

Options Paper

Population Denominators for Primary Health Care Indicators

Introduction

Within the project to develop Primary Health Care Indicators there is a need for a robust and consistent population numbers to underpin most of the indicators. The requirement for population denominators is similar to that of a previous project on health zone populations that was undertaken by the Department of Health and Community Services (DHCS) and the Australian Bureau of Statistics (ABS) and presented to Forum members in 2004.¹ In that report the authors used eleven criteria to assess the suitability of various population datasets for use as a population denominator for Northern Territory health service outlets. Examples of these criteria were:

- applicability of the data to a range of areas
- an appropriate geographic level of the data
- the data should be updated regularly
- the data should cover all health services
- that the dataset should contain basic person characteristics including age, sex and Indigenous status

The authors assessed 20 different population datasets, and found that all datasets had significant limitations. The recommendation of the report was that in the absence of a consistent and Territory wide, electronic health service data system, the most appropriate dataset to use for service population denominators was the ABS Estimated Resident Population. These population estimates were available at a Collection District level, and with the assistance of representatives from AMSANT, the project team mapped 623 populated locations within 481 NT Collection Districts to the 21 health zones.

A separate consideration for a service population is the impact of population mobility. Researchers in Central Australia have reported high levels of mobility, and one article reported a 35% turnover of a community population within a 12 month period.² Separately ABS estimates that 51% of the NT Indigenous population changed their place of residence between the 1996 and 2001 censuses.³ The impact of population mobility within health zones was assessed within the DHCS/ABS project, and contrary to the reported high levels of community mobility, reported an overall annual movement of only 8.3% for the Indigenous population. The basis for the difference between community and health zone mobility is that most movement occurs between communities located within appropriately designed health zones.

¹ Zhao Y et al. Population estimates for Indigenous health zones in the Northern Territory. Department of Health and Community Service, Northern Territory 2004 (unpublished)

² Warchivker I, Tjanpangati T and Wakerman J. The turmoil of Aboriginal enumeration: mobility and service population analysis in a Central Australian community. ANZPH, 2000 24:4;444-9.

³ Australian Bureau of Statistics 2003. Population Growth and Distribution, 2001 (Catalogue No. 2035.0)

Options for Health Centre Population Estimates

Using the experience of the DHCS/ABS project, four options are proposed as a source of health centre service populations.

(1) Health Centre/Community reported residence.

All health centres have a record of who is being treated in the health centre, and more generally the community council maintain records of the estimated population. Either of these local sources might be considered as a basis for a service population. The disadvantage of both of these sources is that a significant proportion of the population will be counted more than once. For example it is common for families to move between communities and to use several health services. While population mobility creates real demand on several health services, the population based on reported residence does not reflect a discrete population for which the individual health service has primary responsibility.

The option has other disadvantages. One is that there may be a significant proportion of the population who do not use health services and this group may be overlooked. Across more than 80 health services there may also be variation in the reliability of locally reported populations counts.

(2) Population register

(a) This option relies on local reporting of the resident population against a central register. This type of register was maintained by DHCS in Central Australia for a number of years, and required local health staff to respond to regular updates on the current residence of an identified population list. This register has the benefit of regular updating the local service population, including basic demographic information. The downside of the system is that it requires a central resource to maintain the population list, and places a regular demand on health staff. A second limitation is that the register is compromised by movement to and from communities that are not participating in the register. The reliability of the register increases with the number of participating health services.

(b) A variation of the central population register is to draw population information out of clinical service data. This requires a computer data system for all health centres and clients recorded with unique identifiers. This type of system already exists in some services but is far from universal.

(3) Estimation from Census

(a) The DHCS/ABS health zone population project could be repeated to estimate the resident population on a health centre basis. In this option the 481 collection districts would be mapped to approximately 80 health services. The advantage of this method is that it provides a consistent approach across the NT. There are however significant shortcomings. The method relies on 2001 census data, which is now five years out of date and will not be updated until the results of the 2006 Census are available in 2007 and 2008. The age of the population data compounds the impact of the high level of mobility.

(b) A statistical variation to the use of a Estimated Resident Population is to calculate a service population either using an agreed service multiplier or by including collection districts within overlapping catchments for two or more health centres. In the first method a health centre would be designated a service population multiplier, for example 1.5, which would be used as a multiplier of the resident population. The multiplier could be designated on the basis

of estimated population mobility. In the second method all collection districts within a prescribed distance of the health centre would be included in the service population, provided a significant proportion of the Collection District population fell within that agreed distance.

(4) Estimate health zone populations

In this option population of health zones would be used as the basis of health indicators. This assumes a collective responsibility for primary health care by all of the health centres within the respective health zones. This method fails to provide a population estimate for a single service outlet, but does provide a more realistic method that acknowledges the shared responsibility between health service outlets for a common service population.

RECOMMENDATION

All the options have advantages and disadvantages, and no firm recommendation is provided. In the long term it is expected that a linked electronic data system (Option 2b) will provide both improved patient care and accurate service population information, however this option is not currently available.

Option 1 will suit some services, particularly those with an existing electronic data system. However the option will provide inconsistent counts between service outlets with varying reliability. At the same time the method may overlook a significant proportion of the population.

The most robust estimates will come from Options 3 and 4. These options have methods that are both transparent and consistent across the NT. Option 3 will provide population estimates for local health services, however mobility is significant challenge and Option 4 while not based on individual service outlets is a more accurate reflection of the nature of health service provision in the Northern Territory.

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