

Emergency department presentations of Victorian Aboriginal and Torres Strait Islander people

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Abstract

This paper explains how routinely collected data can be used to examine the emergency department attendances of Victorian Aboriginal and Torres Strait Islander people. The data reported in the Victorian Emergency Minimum Dataset (VEMD) for the 2006/2007 financial year were analysed. The presentations of Aboriginal and Torres Strait Islander and non-Aboriginal people were compared in terms of age, gender, hospital location (metropolitan and rural) and presenting condition. Aboriginal and Torres Strait Islander people were found to attend the emergency department 1.8 times more often than non-Aboriginal people. While the emergency department presentation rates of metropolitan Aboriginal and Torres Strait Islander and non-Aboriginal people were similar, rural Aboriginal and Torres Strait Islander people presented to the emergency department 2.3 times more often than non-Aboriginal people. The injuries or poisonings, respiratory conditions and mental disorders presentation rates of the Aboriginal and Torres Strait Islander and non-Aboriginal population were compared. No previous studies have assessed the accuracy of the Indigenous status and diagnosis fields in the VEMD; therefore the quality of this data is unknown.

Key Words (MeSH):

Aborigines, Australian; Emergency Service; Hospital; Hospitals, Urban; Hospitals, Rural

Introduction

The poor health status of Aboriginal and Torres Strait Islander people is well known and well documented, with higher hospitalisation rates for most diseases (Australian Institute of Health and Welfare [AIHW] 2006) and a life expectancy that is approximately 20 years less than that of non-Aboriginal people (Australian Bureau of Statistics [ABS] 2006). The literature on hospital services has primarily focused on admitted patients and there has been very limited research into the use of emergency departments by Aboriginal and Torres Strait Islander people (Thomas & Anderson 2006; Moshin 2002; Green 1998). The current research describes the quality of emergency department data and the accuracy of Indigenous identification in hospital datasets, while also presenting the findings from an analysis of the emergency department attendances of Victorian Aboriginal and Torres Strait Islander people.

Victorian Emergency Minimum Dataset (VEMD)

The Victorian Emergency Minimum Dataset (VEMD) comprises de-identified demographic, administrative and clinical data for each presentation to a Victorian public hospital 24-hour emergency department (Department of Human Services (DHS) 2005). Hospitals have submitted emergency department data to the DHS on a monthly basis since October 1995. The data items that are collected include patient demographics, arrival and departure details, diagnosis codes, waiting times and triage category (DHS 2005). Medical staff in the emergency department assign diagnosis codes from the International Statistical Classification of Diseases, 10th revision, Australian Modification (ICD-10-AM) to reflect the conditions that led to patient attendance at the emergency department. The group of codes approved for use in the VEMD is less extensive than those available in the Victorian Admitted Episodes Dataset (VAED) (DHS 2005). There

are stringent auditing processes in place for the VAED; however, this is not the case for the VEMD as the assignment of diagnosis codes does not directly impact on hospital funding.

Australian Bureau of Statistics (ABS) Standard for Indigenous Status

The ABS Standard for Indigenous Status has been a mandatory reporting requirement for Victorian hospitals since 1993. Every Australian-born patient who presents to a Victorian hospital is asked whether they are an Aboriginal or Torres Strait Islander (DHS 2007). The patient must be of Aboriginal or Torres Strait Islander descent and identify themselves as such to be recorded as an Aboriginal or Torres Strait Islander. The hospital does not require any other form of identification, for example, proof that the individual is accepted as an Aboriginal or Torres Strait Islander by their community (DHS 2004).

Aboriginal and Torres Strait Islander identification studies

The identification of Aboriginal and Torres Strait Islander patients is a major limitation of hospital data collections and has only recently been considered to reach an acceptable standard in Victoria (AIHW 2008a). The AIHW (2008b) has stated that the quality of Indigenous status data for Victorian public hospital emergency departments is improving; however, the data remains less accurate than the admitted patient dataset.

Hospital separations data have been used to determine the accuracy of recording Indigenous status (Condon et al. 1998; Aboriginal and Torres Strait Islander Health and Welfare Information Unit [ATSIHWIU] 1999; Young 2001). The ATSIHWIU (1999), a partnership between the ABS and the AIHW, performed a comprehensive study that assessed the quality of Indigenous identification by comparing the responses obtained from face-to-face patient interviews with information documented in hospital medical records. For the 11 hospitals that completed the study, the accuracy of identification of Aboriginal and Torres Strait Islander people ranged from 55-100% (ATSIHWIU 1999). While there was some variation in the recording of the other demographic data items, the recording

of Indigenous status for Aboriginal and Torres Strait Islander people consistently showed more variation (ATSIHWIU 1999). An important factor influencing the level of Indigenous identification appeared to be the number of Aboriginal and Torres Strait Islander people residing in the hospital catchment area (ATSIHWIU 1999). The correct recording of Indigenous status was greatest in areas with a high proportion of Aboriginal and Torres Strait Islander people in the population (94.4%) when compared with areas with a low proportion of Aboriginal and Torres Strait Islander people in the population (66.4%) (ATSIHWIU 1999). The study results indicate that the recording of Indigenous status is more accurate in hospitals outside capital cities (90.8%) when compared to hospitals in capital cities (78.5%) (ATSIHWIU 1999). Young (2001) also assessed the accuracy of recording Indigenous status at 26 public hospitals in Western Australia; the findings of this study support the findings of the ATSIHWIU study, as more accurate recording was evident in hospitals with the highest proportion of Aboriginal and Torres Strait Islander people in their catchment population (Young 2001). A data quality audit performed at five Northern Territory public hospitals indicated a higher level of accuracy in the reporting of Indigenous status than shown in the studies by the ATSIHWIU (1999) and Young (2001) (Condon et al. 1998).

Emergency department studies

A review of the literature identified three studies that compared Aboriginal and Torres Strait Islander and non-Aboriginal presentations at individual emergency departments (Johnston-Leek et al. 2001; Green 1998; Turner 1995), and three studies that compared the presentations at more than one emergency department (Lee et al. 2004; Moshin 2002; Lin et al. 1990). The quality of some studies is questionable because small sample sizes, short study timeframes and the poor identification of Aboriginal and Torres Strait Islander people in the datasets are likely to have influenced the results (Thomas & Anderson 2006; Moshin 2002).

The findings from most studies suggest that members of the Aboriginal and Torres Strait Islander population present to the emergency

department more often than members of the non-Aboriginal population (Turner 1995; Green 1998). Turner (1995) examined the emergency department presentations of the Shoalhaven District Memorial Hospital in New South Wales (NSW) between July 1993 and August 1994. Aboriginal and Torres Strait Islander people accounted for approximately 4% of the total number of presentations, which was high in comparison to the proportion of Aboriginal and Torres Strait Islander people in the Shoalhaven District population (2.3%) (Turner 1995). The emergency department attendances at the Royal Prince Alfred Hospital, a large teaching hospital in central Sydney, were reviewed by Green (1998). A total of 338 Aboriginal and Torres Strait Islander presentations were recorded for a six-month period, which represented 1.7% of all emergency department presentations (Green 1998). According to the ABS Census data there were 27% more Aboriginal and Torres Strait Islander presentations than would be expected for the size of the population in the hospital catchment area (Green 1998). Moshin (2002) attempted to overcome the limitations of previous studies by conducting a review of the attendances at 54 NSW public hospital emergency departments over a two-year period from May 1996 to April 1998. However, the study findings demonstrated a very slight under-representation of Aboriginal and Torres Strait Islander people (1.5%) in emergency departments when compared to the percentage of Aboriginal and Torres Strait Islander people in the NSW population (1.7%) (Moshin 2002).

Some researchers have made comparisons between the emergency department presentations of Aboriginal and Torres Strait Islander and non-Aboriginal people with regard to age, hospital location (metropolitan and rural) and presenting condition. Lee et al. (2004) conducted a retrospective analysis of the emergency department attendances at five Northern Territory hospitals from 1996 to 2001. The rate of presentation was higher for Aboriginal and Torres Strait Islander people in every age group except the 5-9, 10-14, 15-19 and 70-74 age groups (Lee et al. 2004). Moshin (2002) analysed the emergency department presentations at metropolitan and rural NSW hospitals and found the presentation rates

were significantly higher for rural Aboriginal and Torres Strait Islander people (3.9%) than for metropolitan Aboriginal and Torres Strait Islander people (0.8%) (Moshin 2002). The study findings appeared to suggest that there was an undercount of Aboriginal and Torres Strait Islander people in the NSW metropolitan emergency department databases (Moshin 2002). The results from the Johnston-Leek et al. (2001) study showed that the Aboriginal and Torres Strait Islander population were more likely to present to the Royal Darwin Hospital with illness (70%) rather than injury (30%), in comparison with the non-Aboriginal population (illness 64%, injury 36%). Overall, the literature review identified that little is known with regard to the conditions requiring presentation at the emergency department.

Aim of the study

This study aims to compare the emergency department presentations of Victorian Aboriginal and Torres Strait Islander and non-Aboriginal people in terms of age, gender, hospital location (metropolitan and rural) and presenting condition.

Method

Data source

The VEMD has been selected as the data source for the study because the dataset contains demographic and diagnostic information for each presentation to a Victorian public hospital emergency department. The researchers used the Business Objects Reporting Tool, available at the Koori Human Services Unit in the Victorian DHS, to extract the required data.

Research population

The research population comprised all individuals who had attended a Victorian public hospital emergency department during the 2006/2007 financial year. The Aboriginal and Torres Strait Islander population included individuals who identified themselves as being of Aboriginal or Torres Strait Islander origin at presentation to the emergency department. Due to the small size of the Torres Strait Islander population in Victoria, the Aboriginal and Torres Strait Islander populations were combined.

Research design

A descriptive study design was considered the most appropriate because this design involves the use of routinely collected data and is often considered the first step in an epidemiological investigation (Beaglehole, Bonita & Kjellstrom 2000). The extraction of specific data items from the VEMD enabled the emergency department presentations of the Aboriginal and Torres Strait Islander and non-Aboriginal populations to be compared. (Refer to Table 1).

Table 1: VEMD data items

DATA ITEM	DATA ITEM DESCRIPTION
Age group	0-4, 5-14, 15-24, 25-34, 35-44, 45-54, 55-64 and 65+
Sex	Male or female
Indigenous status	Aboriginal and Torres Strait Islander or non-Aboriginal
Hospital location	Metropolitan or rural
Diagnosis	ICD-10-AM diagnosis chapter

A total of 37 Victorian public hospitals contribute to the VEMD. For the purpose of the study, the hospitals were separated into two categories (metropolitan and rural) based on their location. Table 2 presents the hospitals included in each category.

Data analysis

The emergency department attendances of Aboriginal and Torres Strait Islander and non-Aboriginal people were compared by calculating the rate of presentation according to age, gender, hospital location and presenting condition. The estimated resident population from the 2006 ABS Census of Population and Housing was used to determine the presentation rates. The rates were calculated per 1,000 of the population.

Table 2: Metropolitan and rural hospitals that submit data to the VEMD

METROPOLITAN HOSPITALS	RURAL HOSPITALS
Angliss Hospital	Bairnsdale Regional Health Service
Austin Health	Ballarat Health Services
Box Hill Hospital	Barwon Health
Casey Hospital	Bendigo Health Care Group
Dandenong Hospital	Central Gippsland Health Service
Frankston Hospital	Echuca Regional Health
Maroondah Hospital	Goulburn Valley Health
Mercy Public Hospital Inc.	La Trobe Regional Hospital
Mercy Public Hospital Inc.- Werribee campus	Mildura Base Hospital
Monash Medical Centre	Northeast Health Wangaratta
Rosebud Hospital	South West Healthcare
Royal Children’s Hospital	Swan Hill District Hospital
Royal Melbourne Hospital	West Gippsland Health Service
Royal Victorian Eye and Ear Hospital	Wimmera Health Care Group
Royal Women’s Hospital	Wodonga Regional Health Service
Sandringham and District Memorial Hospital	
St. Vincent’s Hospital	
Sunshine Hospital	
The Alfred Hospital	
The Northern Hospital	
Western Hospital	
Williamstown Hospital	

Source: VEMD 2006/2007

Results

Emergency department presentations of Aboriginal and Torres Strait Islander and non-Aboriginal people

During the 2006/2007 financial year, the Aboriginal and Torres Strait Islander population accounted for 1.1% of all presentations to Victorian emergency departments. There were 14,727 Aboriginal and Torres Strait Islander emergency department attendances, which included 3,864 metropolitan and 10,863 rural presentations. Aboriginal and Torres Strait Islander females (51%) had more presentations than Aboriginal and Torres Strait Islander males (49%).

Aboriginal and Torres Strait Islander people (491 per 1000) were found to attend the emergency department 1.8 times more often than non-Aboriginal people (278 per 1000). In each age group, the presentation rate is higher for Aboriginal and Torres Strait Islander people compared to non-Aboriginal people (Figure 1). There is a noticeable peak for Aboriginal and Torres Strait Islander people in the 35-44 age group (637 per 1000) where the presentation rate is 2.9 times greater than non-Aboriginal people (221 per 1000).

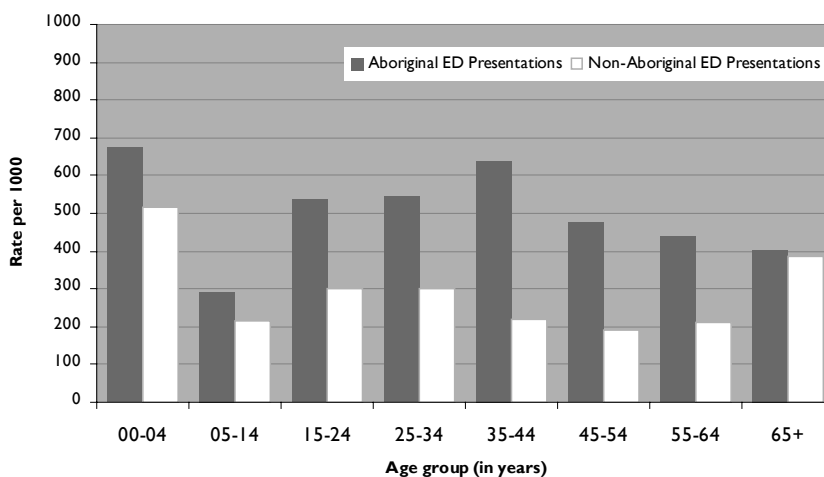


Figure 1: Aboriginal and non-Aboriginal Emergency Department Presentations 2006/2007

Metropolitan emergency department presentations

The emergency department presentation rates of metropolitan Aboriginal and Torres Strait Islander (273 per 1000) and non-Aboriginal people (271 per 1000) are similar (Figure 2). The highest rate of presentations for Aboriginal and Torres Strait Islander people are in the 0-4 and 35-44 age groups, while for non-Aboriginal people it is the 0-4 and 65+ age groups. Aboriginal and Torres Strait Islander people between the ages of 25 and 64 present more often than non-Aboriginal people.

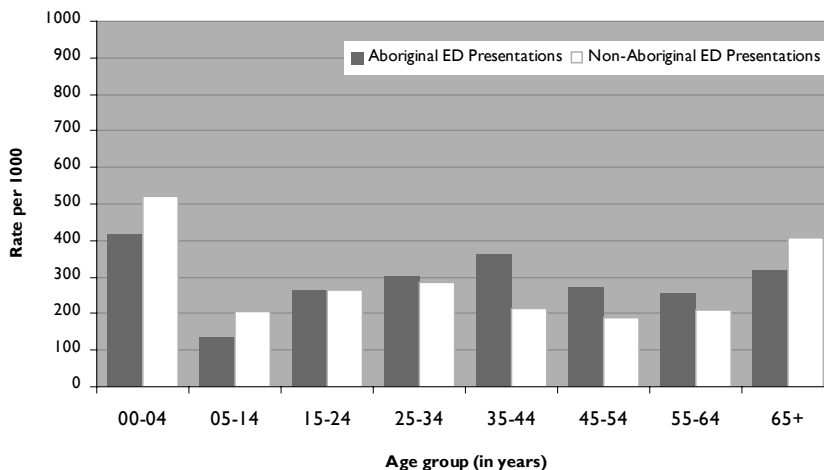


Figure 2: Metropolitan Aboriginal and non-Aboriginal Emergency Department Presentations 2006/2007

Rural emergency department presentations

Rural Aboriginal and Torres Strait Islander people (684 per 1000) present to the emergency department 2.3 times more often than non-Aboriginal people (297 per 1000) (Figure 3). The presentation rates of Aboriginal and Torres Strait Islander people are considerably higher in every age group, except for the 5-14 and 65+ age groups where the difference is reduced. Between the ages of 35 and 44, the Aboriginal and Torres Strait Islander (916 per 1000) rate of presentation is almost four times the non-Aboriginal (241 per 1000) rate.

Injury or poisoning

The metropolitan injury or poisoning presentation rates are slightly higher for non-Aboriginal people (71 per 1000), in comparison to Aboriginal and Torres Strait Islander people (65 per 1000) (Figure 4). Aboriginal and Torres Strait Islander males have the highest rate of presentation between the ages of 35 and 64.

Aboriginal and Torres Strait Islander people (178 per 1000) present to rural emergency departments with injury or poisoning 2.0 times more often than non-Aboriginal people (91 per 1000) (Figure 5). Rural Aboriginal and Torres Strait Islander males have the highest rate of presentation across all age groups, except in the 65+ age group where the presentation rates of Aboriginal and Torres Strait Islander and non-Aboriginal people are similar.

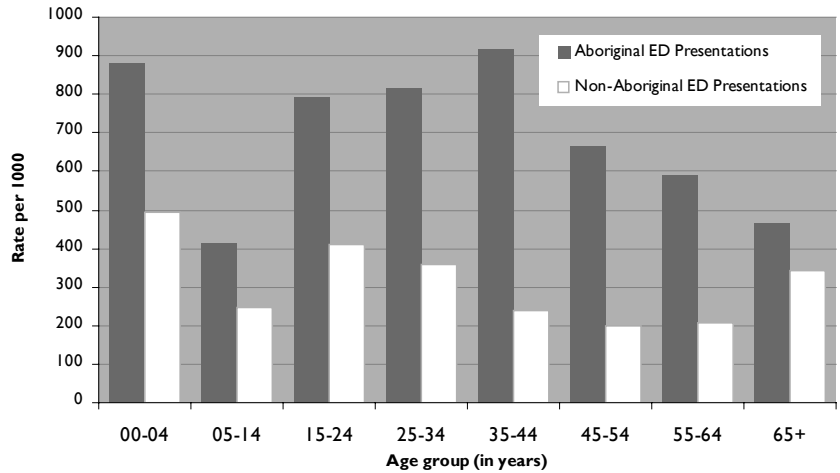


Figure 3: Rural Aboriginal and non-Aboriginal Emergency Department Presentations 2006/2007

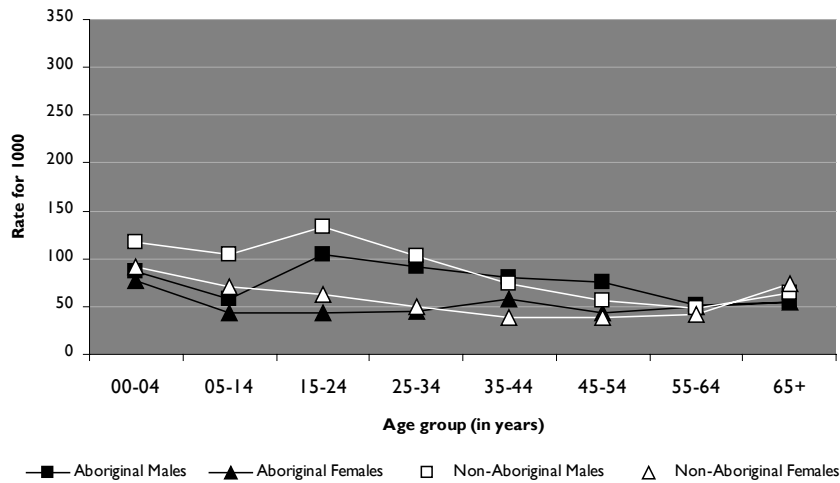


Figure 4: Metropolitan Aboriginal and non-Aboriginal Emergency Department Presentations: Injury or Poisoning 2006/2007

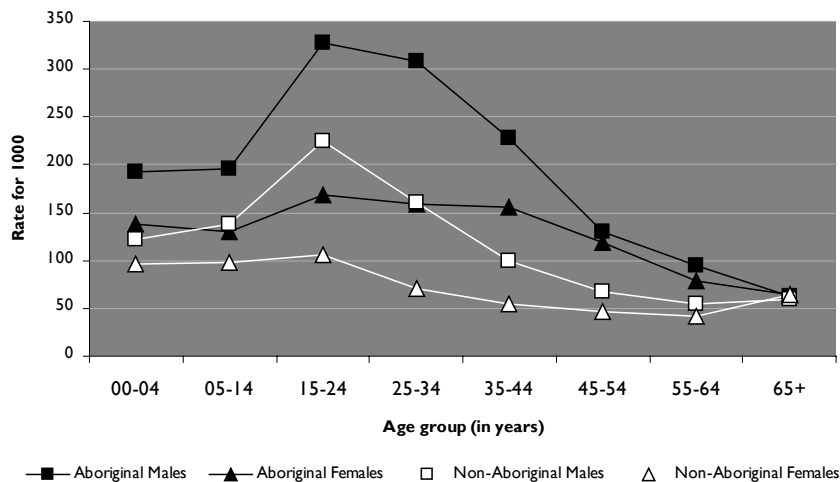


Figure 5: Rural Aboriginal and non-Aboriginal Emergency Department Presentations: Injury or Poisoning 2006/2007

Respiratory diseases

Respiratory presentation rates are similar for metropolitan Aboriginal and Torres Strait Islander and non-Aboriginal people (Figure 6). Children aged 0 to 4 have the highest rate of presentation in this disease category. There is a noticeable peak for Aboriginal and Torres Strait Islander females in the 45-54 age group.

For rural hospitals, respiratory presentations are more common in the 0-4, 55-64 and 65+ age groups (Figure 7). The rate of respiratory presentations is greater for rural Aboriginal and Torres Strait Islander males and females across all age groups. In the 0-4 age group, the presentation rate of Aboriginal and Torres Strait Islander males and females (244 per 1000) is 2.1 times the rate of non-Aboriginal males and females (115 per 1000).

Mental Disorders

The mental disorder presentation rate of Aboriginal and Torres Strait Islander people is proportionally higher than for non-Aboriginal people at metropolitan and rural hospitals. In the 35-44 years age group, metropolitan Aboriginal and Torres Strait Islander males present with mental disorders 8.1 times more often than non-Aboriginal males (Figure 8).

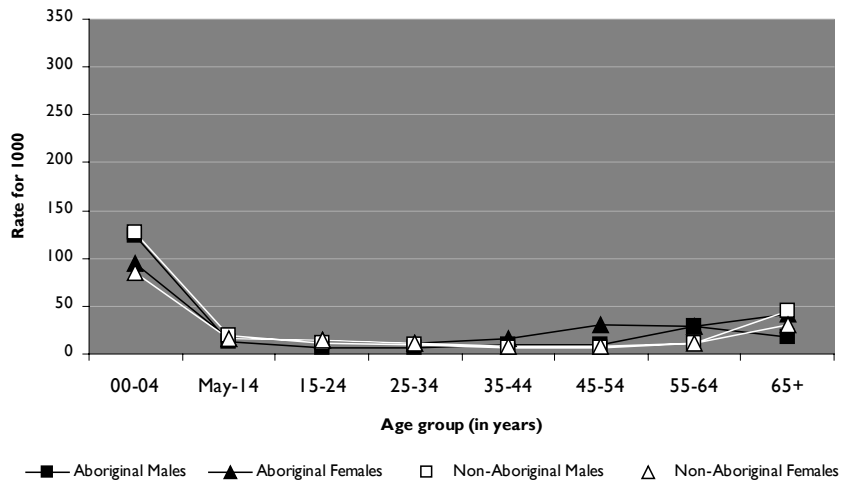


Figure 6: Metropolitan Aboriginal and non-Aboriginal Emergency Department Presentations: Respiratory Diseases 2006/2007

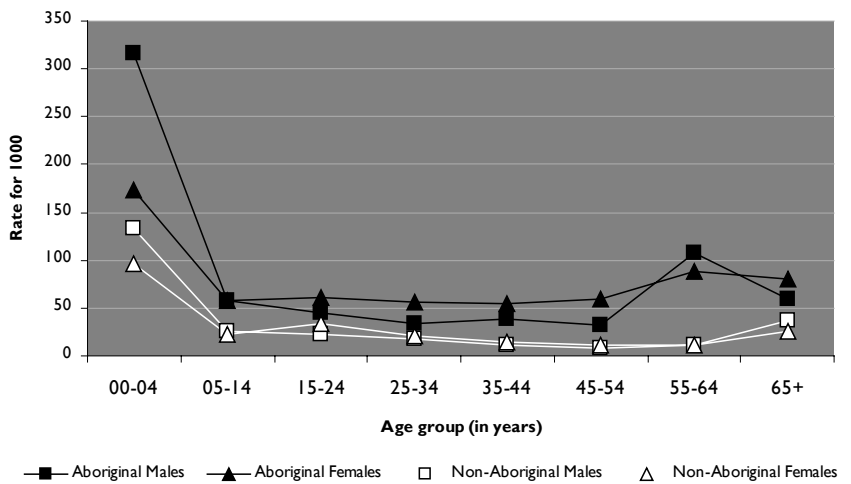


Figure 7: Rural Aboriginal and non-Aboriginal Emergency Department Presentations: Respiratory Diseases 2006/2007

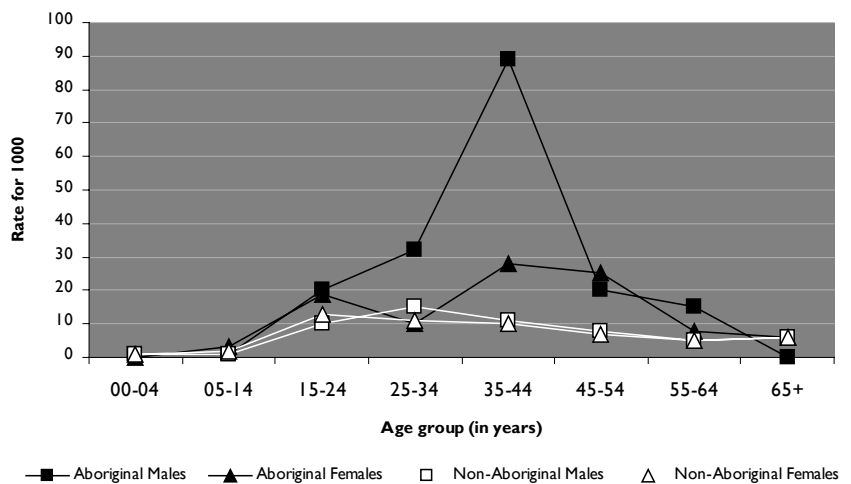


Figure 8: Metropolitan Aboriginal and non-Aboriginal Emergency Department Presentations: Mental Disorders 2006/2007

Rural Aboriginal and Torres Strait Islander females present to the emergency department with mental disorders at a much higher rate than metropolitan Aboriginal and Torres Strait Islander females (Figure 9). The mental disorder presentation rates of metropolitan and rural Aboriginal and Torres Strait Islander males are similar. The peak rate of presentation for rural Aboriginal and Torres Strait Islander males and females is the 35-44 years age group.

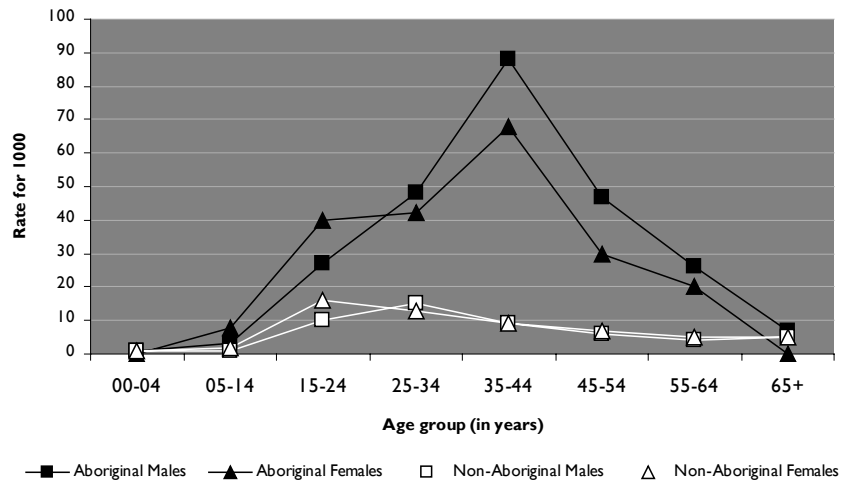


Figure 9: Rural Aboriginal and non-Aboriginal Emergency Department Presentations: Mental Disorders 2006/2007

Discussion

The Aboriginal and Torres Strait Islander population accounted for 1.1% of all presentations to Victorian public hospital emergency departments in 2006/2007, yet Aboriginal and Torres Strait Islander people comprise only 0.6% of the total Victorian population (ABS 2007). The studies by Turner (1995) and Green (1998) support this finding because in both studies, Aboriginal and Torres Strait Islander people had more emergency department presentations than would be expected for the size of the population under investigation.

Victorian Aboriginal and Torres Strait Islander people present to hospital emergency departments 1.8 times more often than non-Aboriginal people. Lee et al. (2004) obtained a similar result in a study conducted at five public hospitals in the Northern Territory, where the Aboriginal and Torres Strait Islander presentation rate was 2.2 times higher than the non-Aboriginal rate. In the current study, the presentation rate is higher for Aboriginal and Torres Strait Islander people in every age group, whereas Lee et al. (2004) identified the higher presentation rates of Aboriginal and Torres Strait Islander people, with the exception of the 5-9, 10-14, 15-19 and 70-74 years age groups.

There are large differences in the number of Aboriginal and Torres Strait Islander presentations at metropolitan and rural emergency departments despite the Victorian Aboriginal and Torres Strait Islander population being

divided almost equally between metropolitan (14,145) and rural (15,877) areas (ABS 2008). During 2006/2007, there were 3,864 metropolitan and 10,863 rural Aboriginal and Torres Strait Islander emergency department presentations. These differences may be explained by the poor identification of Aboriginal and Torres Strait Islander people at metropolitan hospital emergency departments. The results from a study analysing the presentations of Aboriginal and Torres Strait Islander people and non-Aboriginal people at NSW emergency departments appeared to suggest that there was an undercount of Aboriginal and Torres Strait Islander people at metropolitan hospitals (Moshin 2002). In the study by the ATSIHWIU (1999), the correct recording of Indigenous status was greatest in areas with a high proportion of Aboriginal and Torres Strait Islander people in the population than areas with a low proportion of Aboriginal and Torres Strait Islander people in the population. This finding supports the current research as Aboriginal and Torres Strait Islander people living in metropolitan Victoria represent only a small proportion of the total population, in comparison with rural areas where Aboriginal and Torres Strait Islander people account for a greater proportion of the total population. Aboriginal and Torres Strait Islander people who present to metropolitan emergency departments are not drawn from a defined catchment area; therefore, hospital administration staff may be unaware

of local Aboriginal and Torres Strait Islander communities.

Previous research has failed to investigate thoroughly the specific conditions leading to the presentation of Aboriginal and Torres Strait Islander people at hospital emergency departments. Therefore, it is not possible to draw comparisons with the findings from this study. The analysis of presentation rates for injuries or poisonings, respiratory diseases and mental disorders has highlighted differences between the Aboriginal and Torres Strait Islander population and the non-Aboriginal population. While the injury or poisoning presentation rates are similar for metropolitan Aboriginal and Torres Strait Islander and non-Aboriginal people, the presentation rates for rural Aboriginal and Torres Strait Islander people are 2.0 times more than for rural non-Aboriginal people. Rural Aboriginal and Torres Strait Islander males (328 per 1000) aged 15-24 present with injuries or poisonings 3.1 times more often than metropolitan Aboriginal and Torres Strait Islander males (105 per 1000) in the same age group. Some of this difference, however, may be a result of the suspected poorer identification of Aboriginal and Torres Strait Islander people at metropolitan hospitals.

Respiratory disease presentations are most common in the 0-4, 55-64 and 65+ age groups. The presentation rates of rural Aboriginal and Torres Strait Islander children aged 0-4 is of particular concern, with approximately one quarter of all presentations in this age group due to respiratory conditions. Metropolitan and rural Aboriginal and Torres Strait Islander people present to emergency departments with mental disorders at a much higher rate than non-Aboriginal people. In the 35-44 age group, the presentation rate of Aboriginal and Torres Strait Islander males is more than eight times the non-Aboriginal rate.

Limitations

The main limitation of the study is the uncertainty surrounding the quality of data reported in the VEMD. The AIHW (2008a) has recently stated that the accuracy of recording Indigenous status in Victorian hospital data collections has improved and is now considered to be at an acceptable level. However, previous studies have

not assessed the reporting of Indigenous status in the emergency department dataset. The quality of data recorded in the diagnosis field is also unknown. In contrast to the VAED where trained clinical coders assign ICD-10-AM diagnosis codes, medical staff are responsible for allocating these codes in the VEMD. The assignment of codes does not require adherence to specific standards and the clinicians may enter the diagnoses at different times. For example, some clinicians may assign the codes at triage, while other clinicians may enter the data after a series of investigations have been performed and a definitive diagnosis is made. There is also evidence to suggest that some clerical staff have used medical notes to enter codes into the emergency department system, which would have an obvious impact on data quality (Marson et al. 2005).

Conclusion

This research has demonstrated how data from the VEMD can be analysed to inform health care planners and policy makers of the relevant demographic factors and clinical conditions of Victorian Aboriginal and Torres Strait Islander emergency department patients. There was a need to undertake the study, as very little research had been performed nationally and no previous studies have been conducted in Victoria. It was established that Aboriginal and Torres Strait Islander people present to Victorian public hospital emergency departments more often than non-Aboriginal people. Large differences were noted in the presentation rates of metropolitan and rural Aboriginal and Torres Strait Islander people despite the population being divided almost equally between these areas. The emergency department presentation rates of rural Aboriginal and Torres Strait Islander children with respiratory conditions and Aboriginal and Torres Strait Islander people with mental disorders warrants further investigation. The data reported in the Indigenous status and diagnosis fields of the VEMD have never been assessed therefore it is difficult to determine whether the quality of these data may have influenced the obtained results.

Note:

The emergency department presentations during the 2005/2006 and 2006/2007 financial years were analysed. The findings from the most recent financial year (2006/2007) are discussed in this journal article and the data from the previous year served as a comparison for the researchers. Two consecutive years were selected for data analysis to improve the validity of the study. There was a concern that the level of Indigenous identification may differ from year to year, which would have impacted on the results; however, similar findings were obtained from an analysis of the 2005/2006 and 2006/2007 financial years.

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