

Findings

Background

The emergency department (ED) plays a pivotal role in providing the public with access to acute health care and the provision of support to primary health care. There has been an increasing demand on these services with the major drivers being the age at which patients present, the patient's clinical urgency and whether or not these patients are admitted to hospital. This fact sheet investigates these drivers in relation to ED presentations.

Overall

Rates of total presentations to ED follow a well-researched U-shaped trend when data are investigated by age-group. This trend shows that the highest rates of ED presentation are for the 0-4 and 75+ year age groups, illustrating the overrepresentation of these age groups presenting to an ED. Also, of significance is a high rate of presentations by the 15-24 year age group. For those presentations that are deemed more urgent, a J-shaped distribution was found, with higher rates of presentations, followed by subsequent hospital admissions, for the older age groups. Those presentations deemed urgent follow the U-shaped distribution again with high rates of admissions for the older age groups and lower rates of admissions for the younger age groups. This category made up 39% of total presentations and 50% of presentations admitted to hospital. A reverse J-shaped distribution is found for those presentations deemed less urgent, with higher rates for the younger age groups. Within the less urgent categories, the majority of younger and middle age people presenting to ED were not admitted to hospital.

Implications for the Australian Health Care System

The overrepresentation of ED presentations of older Australians represents a focal point for their care and a continuing pathway to hospital admission. Additional strain will be placed on the health system in the future from the ageing of the Australian population, some of whom have complex health issues. Identifying the major causes of ED presentations for older Australians will help prioritise models of care that may require additional funding. Those people presenting to the ED with conditions of less clinical urgency will continue to be a vexed issue as to whether the presentation is an appropriate allocation of limited resources: i.e., would they be better managed in a primary health care setting, rather than in the ED. Research has demonstrated that there is a range of complex reasons for younger age groups to choose the ED as their point of care and presentations will continue until alternative pathways to manage their care can be found.

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Related Fact sheets

[Emergency department presentations for mental health-related conditions: variations by age group and socioeconomic disadvantage UPDATE 2022](#)

Contact details

E: phidu@tua.edu.au

Age-related rates of Emergency Department presentations

Background

The emergency department (ED) plays a pivotal role in providing the public with access to acute health care, inpatient and outpatient services and the provision of support to primary health care and community services [1]. ED services across Australia face continuous and significant challenges with historically increasing demand [2]. A major driver of this increasing demand is the age at which patients present to the ED. The aim of this fact sheet is to illustrate the age-related rates of ED presentations by triage category for the Australian population for the year 2019/2020. The literature on ED utilisation in Australia is then used to serve as a touch-stone on the potential reasons for rate differences.

The data

The data include 7,967,967 presentations to EDs between 1 July 2019 and 30 June 2020. The data presented are sourced from the AIHW's National Non-admitted Patient Emergency Department Care Database (NNAPEDCD), which is based on the Non-admitted Patient Emergency Department Care (NAPEDC) National Minimum Data Set/National Best Endeavours Data Set (NMDS/NBEDS). The NNAPEDCD provides information on the care provided for non-admitted patients registered for care in EDs in public hospitals where the ED meets the following criteria:

- a purposely designed and equipped area with designated assessment, treatment, and resuscitation areas
- the ability to provide resuscitation, stabilisation, and initial management of all emergencies
- availability of medical staff in the hospital 24 hours a day
- designated emergency department nursing staff 24 hours per day 7 days per week, and a designated emergency department nursing unit manager.

Emergency departments (including 'accident and emergency' or 'urgent care centres') that do not meet the criteria above are not in scope for the NMDS, but data may have been provided for some of these by some states and territories [3].

The Australasian Triage Scale (ATS) [4] is a clinical tool used to establish the maximum acceptable waiting time for medical assessment and treatment of a patient. The ATS aims to ensure that patients presenting to emergency departments are treated in the order of their clinical urgency and allocated to the most appropriate assessment and treatment area. The ATS utilises five categories classifying the time within which a patient should receive care:

- Category 1 - Resuscitation, an immediately life-threatening condition that requires immediate simultaneous assessment and treatment with patients seen within seconds;
- Category 2 - Emergency; patients seen within 10 minutes;
- Category 3 - Urgent; patients seen within 30 minutes;
- Category 4 - Semi-urgent; patients seen within 60 minutes; and
- Category 5 - Non-urgent, represents a chronic or minor condition which can be assessed and treated within two hours.

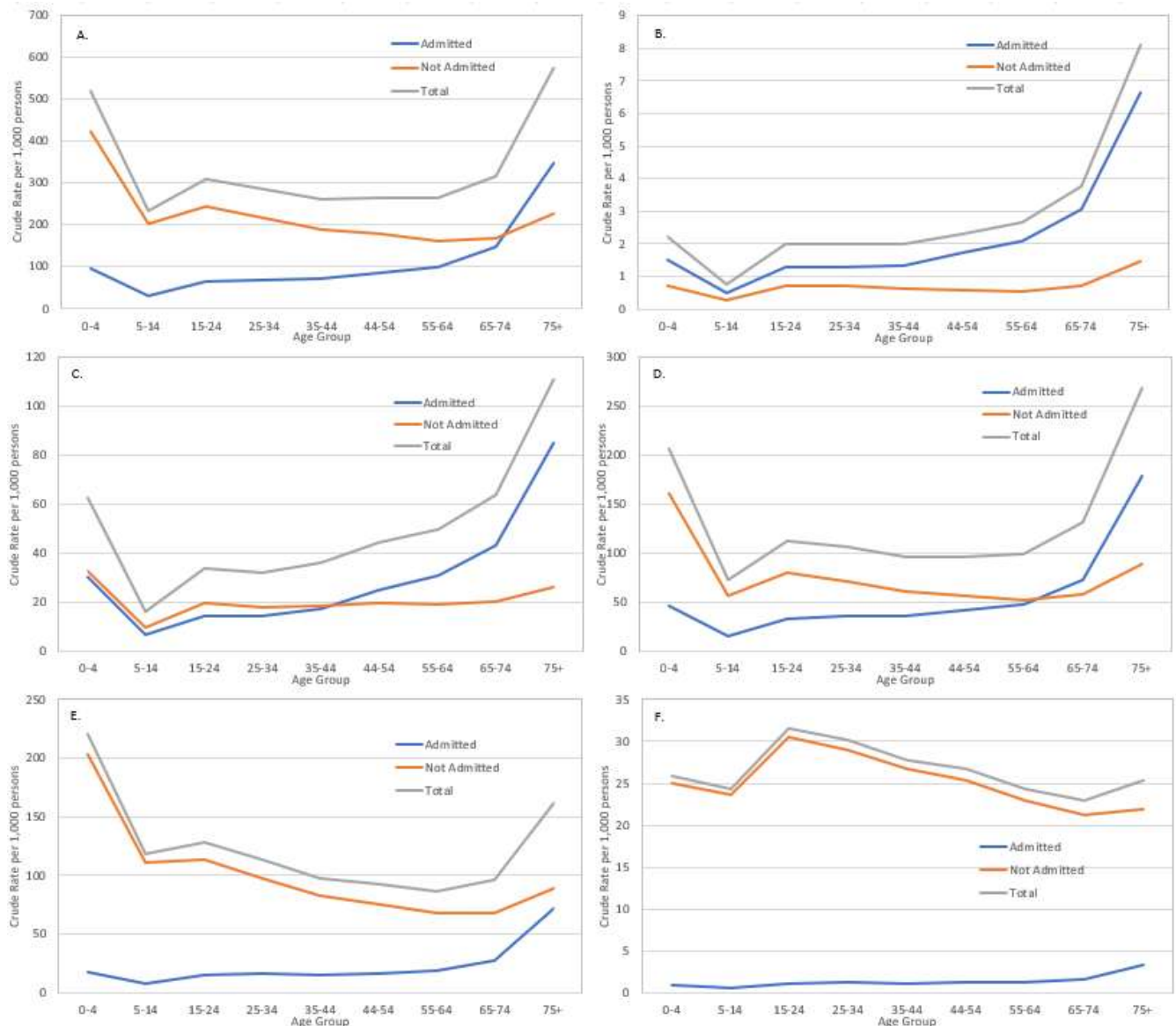
The ATS is only used to describe clinical urgency and separate measures are required to describe severity, complexity, quality of care, workload and staffing.

States and territories provided emergency department diagnosis information in several classifications, including SNOMED CT-AU, International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM); and various editions of ICD-10-AM. For the purpose of reporting principal diagnoses, the AIHW mapped the provided information to ICD-10-AM 10th edition codes, where necessary.

Overall results

Crude rates of presentations by the Australian population to the ED follow a U-shaped distribution when the data are broken down by a range of age groups (Figure 1A).

Figure 1: Crude rates of ED presentations per 1,000 persons by age group and whether subsequently Admitted or Not Admitted to hospital. Separate charts for Total presentations (A.) and by ATS: ATS 1 – Resuscitation (B.), ATS 2 – Emergency (C.), ATS 3 – Urgent (D.), ATS 4- Semi-urgent (E.), ATS 5 – Non-urgent (F.) classifications.



This distribution is driven by higher rates in the 0-4 and 75+ year age groups. This curve has been shown consistently elsewhere in past Australian data [2] and in specific states of NSW [5,6] and WA [7]. For the 0-4 and 75+ year age groups, the number of presentations is overrepresented, with these groups accounting for 10% and 13% of total presentations compared to 6% and 7% of the Australian population, respectively. Of interest, is the 15-24 year age group, where the total presentation rate is nearly equal to the rate for the 65-74 year age group. While the rate of presentation for this group is not overrepresented at the

Australian population level, in NSW, the presentation rate for this age group in rural areas has been consistently more than double that of metropolitan areas [5]. The ATS provides a measure to assess the urgency of presentation. It should be noted that the ATS was not designed to be a measure of severity or a measure of health acuity, meaning that some patients may have a high complexity of care with a low urgency i.e. an ATS classification of Semi-urgency or Non-urgency. However, the combination of the magnitude of the ATS and those admitted and not admitted to hospital can provide an overview of the general trends of the potential severity of the underlying medical conditions and the potential complexity of the treatment needed at the population level.

Figure 1A shows the overall trend in hospital admission, by age group and ATS, of those seen in ED. The majority of total presentations for the younger age groups were not admitted. Admissions then increased slowly to the 55-64 year old age group and then rose markedly at the 75+ year age group. This graph is an average of all clinical urgency scales and therefore hides rate trends at specific ATS categories. Figure 1 B-F show the rates of total, admitted and not admitted ED presentations for ATS categories 1-5, by age-group. Those presentations that required the most clinical urgency, highlighted by ATS 1 and 2 categories, followed a J-shaped distribution (Figure 1B and C) with total presentation rates substantially higher for the 75+ year age group. For the ATS 1 category, the majority of presentations were followed by an admission to hospital. Rates of hospital admission for the ATS 2 category were higher for those over the 44-54 year age group and were highest for the 75+ year age group. Presentation numbers for these two categories were small in comparison to the other ATS categories and made up around 15% of total presentations, with the ATS 1 category making up less than one per cent of total presentations. The trend in rates for the ATS 3 category (Figure 1D) across age-groups follows a U-shaped distribution with highest rates for the 0-4 and 75+ year age groups. Hospital admission rates were highest for 65-74 and 75+ year age groups with high rates of those not admitted to hospital for the younger age groups. The 75+ year age group had the highest hospital admission rates in this triage category when compared to all ATS categories. Presentations for this ATS category made up around 39% of total presentations and 50% of presentations admitted to hospital.

The ATS classifications of 1, 2 and 3 are often combined to investigate high acuity patients. Temporal analyses have found that these patients who require admission to inpatient beds are contributing substantially to the increase in ED presentations and place a significant threat to existing ED resources [8]. The higher rates of presentation and admission in these categories (Figure 1B-D) demonstrate that older patients do need initial ED assessment and management because they are very likely to be admitted to hospital from this presentation. Identifying trends in ED presentations within these ATS categories will help identify which models of care require additional resourcing [9]. This is particularly important as older persons within these ATS categories who presented with acute illnesses have been found to be more likely admitted to hospital [7,9] compared to those who presented with chronic conditions who were more likely to be not admitted [10]. One aspect of the higher rate of older people who present to ED is the growing cohort presenting from residential aged care facilities. These patients have complex clinical health issues often with comorbidities (such as dementia, ischaemic heart disease, and osteoarthritis), are on multiple medications (polypharmacy) and may have cognitive and functional impairment [11]. While the actual number of presentations are smaller than those of older people living in the community, those presenting to ED via ambulance in Victoria were on average up to four times higher with this difference growing to eight-fold among the 65-69 year old age group [12].

The rates for total presentations for the ATS 4 category (Figure 1B-E) highlighted a reverse J-shaped curve with the highest total presentation rates for the 0-4 years age group followed by lower rates in the 75+ year age group. Presentations for this semi-urgent category made up around 38% of total presentations and 45% of presentations not admitted to hospital. Presentation rates for the 0-4 years old category were highest in this triage category when compared to all ATS categories with the majority of presentations not admitted to hospital. Rates for the ATS 5 category (non-urgent) show a fairly flat distribution across age-groups, with the 15-24 year age group having the highest presentation rate, a rate which then declines across the age groups until there is a small increase for the 75 year and over age group.

Those who present to ED and are given an ATS category of 4 or 5, Semi-urgent or Non-urgent, are often seen as patients requiring low acuity care. It is often argued that these patients would be better managed in primary care rather than in the ED. However, the identification of these types of presentations is problematic, with much speculation over the appropriate definition to be used [13]. Nevertheless, there has been much debate on the causes of low acuity ED utilisation with research focused on the cohort of younger age groups which have been found to be the strongest predictor of low acuity ED presentations [14]. As shown in Figure 1 E and F the rates of presentations are higher for younger patients. Presentations from patients in the 0-4 year age group traditionally see larger volumes of lower-acuity care [7] with attendances during non-business hours and weekends [13]. When parents are feeling the most vulnerable they are likely to prioritise technical expertise present at the ED over an established relationship with a GP when making a choice for healthcare [15]. Research into parent perspectives and reasons for choosing the ED as their point of care [16] has found that fewer than half of parents attempted to make an appointment with a GP for their child prior to presenting to ED. Many of these parents believed no appointments would be available and believed their GP would have recommended they come to the ED for their problem anyway. For over two thirds that did contact their GP, the GP instructed them to go to the ED for their child's lower urgency condition. These instructions potentially reflect a range of non-clinical factors relating to a parent's perception of the severity and their ability to cope with the child's illness, a GP's risk aversion to providing care to children and health system level factors such as access to specialist services [17]. Intrinsically, attending EDs may be more appealing to patients. ED's do not charge to see a doctor whereas a co-payment may be required to see a GP. Attending an ED may result in being seen on the same day rather than waiting to acquire a GP appointment. Additionally, the EDs locality may be closer to work or home and may provide a single point-of-care for the patient in terms of diagnostics and treatment [15]. Collating the views of ED and GP providers regarding ED utilisation for primary care type health conditions identified three similar themes relating to access and logistical barriers, rational decision making and self-perceived urgency [18]. One major reason which is often debated as a driver for ED utilisation is the lack of GPs and appointments. For example, higher ED utilisations are apparent in areas of decreasing GP density in inner regional and remote/very remote areas compared to major cities in NSW [13]. These higher utilisations potentially reflect an alternative model of care in these areas through the Multipurpose Services program which integrates a range of health care services to deliver improved health outcomes for local communities [19]. In comparison for areas of Melbourne, a lack of real-time and same day GP appointments, albeit for children with mild illness, was not fully apparent in inner and outer urban and regional areas where appointments were generally available [20]. These locational differences reflect the geographic variation in GP density and the policies used to provide alternative points of care for patients in specific regions of Australia.

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