# Health of Aboriginal and Torres Strait Islander children in remote Far North Queensland: findings of the Paediatric Outreach Service

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## ABSTRACT

**Aim:** To describe the pattern of disease and other health problems in children living in remote Far North Queensland (FNQ).

**Design, setting and participants:** Retrospective review of the FNQ Paediatric Outreach Service's Medical Director database for the period June 2001 to February 2006. Three subpopulations were compared: children from predominantly Aboriginal communities, predominantly Torres Strait Islander communities, and other communities. All children referred to the service during the study period were reviewed.

**Main outcome measures:** Number of children seen and common diagnoses.

**Results:** 3562 children were referred during the study period, and a total of 3932 diagnoses were made; 56% of the paediatric population of the Aboriginal communities and 23% of the paediatric population of Torres Strait Islander communities were seen. Of 40 separate diseases/health problems reviewed, the three most common reasons for presentation were chronic suppurative otitis media, suspected child abuse and neglect, and failure to thrive. In the paediatric population of Aboriginal communities, the prevalence of fetal alcohol spectrum disorder was at least 15/1000 (1.5%), and in Torres Strait Islander children, rheumatic heart disease prevalence was at least 6/1000 (0.6%). Rheumatic fever rates were among the highest in Australia.

**Conclusion:** Rates of preventable complex and chronic health problems in Aboriginal and Torres Strait Islander children in remote FNQ are alarmingly high. Areas requiring urgent public health intervention include alcohol-related conditions and rheumatic fever.


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The Far North Queensland (FNQ) Paediatric Outreach Service has been in place since 1994. Its establishment at Cairns Base Hospital reflected concern about the absence of specialist paediatric support for existing primary medical care in FNQ. Seventeen government-run community health clinics in the region are visited at varying intervals by the outreach team, consisting of a general practitioner specialising in paediatrics, a GP registrar and an occupational therapist. The outreach service receives referrals of children for specialist paediatric follow-up from all of these communities.

The area covered is about 269 224 km$^2$. According to Australian Bureau of Statistics census data for 2001,[1] Aboriginal and Torres Strait Islander (ATSI) people represent 14.5% of the region's total population. Over a third of the communities in the region have populations of less than 500.

Our study was the first review of data collected by the Paediatric Outreach Service.

## METHODS

Data collected by the outreach doctors over the period June 2001 to February 2006 were recorded in a database called "Medical Director". From the database we retrospectively established the number of children seen by the service over this period, their sex and average age. A subsequent search was performed to determine, for each of the 40 most common diagnoses, the number of children affected in each community. Multiple presentations with the same diagnosis by an individual child were considered a single diagnosis. Some children were recorded as having more than one diagnosis. Subsequently, data were pooled into three subpopulations:

- Communities in which Torres Strait Islanders were predominant ("Torres Strait Islander communities") ($n = 2$; these two communities are the referral points for all Torres Strait Islander communities, of which there are at least 10);
- Communities in which Aboriginal people were predominant ("Aboriginal communities") ($n = 10$); and
- Communities in which neither Aboriginal people nor Torres Strait Islanders were predominant ("non-ATSI predominant communities") ($n = 5$).

For each subpopulation, the frequency of each diagnosis was determined and the prevalence was calculated among children seen by the outreach service. Then, making an assumption that our service saw all cases of the diagnoses listed, we calculated the prevalence of each diagnosis for the total paediatric population of these communities, based on statistics from 2001 census data. No adjustment was made for changes in population size over the 4.5-year period of data collection.

Ethical approval was obtained from Cairns Base Hospital Ethics Committee.

## RESULTS

A total of 3562 children were seen, for one or more reasons, by the outreach service over the 4.5-year period. (There were no data available on how many individual consultations were made.) Eighteen per cent of children seen were from Torres Strait Islander communities, 44% from Aboriginal communities and 38% from non-ATSI predominant communities. Twenty-three per cent of all children from the Torres Strait Islander communities, 56% of all children from the Aboriginal communities, and 18% of all children from non-ATSI communities were seen.

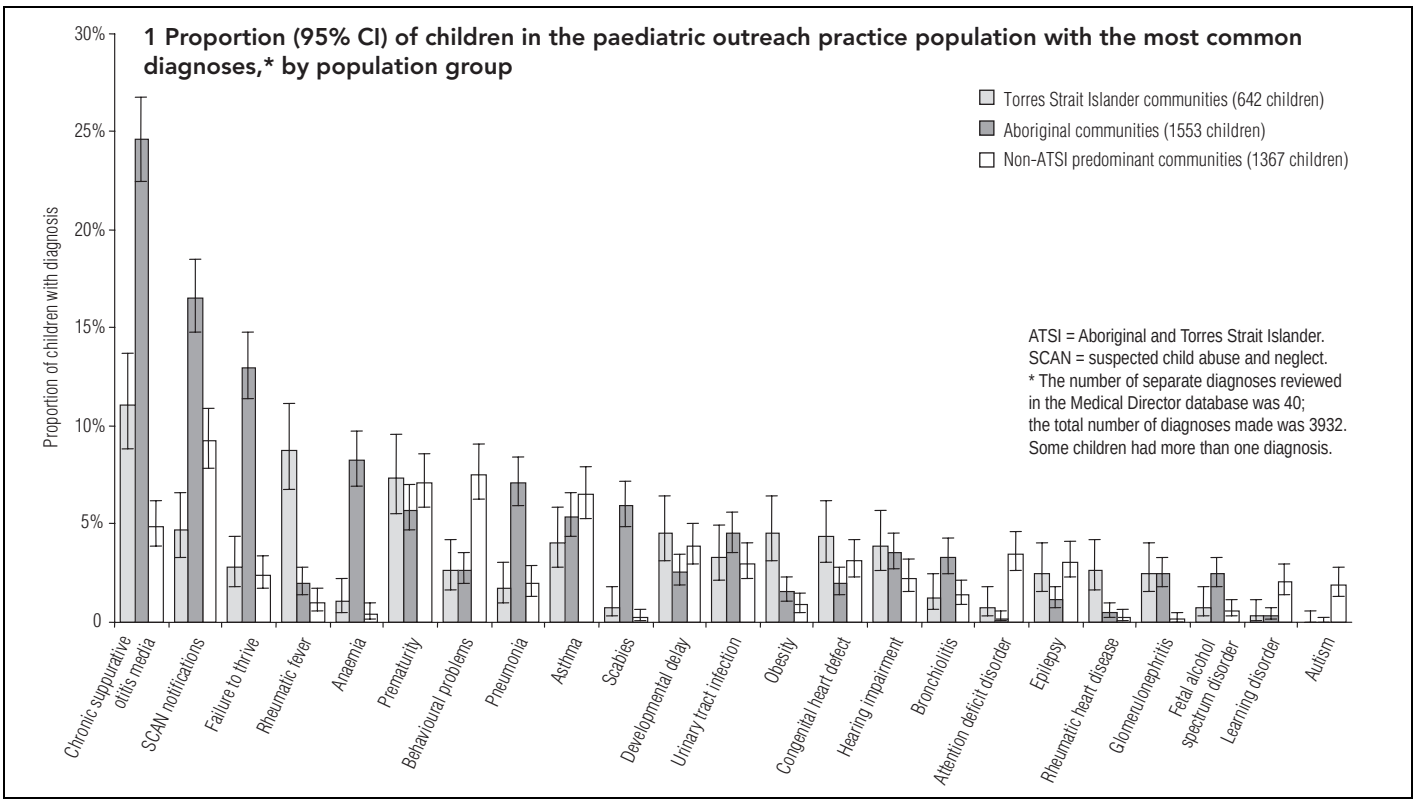
The age range was neonate to 18 years (mean, 7.6 years), and 45% were female. The total number of cases recorded for all 40 diagnoses was 3932.

The frequencies of the 23 most common diagnoses made in the paediatric outreach practice population are shown in Box 1.

The prevalences of 10 key diagnoses (distinguished by their high prevalence and significant health implications) in children of the Aboriginal and Torres Strait Islander communities are shown in Box 2. The estimated prevalences of these diagnoses in the total Aboriginal and Torres Strait Islander paediatric populations of the communities in the outreach area (based on 2001 census data, and assuming all cases in the communities were seen by the outreach service) are also shown.

## DISCUSSION

Our review of the Medical Director database provides a measure of the burden of complex




and chronic disease among ATSI children in remote FNQ. Chronic suppurative otitis media, suspected child abuse and neglect notifications, and failure to thrive were the three most common reasons for referral to the outreach service (Box 1). In comparison, for the state of Queensland overall, the leading causes of disease burden among children aged 5–14 years are asthma, attention deficit disorder and depression.[2] The prevalences of acute rheumatic fever, rheumatic heart disease and fetal alcohol spectrum disorder in the census paediatric population of these communities (Box 2) were as great or greater than the prevalences in other similar populations.[3,4] Mental illness was under-represented in our study population, as Queensland's Child and Youth Mental Health Service receives mental illness referrals directly. Behavioural problems were also under-represented. This may be related to the anecdotal low rate of school attendance in these communities and subsequent lack of referrals, but requires further investigation.

## Implications of our findings

The Paediatric Outreach Service was referred 56% of children from Aboriginal communities compared with 18% from non-ATSI predominant communities. This indicates a high burden of complex and chronic disease requiring specialist review among Aboriginal children. This burden has an impact on both service provision and community wellbeing.

The estimated prevalence of chronic suppurative otitis media in all Aboriginal children in the communities visited by the service in remote FNQ was 14.7%. A 1996 World Health Organization report stated that a prevalence of over 4% for this disease was considered a public health emergency.[5] Furthermore, the estimated prevalence of hearing impairment in this population was 2.0%, which has significant implications for the children's speech development and learning potential.[6] An estimated 12.8% of all children in the Aboriginal communities visited by the service were subjects of alleged abuse and neglect. In comparison, for Queensland as a whole in 2001 and 2002, 1.4% of ATSI children and 0.8% of non-ATSI children were subjects of substantiated abuse and neglect.[2] Although our data do not identify substantiation, this rate of referral is likely to reflect serious social problems in these communities.

Failure to thrive was estimated to occur in 7.8% of Aboriginal children in communities visited by the outreach service. This condition probably reflects a complex interaction of factors. Review of existing health education strategies and nutritional support initiatives is warranted.

Fetal alcohol spectrum disorder had an estimated prevalence of 1.5% in the Aboriginal paediatric population. In one of the Cape York communities in the outreach area, the prevalence was 3.6%. By comparison, the highest reported prevalence outside Australia is 0.5% in South Africa.[4] Fetal alcohol spectrum disorder causes lifelong disability due to intellectual impairment. In one study, no child with this condition who was followed into adulthood achieved age-appropriate socialisation or communication skills.[7] In addition to existing alcohol prohibition and health education, initiatives are required to reduce alcohol consumption by pregnant women in these communities.

From our data, the estimated prevalence of congenital heart disease was 1.2% in both Aboriginal and Torres Strait Islander paediatric communities. The prevalence of rheumatic heart disease in the Torres Strait Islander paediatric population was 0.6%, and prevalence of the disease among Aboriginal *adults* in the Northern Territory is even higher (1.0%).[3]

In communities covered by the outreach service, the incidence of rheumatic fever was 2.5 cases per 1000 children per year in Aboriginal communities and 4.5 cases per 1000 children per year in Torres Strait Islander communities. These figures are much higher than the incidence of 0.002 cases per 1000 population per year for Queensland as a whole (statewide prevalence for 2001–2005, 0.88/100 000),[8] but lower than rates in the NT,

**2 Prevalence (cases/1000) of 10 key conditions in the paediatric outreach practice population and in the total paediatric population of Indigenous communities in the region* (based on 2001 census data)[1]**

| | Outreach practice population | | Census population | |
|---|---|---|---|---|
| Diagnosis | Aboriginal children | Torres Strait Islander children | Aboriginal children | Torres Strait Islander children |
| Chronic suppurative otitis media | 246 | 111 | 147 | 29 |
| Suspected child abuse and neglect | 165 | 50 | 128 | 12 |
| Failure to thrive | 130 | 28 | 78 | 7 |
| Anaemia | 82 | 11 | 49 | 3 |
| Prematurity | 57 | 73 | 34 | 19 |
| Asthma | 54 | 40 | 32 | 10 |
| Hearing impairment | 35 | 39 | 20 | 9 |
| Fetal alcohol spectrum disorder | 24 | 8 | 15 | 2 |
| Congenital heart disease | 20 | 44 | 12 | 12 |
| Rheumatic heart disease | 5 | 26 | 2.8 | 6 |

* Figures on the left reflect disease prevalences in the cohort of children actually seen by the Paediatric Outreach Service in the Aboriginal and Torres Strait Islander communities. By extrapolating those figures to the entire Indigenous paediatric population of the region (based on 2001 census data), we calculated population prevalences for these diseases (right). ◆

which has the highest reported incidence of rheumatic fever in the world (2–6 cases per 1000 children per year).[3] Improvement of existing primary and secondary rheumatic fever prevention programs is necessary.

### Limitations of our study

As the principal role of the outreach service is specialist assessment of chronic or complex disease, primary medical care data would be a more accurate reflection of overall disease burden. As this service did not see all children or all cases of the diagnoses listed, prevalences of the key diagnoses in the paediatric census population are likely to underestimate the true prevalences. Furthermore, only basic data analysis could be carried out using the Medical Director database. For example, multiple presentations of a particular diagnosis for an individual child were recorded as a single diagnosis. Thus, the true prevalences of disease and other adverse conditions are likely to be even greater than those reported here. The lack of adjustment for population growth over the 4.5-year period must also be acknowledged.

Data had to be carefully reviewed to take into consideration errors in documentation of community of residence, omission of ATSI status, and inconsistency in usage of diagnostic terms. For example, there was negligible chronic lung disease recorded in the population studied. Given that the prevalence of chronic lung disease in Aboriginal children in central Australia is 1.5%, the possibility of recording errors or misdiagnosis needs to be considered.[9] Also, the high rate of suspected child abuse and neglect notifications in the non-ATSI predominant communities may partly reflect the presence of ATSI children living under adoption or in foster care with non-ATSI families. However, this cannot be confirmed due to poor recording of data on ATSI status in this population.

## CONCLUSION

Our audit identified disturbingly high rates of chronic suppurative otitis media, suspected child abuse and neglect, failure to thrive, fetal alcohol spectrum disorder, rheumatic fever and rheumatic heart disease among paediatric populations in remote FNQ Aboriginal and Torres Strait Islander communities compared with other paediatric populations.[2-5] These complex and chronic conditions are largely preventable, and our findings suggest deficiencies in existing primary health care activities in the region. Disease-specific preventive health initiatives as well as universal child health promotion activities in these communities need reassessment. Social and economic disparities as key contributors to these morbidities also need urgent attention. Furthermore, the data support the need for key specialist and allied health services, as part of an effective primary health care service, to manage these complex and chronic conditions.

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## COMPETING INTERESTS

None identified.

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