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## Indigenous identification in administrative data collections and the implications for reporting Indigenous health status

*Bryan Kennedy, Stuart Howell, Clinton Breckell*  
*Health Statistics Centre, Queensland Health*

Indigenous status is believed to be under-reported in many routine statistical collections. There are also significant inconsistencies in Indigenous status identification within and across data collections, which introduce the risk of numerator/denominator bias in studies that compile statistical information from multiple data sources or from the same data source at different time periods.

In order to improve the coverage and reporting of Indigenous status, it has been proposed that Indigenous status should be transcribed from one record or source to another. In particular, where an individual has been identified as Indigenous on one record or collection, Indigenous status should be transcribed to all other records for that individual (the “Ever” Indigenous identified approach).

In this report, we examine the consistency of recording Indigenous status in the Queensland Hospital Admitted Patient Data Collection (QHAPDC) and evaluate the impact of using an “Ever” Indigenous identified approach compared with the current practice of using Indigenous status as recorded for each record. Data were extracted from the Queensland Health Public Hospital Client Directory Project which provides the ability to link records for an individual client across time and facility. Not all public hospitals’ data are included in the Client Directory with the Mater Hospitals and 25 small hospitals excluded from the dataset. In total about 94% of the total episodes of care for Queensland Public Hospitals are covered by the Client Directory.

### How volatile was Indigenous identification in the QHAPDC?

Data were extracted for 97,500 individuals who had identified as Indigenous on at least one formal admission for an acute episode of care at a Queensland public hospital between July 1, 1995 and June 30, 2007. Of those individuals, 63,418 had two or more formal admissions to hospital over the 12 year period.

Of those that had two or more admissions there was considerable movement across Indigenous status categories as follows:

1. 52,451 individuals identified as Aboriginal on one or more occasions. Of these:
  - 1,780 (3.4%) were recorded as Torres Strait Islander on at least one occasion
  - 1,857 (3.5%) were recorded as both Aboriginal & Torres Strait Islander on at least one occasion
  - 14,911 (28.4%) were recorded as non-Indigenous on at least one occasion
  - 3,087 (5.9%) were recorded as not stated on at least one occasion
2. 11,067 individuals identified as Torres Strait Islander on one or more occasions. Of these:
  - 1,780 (16.1%) were recorded as Aboriginal on at least one occasion
  - 760 (6.9%) were recorded as both Aboriginal and Torres Strait Islander on at least one occasion
  - 2,676 (24.2%) were recorded as non-Indigenous on at least one occasion
  - 658 (5.9%) were recorded as not stated on at least one occasion

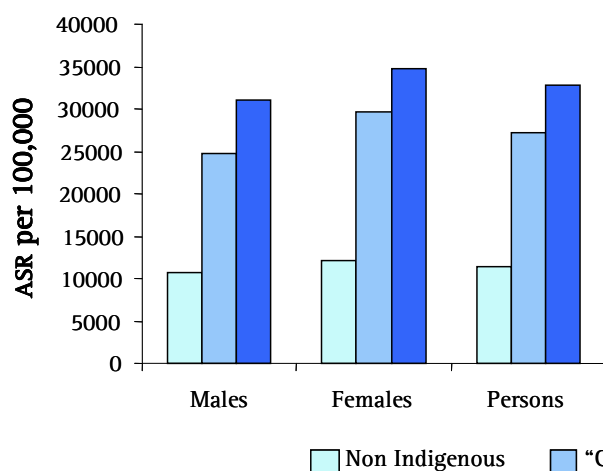
3. 4,125 individuals identified as both Aboriginal and Torres Strait Islander on one or more occasions. Of these:
  - 1,857 (45.0%) were recorded as Aboriginal on at least one occasion
  - 760 (18.4%) were recorded as Torres Strait Islander on at least one occasion
  - 1,190 (28.9%) were recorded as non-Indigenous on at least one occasion
  - 250 (6.1%) were recorded as not stated on at least one occasion

**What was the impact of using an “Ever” Indigenous identified approach compared with using the Indigenous status as recorded on the hospital record?**

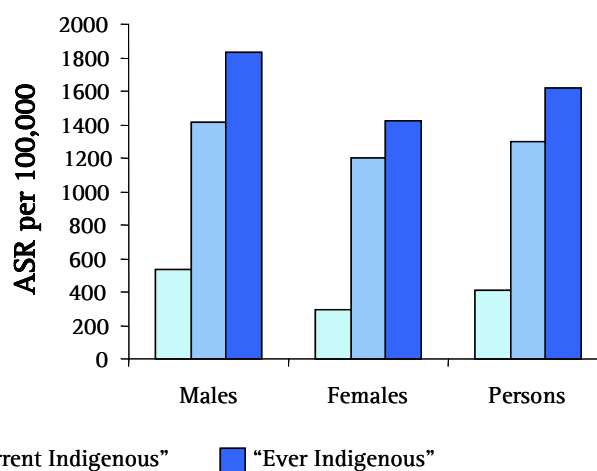
Hospital separation rates were analysed over two financial years (2005/2006, 2006/2007) to assess the impact of classification on Indigenous morbidity estimates. Age standardised rates were used to compare separation rates among individuals who had “Ever” identified as Indigenous (as described above) to those who had identified as Indigenous on the current admission (“Current”) (Figures 1 & 2). Two disease categories were evaluated – all-cause admissions (excluding Z-code admissions) and admissions for coronary heart disease (ICD-10-AM: I20-I25).

**Figures 1 & 2 Age standardised rates (ASR) by method of ascertaining Indigenous status, Queensland Public Hospitals (2005/06 to 2006/07)**

**Figure 1. All Cause Admissions**



**Figure 2. Coronary heart disease admissions**



Identification of Indigenous populations using an “Ever” versus “Current” classification inflated age standardised hospital separation rates by:

1. 21% for all-cause admissions (Figure 1): 25% among males and 17% among females
2. 24% for coronary heart disease (Figure 2): 30% among males and 19% among females

While both methods resulted in much higher rates of hospitalisation for the Indigenous population compared with the non-Indigenous population, there were significant differences depending on which method was used.

However, this conclusion only applies to the two outcomes evaluated. Different findings may emerge for health indicators where the difference between Indigenous and non-Indigenous persons are less pronounced.

In comparison, an audit of selected Queensland public hospitals conducted as part of a national study conducted by the Australian Institute of Health and Welfare (AIHW) in 2007 estimated that the coverage of Indigenous identification was about 89%. Based on these survey results, one would expect a maximum of an 11% increase in separation rates to achieve 100% coverage. A 21% increase in all cause admissions using the “Ever” identified over the “Current” (that is unadjusted for undercount) results in an estimated public hospital coverage of Indigenous identification of 110% (Figure 3).

While there were significantly higher rates for the “Ever” identified group, in some circumstances this may be reversed. For example, where the denominator is drawn from within a collection such as the proportion of patients discharging against medical advice, it is likely that Indigenous rates would be significantly lower, as the extra population at risk added using an “Ever” identified method may have different characteristics from the currently identified Indigenous population. This was also found to be the case in a recent analysis of birthing outcomes where adding in Indigenous babies born with non-Indigenous mothers (presumably with an Indigenous father), with babies born to Indigenous mothers statistically improved levels of low birthweight and low gestational age (Technical Report number 2 Health Statistics Centre, March 2009 ).

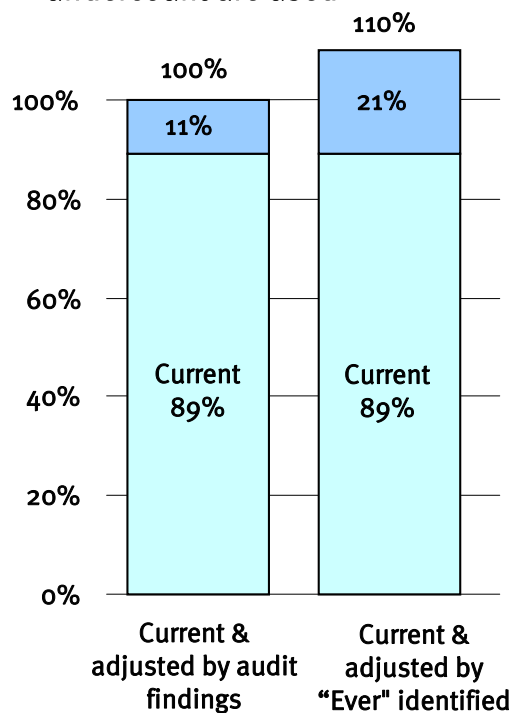
These findings indicate that if “Ever” identified is used to describe numerator data, then discordance with the denominator (i.e.: numerator-denominator bias) is inevitable and over-enumeration may occur. A “Current” identification may not necessarily resolve numerator-denominator bias when both are drawn from different data sources, but will minimise discordance when the numerator and denominator are drawn from the same source. It is recognised however, there will always be some under-enumeration if the “Current” identification method is used.

To calculate accurate rates that can be used to monitor changes over time, there is a need for the numerator and denominator to be collected using similar methods at a similar point in time. By using an “Ever Indigenous” identification method there are three significant risks which can potentially produce more bias than the effect of current under- identification of Indigenous status in administrative collections.

Firstly, persons who are wrongly identified once as Indigenous will continue to be identified as Indigenous even if the error is corrected at future health service contacts. This may significantly inflate the numerator and consequently the rates. At least if identification is taken from the current record only, a correction at subsequent health contacts will be more likely to accurately identify the person’s Indigenous status.

Secondly, there is significant and variable unexplained growth in Indigenous populations in Census data which is primarily due to people changing their Indigenous status. Indigenous estimated resident populations are derived from these Census data. By using “Ever” identified in the numerator, there will inevitably be discordance between the numerator and denominator leading to a spurious rate calculation.

Figure 3. Estimated adjustment if audit or “Ever” adjustments to undercount are used



Thirdly, Indigenous status is not just based on an individual's ancestry. The three components of the Commonwealth definition for identifying an Aboriginal or Torres Strait Islander person are:

- Aboriginal or Torres Strait Islander descent, and
- self-identification as an Aboriginal or Torres Strait Islander person, and
- acceptance of the person as an Aboriginal or Torres Strait Islander by the community in which he or she lives (ABS Cat no.3238.0.55.001 - Experimental Estimates of Aboriginal and Torres Strait Islander Australians, June 2006 ).

In a practical sense, the ascertainment of Indigenous status for health service contacts relies on the individual's response to being asked the question "Are you of Aboriginal or Torres Strait Islander origin", and in reality is based on the second component only. The first and third components can not be readily ascertained, especially at the point of contact with a health service.

While the first component is in theory ascribed at birth for life by a person's ancestry, the second two components are in essence social constructs that may well change over an individual's lifetime. In the case of the ABS Population and Housing Census (the basis for population estimates used as a denominator in much comparative analysis), the individual has the opportunity to reaffirm or change their Indigenous status every five years. The "Ever" identified approach however, does not allow the opportunity for the individual to reaffirm or change their Indigenous status. This will inevitably lead to discordance between the numerator and denominator and potentially spurious measurement.

The analysis clearly demonstrates there will always be a large variation in how an individual is identified as Indigenous and in what circumstances. While it is recognised there is a need for substantial improvement in Indigenous identification practices during service contact, there also needs to be an understanding that an individual may legitimately change their Indigenous status over time.

We recommend use of the identifier as recorded at each data point, but that data collection practices be improved to ensure that individuals are given the opportunity to identify at each data collection point and to ensure standardisation across different data sources and across time.