

Demographic patterns of emergency presentations to Northern Territory public hospitals

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Abstract

This study investigates demographic patterns of emergency presentations to Northern Territory (NT) public hospitals over the past five years with respect to population changes, Aboriginality and age of patients. Retrospective analysis was undertaken on the 1996-2001 data extracted from the NT Module of Caresys and the Hospital Morbidity Data System. There was a 4.6% decrease in total presentations to the five public hospitals but a 9.4% growth in the population during the study period. Substantial differences in emergency presentation patterns were found between Aboriginal and non-Aboriginal patients. There were more Aboriginal presentations than non-Aboriginal presentations for all age groups except for 5 to 19 years and 70 to 74 years. Analysis based on the national triage scale showed the higher needs of older adults with the 60 or over age group accounting for the majority of presentations, and Aboriginal presentation rates exceeded the non-Aboriginal presentation rates in most triage categories. Re-attendance within seven days at the emergency departments occurred predominantly among Aboriginal patients regardless of age group. The analysis has highlighted several emerging demographic patterns. The issue of non-urgent visits by Aboriginal patients occupying a large portion of the emergency department utilisation also needs to be addressed.

Background

Socio-economic disadvantage and related demographic factors are now recognized as important determinants of health (AIHW, 2001a). The evolving demographics of the Australian population also affects the utilisation of hospital emergency departments (EDs), with record demand for emergency services in recent years (Frommer, 2003). The pressure on ED service delivery has coincided with shortages and high turnover of staff (AIHW, 2001b).

Previous research has found the proportion of the population over 65 years and level of deprivation to be strongly associated with an increase in ED visits (Chishty & Packer, 1995). A 10-year retrospective analysis established a direct relationship between ED utilisation and population size, and a historical trend towards increasing patient acuity (Meggs, Czaplijski & Benson, 1999). Studies on ED utilisation have also considered specific age groups (Ziv, Boulet & Slap, 1998), ethnic and immigration groups (Wen, Goel & Williams, 1996)

as well as diseases of increasing prevalence such as asthma (Goldberg et al, 1998) and injuries (Burt & Fingerhut, 1998).

The Northern Territory (NT) has a population of about 200,000 of which 29% are Aboriginal (ABS, 2001). Aboriginal people have the worst health status of any ethnic group, particularly in relation to the growing incidence of chronic diseases (AIHW, 1998). Moreover, a large proportion of the NT population is under 15 years of age (38% for Aboriginal and 22% for non-Aboriginal) while only a small proportion of people are aged 65 years and over (2.7% for Aboriginal and 3.5% for non-Aboriginal) (ABS, 2001). The high Aboriginal representation and distinct age structure of the NT have considerable impact on its health status. Nevertheless, the extent to which differences and variations in demographic characteristics are translated into greater use of emergency services has not been adequately examined.

This report investigates emergency presentations to the five NT public hospitals over the past five years with respect to population changes, Aboriginality and age of patients. An overview of the trends in emergency presentations was provided recently (Lee et al, 2003).

Methods

Retrospective analysis was undertaken on ED presentations to Royal Darwin Hospital (RDH), Alice Springs Hospital (ASH), Katherine Hospital (KH), Gove District Hospital (GDH), and Tennant Creek Hospital (TCH). Although all five public hospitals provide general inpatient and outpatient services along with emergency services, only RDH and ASH are teaching hospitals that offer a wide range of specialist care and have an ED with specialist emergency physicians.

Data were extracted from the ED Module of Caresys (96/97-00/01) and the NT Hospital Morbidity Data System (95/96-00/01). Outcome measures of demand (volume) by triage category were identified. The national triage system is a five-point scale whereby the most urgent cases (requiring immediate attention and resuscitation) are assigned category 1, emergency cases (receive care within 10 minutes) are assigned category 2, urgent cases (receive care within 30 minutes) category 3, semi-urgent cases (receive care within 60 minutes) category 4 and non-urgent cases (receive care within 120 minutes) category 5 (DHAC, 2001). ED presentation rates and re-attendance rates with respect to age groups and Aboriginality were evaluated to assess the demographic distribution and patterns. Ethics approval for the project was obtained from the Human Research Ethics Committee of the NT Department of Health & Community Services and Menzies School of Health Research.

Results

Population growth

There has been a 9.4% increase in the population from 182 thousand in 1996 to 199 thousand in 2001 (ABS, 2001). A breakdown of the population by gender and Aboriginality is given in Figure 1. There has been a 9% increase in the male population and a 9.5% increase in the female population. Overall, 27% of the males and 30% of the females were of Aboriginal descent and these figures have not changed substantially since 1996.

Total presentations

There was a 4.6% decrease in total presentations to the five hospitals, from 104 thousand in 1996 to 99 thousand in 2001. The overall proportion of presentations identified as Aboriginal was 47%. Figure 2 highlights the consistently higher presentation rate by the Aboriginal population from 1996 onwards. Analysis by hospital further identified that 57% of presentations to TCH, 46% to ASH, 38% to GDH, 36% to KH and 21% to RDH were of Aboriginal origin or identification. As shown in Figure 3, Aboriginal presentations were higher for all age groups except for 5-9, 10-14, 15-19 and 70-74 years. The highest rate of presentation was evident

among Aboriginal patients aged 35-39 (843 per 1000) followed by the 40-44 age group (798 per 1000). The highest rate of presentation among non-Aboriginal patients was in the 0-4 age group (548 per 1000) followed closely by the 70-74 age group (515 per 1000).

Triage category presentations

The presentation rates by triage category are plotted in Figure 4. The highest rate of triage category 1 presentations per 1000 population was the Aboriginal 60-64 age group (4.1 per 1000), followed by the non-Aboriginal over 75 years age group (3.7 per 1000). The highest rate of triage category 2 presentations per 1000 population was found in the non-Aboriginal 75+ age group (42.6 per 1000) followed by the non-Aboriginal 70-74 age group (32.5 per 1000).

In early childhood (0-4 years), Aboriginal children experienced a higher presentation rate than non-Aboriginal children in all triage categories. There was a notable decline in presentation rate in children aged 5-9 years for both Aborigines and non-Aborigines. In late childhood and young adult life, the non-Aboriginal presentation rate climbed to a high level in the 15-19 age group followed by a marked decline in all triage categories. By contrast, Aboriginal presentation rate continued to rise during young adulthood. Between ages 30 and 54 years, non-Aboriginal presentation rates remained at a low level and the differential between Aboriginal and non-Aboriginal presentation rates was substantial. Between ages 20 and 64 years, the Aboriginal presentation rate exceeded the non-Aboriginal presentation rate in all triage categories by up to 8.5 times. After the age of 55 years, the non-Aboriginal presentation rate also reached a high level for triage categories 1-4 and peaked in the 75+ years group.

Re-attendance

Thirteen percent of patients from RDH, 21% from ASH and KH re-attended the ED within 7 days of their initial presentation. The re-attendance rate was higher at GDH (26%) and TCH (28%), which may be due to the lack of GP services in remote areas. The re-attendance rates are plotted in Figure 5. The highest rate of re-attendance per 1000 population occurred in the Aboriginal 55-59, followed by the Aboriginal 30-34 and 35-39 age groups. Non-Aboriginal re-attendance peaked in the 15-19 age group followed by the 65-69 age group. There were more re-attendances by Aboriginal patients in most age groups. The top 10 most frequent re-attendance problems are shown in Figure 6. Together they accounted for 66% of the total re-attendances, and among them dressing has the highest re-attendance rate.

Discussion

As a result of population growth, there has been increasing pressure to keep up with the demands to provide emergency treatment in the NT. The apparent slight decline in total presentations can be attributed to the closure of three mines within the past three years. Furthermore, both RDH and ASH began to manage their volume of presentations by encouraging patients with non-urgent conditions to attend their local GP as an alternative place of treatment (Lee et al, 2003).

The analysis highlighted the differences in ED presentations between Aboriginal and non-Aboriginal Territorians. Aboriginal presentations during the study period were higher across age groups except for 5-19 and 70-74 years. During 2001-2002, Aboriginal patients in NT hospitals accounted for 62% of all separations. Their age-standardised separation rate, being the highest in Australia, was over four times that of non-Aboriginal persons (AIHW, 2003). The high utilisation of ED services was probably due to their higher incidence of chronic diseases and acute infections, and greater tendency to have multiple conditions requiring treatments (Condon, Warman & Arnold, 2001). Analysis of presentations by triage categories showed the higher needs of older adults with the 60 or over age group accounting for the majority of presentations, despite their small contribution to the NT population.

Re-attendances within seven days occurred predominantly among Aboriginal patients. There are a variety of reasons for re-attendance, which include review of initial problem, a new problem, difficulty getting an appointment with the physician, or lack of GP services. Lack of GP services, especially in the regional catchments, often necessitates return to the ED for subsequent follow-up. This may be regarded as a positive aspect of the holistic care provided by the ED. Additional resources may be required to resolve the re-attendance problem due to dressings. Alternatively, patients may be directed to their local GP or to attend the outpatient clinic so as to reduce the strain on the ED. The relatively high rate of non-urgent visits (triage category 5) and re-attendances making up a large portion of the emergency department utilisation also needs to be addressed.

There are certain limitations which should be considered in conjunction with the findings. Analysis of ED presentations by principal diagnosis and admission diagnosis have been omitted in this paper for brevity. Secondly, due to the dynamic nature of staffing at the study hospitals (particularly ASH) and the absence of reliable personnel data, it is difficult to determine the effects of staffing on the operation of the ED. Nevertheless, the quality of data on Indigenous status was considered to be acceptable (AIHW, 2003). Finally, comparison with other States cannot be made because data based on the triage system are not directly comparable across States and Territories (Frommer, 2003; AIHW, 2003).

Acknowledgements

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Figure 1: Population by gender and Aboriginality, 96/97–00/01.

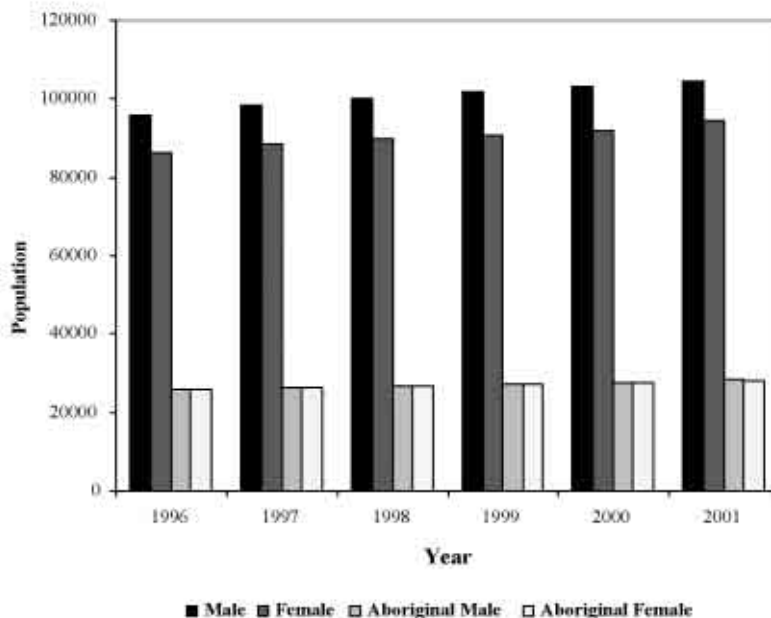


Figure 2: Presentations by Aboriginality, 96/97–00/01.

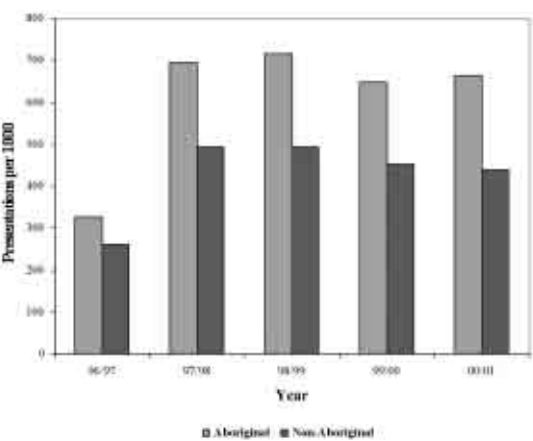


Figure 3: Presentations by age group and Aboriginality, 96/97–00/01.

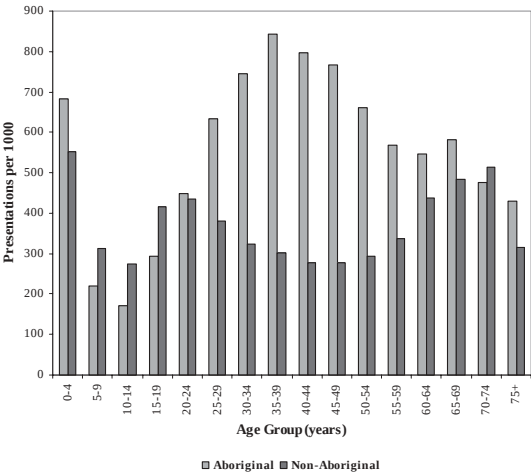


Figure 4: Triage category presentation rate by age group and Aboriginality, 97/98–00/01.

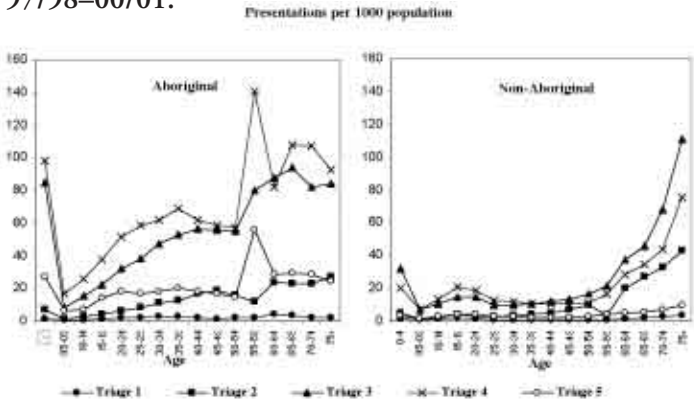


Figure 5: Re-attendance within 7 days by age group and Aboriginality, 97/98–00/01.

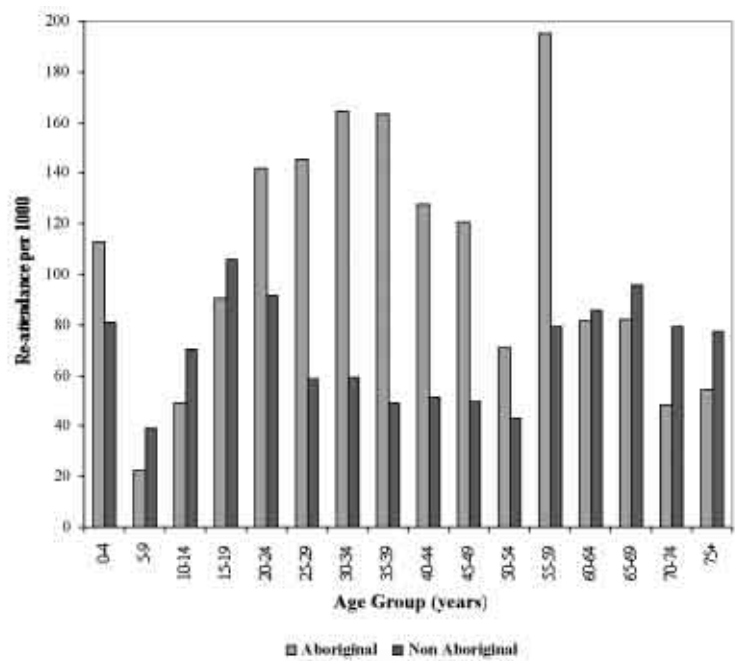


Figure 6: Top 10 presenting problems for re-attendance by hospitals, 96/97–00/01.

