an average of 15 years clinical experience working in the ED environment. The sample was drawn from metropolitan and regional locations across New South Wales, Queensland and Victoria, Australia All participants were Registered Nurses who had worked clinically in an Australian ED in the preceding six months, and were members of CENA in 2010 Eleven participants took part in semi-structured interviews in 2010 Transcripts of digital recordings were analysed using a qualitative descriptive framework utilising the strategy of content analysis
Study findings	Data analysis led to the identification of antecedents to episodes of violence and behaviours specific to the two groups of interest: parents of paediatric patients and young adults aged 16–25 years of age The behaviours identified include 'performing' and attention-seeking behaviours; violent behaviours; and verbal abuse and physical violence Antecedents discussed by participants included parental emotions, and alcohol and substance abuse. Overall the results contribute to an overarching theme of feeling unsafe at work Participants reported that patients from these groups of interest often displayed attention-seeking behaviours such as being noisy, intimidating, disruptive, and demanding. These behaviours were reported to be ''performed'' to friends of the

	perpetrator who had accompanied them In addition participants described a domino effect amongst those left in the waiting room. Once the disruptive patient has been removed, those remaining are left feeling frustrated that the perpetrator has in effect jumped the queue All participants had experienced verbal abuse including swearing and personal threats, and reported that it was a regular occurrence. Physical abuse was reported by seven out of the 11 participants Many of the patients exhibiting the attention-seeking behaviours described above were reported by participants to be under the influence of alcohol and/or illicit drugs. Participants reported that such patients were more likely to be males aged 16–25 years of age Participants also reported a lack of insight from young adults who often failed to recognise that their substance abuse could have been the cause of their presenting symptoms, and were aggressive when that possibility was raised Participants discussed their experiences of parent-initiated violence from those accompanying paediatric patients to the ED. These episodes were typically preceded by aggressive and demanding behaviours that went beyond what participants considered reasonable. There were a number of emotions associated with these behaviours including fear and anxiety over the condition of their child The central emergent theme from this analysis was that nurses frequently felt unsafe at work. Underlying this sentiment was the issue of police involvement in dealing with episodes of violence. While such episodes are not regular occurrences they cause great concern for staff and can be very violent
Level of evidence	The authors acknowledge that the small sample size of 11 is a limitation. Nonetheless, the authors do note that data saturation was achieved in this qualitative descriptive study
Quality of evidence	The authors argue that geographical diversity achieved by including participants form three different states in Australia
Summary of the evidence	This small-scale qualitative study of nurses in the ED provides insight into the main challenges and impacts associated with dealing with violent patients in the ED. The main limitation of this research is the relatively small sample, although respondents were drawn from across three Australian states

Ryan M, Spicer M, Hyett C and Barnett. (2005). Non-urgent presentations to a paediatric Emergency Department: parental behaviours, expectations and outcomes. Emerg Med Australas 17(5-6): 457–62.

Author(s)	Ryan R, Spicer M, Hyett C, Barnett P
Year	2005
Type of strategy	Questionnaire
Target group	Policy makers, service providers, doctors
Study methods	A questionnaire was administered to a convenience sample of 200 parents and carers who attended a paediatric in Sydney ED and who had children who were categorised as having non-urgent problems that had been present for four weeks or longer. The questionnaire was delivered face-to-face in the ED
Study findings	A clear majority of the respondents (80%, *n*=160) had already attended a GP prior to the visit. Approximately 160 (59%) had consulted more than three GPs. Some identified (65%) that they had received conflicting advice. Although 174 had followed advice by their GP, only 50 (27%) reported that they were satisfied with their GP consultations. Approximately 48 (24%) had seen a specialist prior to visiting the ED. Vast majority (94.5%) presented between 8am and 6pm
Level of evidence	Relatively small sample, drawn from one hospital only. Ages of children were not given but may be up the ages of 18, meaning that this study excludes 'older' young people
Quality of evidence	As this study uses a convenience sample, it cannot be assumed to be representative of all parents of children presenting to a paediatric ED. No information given on the representativeness of the sample
Summary of the evidence	This study looks at non-urgent presentations of children to a paediatric ED. A key contribution of this study is the finding that a majority of the patients had already contacted GPs before coming to the ED, thereby indicating that, in some cases, the non-urgent presentation patient may be using the ED due to barriers and limitations of other health services. However, this sample was relatively small was only drawn from only one site

Siminski PM, Bezzina AJ, Lago LP and Eagar K. (2008). Primary care presentations at Emergency Departments: Rates and reasons by age and sex. Aust Health Rev 32(4): 700-9.

Author(s)	Siminksi PM, Bezzina AJ, Lago LP, Eagar K
Year	2008
Type of strategy	Analysis of administrative data and patient survey
Target group	Doctors, policy makers, service providers
Study methods	Using administrative data from the ED Information System (EDIS) for 2005, from 61 hospitals across NSW, representing 76% of all the demographic characteristics of 'potential primary care' attendances were summarised. Reasons given by patients for attendance were also examined. The second data source was a convenience survey, conducted in 2004, completed with patients in five ED departments, with patients offered 20 possible responses as to reasons why they were presenting at the ED. Preventable ED presentations were defined as meeting all of the following criteria: triage 4 or 5, did not arrive by ambulance, were self-referred, were presenting for a new episode of care, were not expected to be admitted (based on the assessment of ED staff)
Study findings	It was found that almost half of all preventable primary care presentations (47%) were made by people under 25 years of age, though children aged 0–14 accounted for fully 14% of all presentations. Young adults aged 15–29 were found to have the next highest presentation rates. Non-preventable presentations, by contrast, are characterised by a relatively even age distribution. Male rates of preventable presentations were found to be 18% higher than females across all age-groups. While it was hypothesised that young adults aged 15–29 would be more susceptible to affordability and availability concerns, their responses to these questions were similar to other age-groups
Level of evidence	High level of evidence, with two key data sources, including a large-scale data source
Quality of evidence	This study employs a convenience sample. However, survey participants were drawn from a variety of EDs, spanning major referral hospitals to small community hospitals. In addition, the area in which the survey took place was similar to NSW in terms of ED, GP and socioeconomic indicators. The EDIS data included some patients who were admitted, while the survey excluded these patients. The EDIS database is representative of the population of emergency presentations within NSW as a whole, except for small rural hospitals with less than 5,000 admissions per year
Summary of the evidence	This study utilises two major data sources (EDIS and a convenience sample) to identify demographic characteristics associated with preventable presentations at EDs. The key finding of this study is that young people are overrepresented in the preventable presentations category. Further, males were found to be overrepresented in this group. This study was descriptive rather than

	explanatory. That is, after ruling out affordability and availability issues, the authors were not able to account for why young people might be overrepresented in the preventable presentations category

Stewart C, Spicer M and Babl FE. (2006). Caring for adolescents with mental health problems: Challenges in the Emergency Department. J Paediatr Child Health 42(11): 726-30.

Author(s)	Stewart C, Spicer M, Babl FE
Year	2006
Type of strategy	Case reviews
Target group	Government, policy makers
Study methods	The authors retrospectively identified all adolescents aged 12–18 years who attended the ED of Royal Children's Hospital (RCH), Melbourne with mental health presentations over 12 months between 1 July 2003 and 30 June 2004. The search terms included: anxiety, hysteria, psychotic episode, solvent abuse, stress reaction, suicide risk and attempt, behavioural change, asphyxia, conduct disorder, depression, poisoning, drug abuse, emotional disorder, hallucinations, anorexia/bulimia, other mental disorder and pseudo/hysterical fit Based on the patient list identified from the ED electronic log the medical and mental health case notes of each patient were then reviewed by the authors. Data were collected on age, sex, time of presentation, mode of arrival, presenting complaint, ED discharge diagnosis, mental health service diagnosis, treatment in the ED, disposition and follow-up arrangements
Study findings	During the 12-month study period there were 203 adolescent mental health presentations by 167 patients to the ED. Thirty-six (17.7%) were repeat presentations during the study period and one patient presented seven times to the ED. Mean age was 14.7 years and 148 (72.9%) were female (Fig. 1) The majority of presentations (136; 66.9%) presented outside of business hours, defined as Monday to Friday 8am–6pm, when there was no access to on-site mental health professionals Most presentations were for non-accidental drug overdose 77 (37.9%), self-harm or suicide risk 38 (18.7%) and substance abuse 20 (9.9%) (Table 1) A total of 95 (46.8%) presentations led to an admission, either to the adolescent medical inpatient service (54, 56.8%) or to a psychiatric inpatient facility (41, 43.2%). Patients in 108 (53.2%) presentations were discharged home
Level of evidence	Evidence drawn from across the span of one year
Quality of evidence	Does not provide information contextualising mental health presentations with reference to other presentations. Young people aged over 18 not included in this study

Summary of the evidence	Drawing on 203 mental health-related presentations to the ED, this study examines the challenges that young people with mental health problems present for EDs. The data for this research was limited to young people aged 18 years and under

Tjipto AC, McD Taylor D. (2006). Alcohol use among young adults presenting to the Emergency Department. Emerg Med Australas 18(2): 125–30.

Author(s)	Tjipto AC, McD Taylor D, Liew H
Year	2006
Type of strategy	Cross-sectional survey
Target group	Doctors, policy makers
Study methods	A voluntary, cross-sectional survey was undertaken of young people aged 18–30 presenting to the ED of the Royal Melbourne Hospital, between November 2003 and April 2004. Attempts were made to identify and recruit young people who were presenting under the influence of alcohol or drugs, though not those who appeared 'grossly intoxicated' or aggressive. After written consent was obtained each patient was breathalysed. The AUDIT questionnaire was also administered to each patient in order to assess hazardous drinking. A total of 336 patients participated in the research
Study findings	Approximately two-fifths of patients had an AUDIT-positive score, indicating hazardous drinking. Male patients presented with significantly higher scores than female patients, and a higher proportion had AUDIT-positive scores. Trauma patients, also, had significantly higher AUDIT scores than non-trauma patients
Level of evidence	Relatively small sample, drawn from one hospital only. Sample limited to individuals aged 18–30
Quality of evidence	Sample is not random – researchers targeted individuals who they (subjectively) assessed to be under the influence of alcohol or drugs. This sample excluded those (subjectively) assessed to be 'grossly' intoxicated, meaning that those individuals potentially on the more extreme side of risky drinking were not included in the study
Summary of the evidence	This small study of 366 patients, drawn from one ED in a four-month period, looked at hazardous drinking. The key findings are twofold: that males presented with significantly higher AUDIT scores than women; and that trauma patients had significantly higher AUDIT scores than non-trauma patients. However, this is a relatively small scale study, drawn from one hospital, which also excludes young people aged under 18. Further, because this study specifically targeted individuals who researchers judged to be under the influence of alcohol or drugs, this study cannot address how this sub-population

	differs from other groups of young people aged 18–30 presenting to the ED

Watt K, Purdie DM, Roche AM and McClure R. (2006). Injury severity: Role of alcohol, substance use and risk-taking. Emerg Med Australas 18(2): 108-17.

Author(s)	Watt K, Purdie DM, Roche AM, McClure R
Year	2006
Type of strategy	Cross sectional analysis
Target group	Doctors
Study methods	A cross-sectional study was conducted between Oct 2000 and Oct 2001 at the Gold Coast Hospital, Queensland, Australia. Study participants were drawn from a systematic sample of patients greater than 15 years of age who presented to the ED during the study period for treatment of an injury (i.e. all conditions codeable using ICD 9 between 800 and 995) sustained less than 24-hour prior to presentation. The sample selection process therefore defined as eligible, all patients presenting during two consecutive weekends (18.00 hours Friday night until 22.00 hours Sunday) at quarterly intervals over a 13 month period (autumn; winter; summer; spring). All eligible injured patients were approached and invited to participate in face-to-face interviews. Written consent was obtained for interview participation, and for a member of the research team to check medical records The structured instrument comprised 80 items, and took approximately 15–20 min to administer. As well as general demographic information and situational variables relative to time of injury (i.e. location, activity and companions at time of injury); key items included acute alcohol and substance use, and risk-taking behaviour (described in detail below). Participants reported the quantity and type of alcohol consumed, approximately six hours before the interview. This information was later coded into grams of alcohol consumed. Participants were asked about the location at which alcohol was consumed prior to sustaining injury. Usual drinking patterns were calculated by asking participants how often alcohol was consumed, and what amount and type of alcohol was usually consumed per occasion The outcome measure was injury severity, which was derived from medical record descriptions of the injuries sustained. The relationship between injury severity and each measure of acute alcohol consumption (quantity; beverage type; drinking setting) were assessed separately
Study findings	A total of 1205 patients presented for treatment of an injury to the Gold Coast Hospital during the data collection periods. Of these, 244 were less than 15 years of age; 106 presented with injuries sustained more than 24-hour before presentation; and 66 patients did not wait for treatment. Assuming all 196 patients were eligible, 75.2% of eligible injured patients were interviewed (593/789). Crude analyses indicated that quantity of alcohol consumed in the

	six-hour prior to injury was not significantly associated with injury severity However, when other variables were added to the model, compared with patients who sustained minor injuries, compared with patients who sustained minor injuries, sustaining a serious injury was almost three times more common among patients who drank above the low-risk guidelines than patients who did not drink alcohol Risk of moderate injury compared with minor injury was not significantly associated with quantity of alcohol consumed, even after controlling for relevant variables. Injured patients in the present study who drank at levels above the NHMRC low-risk guidelines for short-term health, and patients who drank beer, trebled their odds of sustaining a serious injury compared with minor injury, even after adjusting for all confounding demographic, situational and drug use variables
Level of evidence	A total of 593 people took part in this study. Sample was drawn from one hospital only
Quality of evidence	Limited to one hospital only. Only patients able to be interviewed were included in the study, meaning that more seriously injured patients were not able to be included. An additional limitation of the present study is that cases were sampled only on the weekends. It is possible that weekend drinking differs to weekday drinking, especially in terms of location and activity. Young people aged under 15 were not included in the study
Summary of the evidence	Using a cross-sectional analysis of ED data, this study presents evidence linking acute alcohol consumption with serious injury. Whilst the sample is quite large for a qualitative study, the salience of the findings is limited by the fact that respondents were drawn from only one site. The data on which this research is based is also now also 14 years old

Yap M, Hui B, Reavley N and Jorm AF. (2013). Where would young people seek help for mental disorders and what stops them? Findings from an Australian national survey. J Affect Disord 147(1): 255-61.

Author(s)	Yap M, Hui B, Reavley N, Jorm AF
Year	2013
Type of strategy	National telephone survey
Target group	Policy makers and service providers
Study methods	Computer assisted telephone surveys were conducted with 3021 young people aged between 15 and 25 years. Survey was carried out using random-digit dialling. Survey included people with both landlines and mobiles. Young people were presented with a vignette of a young person with a mental disorder, and then asked a series of questions which aimed to assess sociodemographic characteristics, mental health literacy, stigma, exposure to mental disorders, beliefs about interventions, help seeking, and prevention. Demographic information, including age and sex, was also collected. The data were analysed using percent frequencies and standard errors of respondents who reported that they would seek help from various formal and informal sources for each of the six vignettes
Study findings	Family was the most commonly mentioned source of help in all but the psychosis and depression with alcohol abuse vignettes, where GPs were also frequently mentioned. GP was the most frequently mentioned source of professional help in all but the anxiety disorder vignettes, where counsellors were more frequently mentioned That is, most common barriers (that is, those reported by at least 5% of respondents) to seeking help from any source were: being too embarrassed or shy (27%), concern that the helper might feel negatively about them (11%), no barrier (10%), structural barriers (7%), negative emotions or self-perceptions (7%), concern that the helper might not be able to help (6%), and concern about what others think (5%) Only 10% of the respondents said that nothing would stop them from seeking help
Level of evidence	High level of evidence. Data is not restricted to one site or geographical location
Quality of evidence	Inclusion of mobile phones as part of the methodology of this survey improves the quality of the data, as young people are more likely to use mobile phones than landlines. The authors acknowledge that the use of vignettes to solicit information may have affected data quality because it is unclear to what extent young people's reflections on a vignette character accurately represent their own likely experiences and actions

Summary of the evidence	This study examines young people's help-seeking intentions with relation to a mental health issue, demonstrating that many barriers exist for young people's help seeking. This study therefore sheds light on the barriers to service use which may prompt young people to use the ED, although, for this project, a limitation is that this research does not look at the impacts on barriers to help seeking on other services