

# **Improving the quality of Indigenous identification in hospital separations data**

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HEALTH SERVICES SERIES

Number 25

# **Improving the quality of Indigenous identification in hospital separations data**

**2005**

Australian Institute of Health and Welfare  
Canberra

AIHW cat. no. HSE 101

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ISSN 1036-613X

ISBN 1 74024 516 4

### **Suggested citation**

Australian Institute of Health and Welfare 2005. Improving the quality of Indigenous identification in hospital separations data. AIHW cat. no. HSE 101. Canberra: AIHW (Health Services Series no. 25).

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Published by Australian Institute of Health and Welfare

Printed by Pirion Pty Ltd

# Foreword

This report is intended to provide a platform for improvement in the quality of Indigenous identification in admitted patient data prepared in hospitals throughout Australia. It also clarifies appropriate analysis methods for hospital separations data on Indigenous status given current inadequacies of the data.

In view of the health disadvantage of Indigenous Australians relative to other Australians and the need for accurate statistical information about the health status of Indigenous Australians, the quality of Indigenous identification in hospital admitted patient statistics has been a matter of longstanding concern for the users of those statistics and for the organisations responsible for collection of the statistics. The correct identification of the Indigenous status of patients is essential for the use of hospital separations data in planning and monitoring services specifically directed towards Indigenous patients and for the effective delivery of those services.

The report outlines the processes and policies in each state and territory for ascertaining the Indigenous status of admitting patients, and it provides an account of the extent and characteristics of the under-identification of Indigenous patients based on assessments of Indigenous status data quality including an AIHW analysis of national hospital separations data.

Drawing on that material, the report presents wide-ranging recommendations for improving ascertainment of the Indigenous status of admitted patients. It also provides a set of guidelines to support consistent and appropriate analysis of Indigenous status information in hospital separations data within the data quality constraints that exist at this time.

The recommendations and guidelines will provide a sound basis for state and territory health authorities, the AIHW and other parties to work towards improved Indigenous status information in hospital separations data and better analysis of that information, and I look forward to these developments. Some improvements have been achieved to date, but substantially more is necessary, as the report shows.

Richard Madden

Director

December 2005

# Contents

Foreword .....	v
List of tables .....	viii
List of figures .....	xi
Acknowledgments .....	xii
Abbreviations and symbols .....	xiii
Summary .....	xiv
<b>1 Introduction.....</b>	<b>1</b>
1.1 Background .....	1
1.2 This report .....	3
<b>2 Assessments of the quality of Indigenous identification in hospital separations data .....</b>	<b>4</b>
2.1 Formal studies of the quality of Indigenous identification.....	4
2.2 Current health authority and AIHW assessments of the quality of Indigenous identification .....	16
2.3 The causes of poor Indigenous identification .....	20
<b>3 Current arrangements for ascertaining Indigenous status.....</b>	<b>22</b>
3.1 Arrangements at public hospitals .....	22
3.2 Arrangements at private hospitals .....	26
3.3 Initiatives to improve data quality .....	28
<b>4 Analysis of Indigenous status information in national hospital separations data .....</b>	<b>33</b>
4.1 Overview .....	34
4.2 Separations for which Indigenous status was not reported .....	38
4.3 The Indigenous subcategories .....	50
<b>5 Data analysis guidelines .....</b>	<b>61</b>
5.1 Summary of the guidelines .....	62
5.2 Use of factors to adjust for under-identification of separations for Indigenous patients.....	64
5.3 Treatment of separations for which Indigenous status is unreported .....	68

5.4 Use of state and territory data .....	74
5.5 Use of private hospital data .....	79
5.6 Use of data for the Indigenous subcategories .....	80
5.7 Regional analysis of hospital separations data .....	83
5.8 Use of age standardisation and population data .....	84
<b>6 Recommendations for improving Indigenous identification in hospital separations data .....</b>	<b>88</b>
<b>Appendix A: Detailed tables .....</b>	<b>92</b>
<b>Appendix B: Survey of Indigenous identification in hospital separations data ...</b>	<b>118</b>
<b>References .....</b>	<b>134</b>

# List of tables

Table 1:	Studies using face-to-face interviews to assess the accuracy of information on Indigenous status in hospital records.....	5
Table 2:	Number of patients interviewed, by Indigenous status obtained at admission and Indigenous status obtained via interview, 1997 Northern Territory study .....	6
Table 3:	Number of patients interviewed, by Indigenous status obtained at admission and Indigenous status obtained via interview, 1998 ATSIHWIU study .....	7
Table 4:	Number of patients interviewed, by Indigenous status obtained at admission and Indigenous status obtained via interview, 2000 Western Australian study .....	9
Table 5:	Number of patients interviewed, by Indigenous status obtained at admission and Indigenous status obtained via interview, 2000 Queensland study .....	10
Table 6:	Assessment of Indigenous status data quality in New South Wales conducted in 2002 by the Australian Bureau of Statistics and based on survey data .....	13
Table 7:	Under-identification factors the AIHW used for estimating hospital expenditure on Indigenous admitted patients, 1998–99 and 2001–02.....	20
Table 8:	Hospital separations, by Indigenous status, hospital sector and jurisdiction, 2003–04 .....	34
Table 9:	Hospital separation rates, for people reported as Indigenous and people not reported as Indigenous, and the ratio of these rates, by jurisdiction, 2003–04 .....	36
Table 10:	Ratio of the separation rates for people identified as Indigenous and people not identified as Indigenous, by jurisdiction, 1996–97 to 2003–04 .....	37
Table 11:	Ratio of the overnight separation rates for people identified as Indigenous and people not identified as Indigenous, by jurisdiction, 1996–97 to 2003–04 .....	37
Table 12:	Hospital separations, by Indigenous status, hospital sector and jurisdiction, 2003–04 .....	39
Table 13:	Proportion of separations that had Indigenous status not reported, by hospital sector and jurisdiction, 1996–97 to 2003–04 .....	40
Table 14:	Hospital separations, by Indigenous subcategory, hospital sector and jurisdiction, 2003–04.....	52



Table 15:	Hospital separations, by Indigenous subcategory and jurisdiction, 1997-98 to 2003-04 .....	53
Table 16:	Ratio of the separation rates for people identified as Indigenous and people not identified as Indigenous, by Indigenous subcategory and jurisdiction, 2003-04 .....	54
Table 17:	Separations, separation rates and rate ratios derived under various treatments of separations for which Indigenous status was not reported, Australia, 2003-04.....	70
Table A1:	Separations, by patient's Indigenous status, patient's sex and hospital sector, Australia, 2003-04 .....	93
Table A2:	Separations, by patient's Indigenous status, patient's age group and hospital sector, Australia, 2003-04.....	94
Table A3:	Separations for patients aged less than 1 year at admission, by patient's Indigenous status, patient's age at admission and hospital sector, Australia, 2003-04.....	96
Table A4:	Separations for newborn patients that had unqualified days only, by patient's Indigenous status, patient's age at admission and hospital sector, Australia, 2003-04.....	97
Table A5:	Separations, by patient's Indigenous status, patient election status and hospital sector, Australia, 2003-04.....	98
Table A6:	Separations, by patient's Indigenous status, patient's overseas or Australian birthplace and hospital sector, Australia, 2003-04 .....	99
Table A7:	Separations, by patient's Indigenous status, remoteness of patient's usual residence and hospital sector, Australia, 2003-04 .....	100
Table A8:	Separations, by patient's Indigenous status, hospital remoteness and hospital sector, Australia, 2003-04.....	101
Table A9:	Separations, by patient's Indigenous status, length of hospital stay and hospital sector, Australia, 2003-04.....	102
Table A10:	Separations, by patient's Indigenous status, urgency of admission and hospital sector, Australia, 2003-04.....	103
Table A11:	Separations, by patient's Indigenous status, principal diagnosis and hospital sector, Australia, 2003-04.....	104
Table A12:	Procedure statistics, by patient's Indigenous status and hospital sector, Australia, 2003-04.....	106
Table A13:	Separations, by patient's Indigenous subcategory, patient's sex and hospital sector, Australia, 2003-04.....	108
Table A14:	Separations, by patient's Indigenous subcategory, patient's age group and hospital sector, Australia, 2003-04.....	109

Table A15: Separations, by patient's Indigenous subcategory, patient election status and hospital sector, Australia 2003-04 .....	111
Table A16: Separations, by patient's Indigenous subcategory, patient's Australian or overseas birthplace and hospital sector, Australia, 2003-04.....	112
Table A17: Separations, by patient's Indigenous subcategory, remoteness of patient's usual residence and hospital sector, Australia, 2003-04 .....	113
Table A18: Separations, by patient's Indigenous subcategory, patient's birthplace country group and hospital sector, Australia, 2003-04 .....	114
Table A19: Separations for Indigenous people for whom an overseas birthplace was reported, by Indigenous subcategory and hospital sector, states and territories, 2003-04 .....	115
Table A20: Estimated resident population, by Indigenous subcategory, states and territories, 30 June 2001 .....	116
Table A21: Estimated total Indigenous population, by remoteness area of residence, Australia, 30 June 2001 .....	117

# List of figures

Figure 1: Public sector separations, by patient's Indigenous status and age, Australia, 2003-04.....	45
Figure 2: Private sector separations, by patient's Indigenous status and age, Australia, 2003-04.....	45
Figure 3: Public sector separations, by patient's Indigenous status and remoteness of patient's usual residence, Australia, 2003-04 .....	46
Figure 4: Private sector separations, by patient's Indigenous status and remoteness of patient's usual residence, Australia, 2003-04 .....	46
Figure 5: Public sector separations, by patient's Indigenous status and remoteness of hospital, Australia, 2003-04.....	47
Figure 6: Private sector separations, by patient's Indigenous status and remoteness of hospital, Australia, 2003-04.....	47
Figure 7: Public sector separations, by patient's Indigenous status and length of hospital stay, Australia, 2003-04 .....	48
Figure 8: Private sector separations, by patient's Indigenous status and length of hospital stay, Australia, 2003-04 .....	48
Figure 9: Public sector separations, by patient's Indigenous status and urgency of admission, Australia, 2003-04 .....	49
Figure 10: Private sector separations, by patient's Indigenous status and urgency of admission, Australia, 2003-04 .....	49
Figure 11: Public sector separations, by patient's Indigenous subcategory and age, Australia, 2003-04 .....	56
Figure 12: Private sector separations, by patient's Indigenous subcategory and age, Australia, 2003-04 .....	57
Figure 13: Public sector separations, by patient's Indigenous subcategory and remoteness of the patient's usual residence, Australia, 2003-04.....	58
Figure 14: Private sector separations, by patient's Indigenous subcategory and remoteness of the patient's usual residence, Australia, 2003-04.....	58

# Acknowledgments

The Australian Institute of Health and Welfare acknowledges the funding for this project provided by the Australian Health Ministers' Advisory Council.

The project relied on detailed accounts of practices and policies for the collection, monitoring and analysis of Indigenous status information about admitted patients in hospitals, as provided by the health authority of each state and territory. The AIHW thanks these organisations for this input and for a range of other valuable advice they provided.

Guidance about the direction of the project and about the content of this report was provided by the National Advisory Group on Aboriginal and Torres Strait Islander Health Information and Data, the AIHW's Australian Hospital Statistics Advisory Committee, and the Statistical Information Management Committee of the Australian Health Ministers' Advisory Council's National Health Information Group.

Within the AIHW, the report was prepared by Jim Wylie, based on some initial work done by the Australian Bureau of Statistics and Graeme Vaughan, under the direction and guidance of Jenny Hargreaves. Christina Barry provided major input into the tables, charts and rate calculations for the report. Alannah Smith provided technical assistance. Fadwa Al-yaman and Ken Tallis provided valuable advice on the data analysis guidelines.

The contribution made by Ainsley Morrissey and Cecilia Burke of the Institute's Information Services and Publishing Unit is also gratefully acknowledged.

# Abbreviations and symbols

ABS	Australian Bureau of Statistics
ACT	Australian Capital Territory
AHMAC	Australian Health Ministers' Advisory Council
AHSAC	Australian Hospital Statistics Advisory Committee
AIHW	Australian Institute of Health and Welfare
ATSI	Aboriginal and/or Torres Strait Islander
ATSIHWIU	Aboriginal and Torres Strait Islander Health and Welfare Information Unit
KHLO	Koori Hospital Liaison Officer
NAGATSIHID	National Advisory Group for Aboriginal and Torres Strait Islander Health Information and Data
NATSI	National Aboriginal and Torres Strait Islander Survey
NHDD	<i>National Health Data Dictionary</i>
NHS	National Health Survey
n.a.	not available
n.e.c.	not elsewhere classified
n.p.	not published
NSW	New South Wales
NT	Northern Territory
Qld	Queensland
SA	South Australia
Tas	Tasmania
Vic	Victoria
WA	Western Australia
..	not applicable

# Summary

This report presents the outcomes of a project funded by the Australian Health Ministers' Advisory Council and directed at establishing a basis for improving Indigenous identification in hospital separations data. It provides:

- an account of current and past assessments of the quality of Indigenous status data
- an account of jurisdictions' policies and processes for Indigenous identification
- the findings of an analysis of Indigenous identification in national separations data
- a set of guidelines to support the analysis of information on Indigenous status
- recommendations for improving Indigenous status information in hospital separations data.

## **Assessments of the quality of Indigenous identification in hospital separations data**

In studies based on patient interviews, the proportions of Indigenous patients found to have been correctly identified in hospital records were:

- 93% overall for the five Northern Territory public hospitals in 1997
- 85% overall for 11 public hospitals in five jurisdictions in 1998
- 86% overall for 26 public hospitals in Western Australia in 2000
- 74% overall for two metropolitan public hospitals in Queensland in 2000.

There are two other recent findings of use:

- A study of linked multiple patient episodes for Indigenous people in New South Wales in 1997–98 found that Indigenous status had been incorrectly specified for 12% of episodes.
- An estimate of separations for Indigenous people in Victoria in 2001–02, based on information from Indigenous hospital liaison officers and population-based adjustment to hospital counts, suggested a net 22% undercount for the state.

Jurisdictions' assessments of Indigenous identification in their 2003–04 data are:

- reliable for the Northern Territory public sector but underestimated for the Northern Territory private sector
- acceptable for the public sector and the private sector in Western Australia
- acceptable for the public sector in South Australia but not acceptable for the state's private sector
- underestimated for New South Wales, Victoria and Queensland
- substantially underestimated for the Australian Capital Territory and Tasmania.

Factors were used to adjust for the under-identification of separations for Indigenous patients in the AIHW's report on health expenditure for Indigenous people for 2001–02. The factors are New South Wales, 30%; Victoria, 25%; Queensland, 20%; Western Australia, 6%; and the Australian Capital Territory, 30%.

## **Current arrangements for ascertaining Indigenous status**

### **Public hospitals**

The standard question and categories developed by the Australian Bureau of Statistics for Indigenous status are presented to patients at all or most public hospitals in most jurisdictions.

With the exception of Victoria and Western Australia, where unreported Indigenous status is not accommodated in data systems, all jurisdictions record Indigenous status using the classification set out in the *National Health Data Dictionary*. Only Tasmania and the Northern Territory have a policy for follow-up of patients for whom Indigenous status is unreported, but it is not known to what extent the policy is adhered to in Tasmania. The implications for Indigenous identification are as follows:

- In Victoria and Western Australia some Indigenous patients will be misidentified as non-Indigenous.
- In New South Wales, Queensland, South Australia, the Australian Capital Territory and possibly Tasmania the fact that there is no follow-up could mean Indigenous patients are under-identified.

In Victoria, Queensland, the Australian Capital Territory and the Northern Territory Indigenous liaison officers work to improve ascertainment of Indigenous status at public hospitals by identification of Indigenous patients based on personal knowledge, training hospital staff in the identification of Indigenous patients, enhancing relationships between the hospital and the Indigenous community and creating a hospital environment attuned to the needs of Indigenous patients.

Among the processes and policies in operation in some jurisdictions to encourage or require public hospitals to record Indigenous status in a standard manner are service agreements, financial incentives, the provision of feedback or analysis of data, and the provision of procedural documentation.

### **Private hospitals**

Use of the standard Indigenous status question and classification is not universal in private hospitals. No policies were indicated for the follow-up of patients whose Indigenous status is not reported at admission. Indigenous hospital liaison officers are not employed. Few policies and processes are in operation to encourage or require private hospitals to record Indigenous status in a standard manner.

## **Analysis of Indigenous status information in national separations data**

### **Reporting of Indigenous status**

Relatively poor arrangements for ascertaining Indigenous status at private hospitals were confirmed in the analysis of national separations data. Excluding data for Victoria and Western Australia and for a public hospital in the Australian Capital Territory, where unreported Indigenous status was not accommodated in data systems at that time, Indigenous status was not reported in 2003–04 for 12.4% of separations in the private sector compared with 1.5% of separations in the public sector. The private sector contributed 84% of all separations for which Indigenous status was not reported.

Since 1996–97 non-reporting of Indigenous status has been as follows in jurisdictions other than Victoria and Western Australia:

- New South Wales – about 0.5–0.7% of separations at public hospitals and about 0.1% of separations at private hospitals
- Queensland – a steady decrease for public hospitals, to under 2% in 2003–04, and a decrease for private hospitals, to about 24% in 2003–04
- South Australia – about 2–3% for public hospitals and a steady decrease for private hospitals, to 1.4% in 2003–04
- Tasmania – about 6–7% since 1999–00 for public hospitals and erratic levels of between 56% and 67% since 2000–01 for private hospitals
- Australian Capital Territory – about 1–3% for public hospitals and erratic levels of up to 6% for private hospitals
- Northern Territory – 100% for private hospitals and a steady decrease to less than 0.1% for public hospitals.

Since 1996–97 Indigenous to not Indigenous overnight separation rate ratios have been relatively high for Western Australia, South Australia and the Northern Territory, moderately high for Queensland and the Australian Capital Territory (increasingly so for Queensland), relatively low and not increasing for New South Wales and Victoria, and very low but possibly increasing for Tasmania. Although rate ratios are not necessarily comparable between jurisdictions, relatively higher or increasing rate ratios are considered to be indicative of higher data quality.

### **Characteristics of separations for which Indigenous status is not reported**

For both the public and the private sectors, the ‘Not stated/inadequately described’ category of Indigenous status had greater similarity with the non-Indigenous category than with the Indigenous category across a wide range of patient characteristics.

### **The Indigenous subcategories**

In 2003–04 a total of 200,746 separations were reported for patients of Aboriginal but not Torres Strait Islander origin, 9,748 separations were reported for patients of



Torres Strait Islander but not Aboriginal origin, and 5,653 separations were reported for patients of both Aboriginal and Torres Strait Islander origin.

Examination of national hospital morbidity data indicates consistent interpretation of the Indigenous subcategories and improved ascertainment of Indigenous status for each subcategory in most jurisdictions. Nevertheless, the subcategory 'Aboriginal but not Torres Strait Islander origin' appears to be substantially under-identified in New South Wales and Victoria and very substantially under-identified in Tasmania; the subcategory 'Torres Strait Islander but not Aboriginal origin' appears to be substantially under-identified in all jurisdictions other than Queensland; and the subcategory 'Both Aboriginal and Torres Strait Islander origin' appears to be under-identified in most jurisdictions, notwithstanding the apparent inclusion of some non-Indigenous patients in various jurisdictions.

## **Data analysis guidelines**

### **Use of factors to adjust for under-identification of separations for Indigenous patients**

1. In the absence of an up-to-date and robust set of factors based on a uniform methodology for all jurisdictions, factors should not be used to adjust for under-identification in the analysis of Indigenous status information in hospital separations data.
2. Use of under-identification factors as currently available is, however, acceptable for analyses for which adjustment is a necessary component – for example, in the estimation of health expenditures for Indigenous people.

### **Treatment of separations for which Indigenous status is unreported**

3. The 'Not stated/inadequately described' separations should be amalgamated with the separations for non-Indigenous people in all analyses of Indigenous status information in hospital separations data.
4. Any reporting of separations for which Indigenous status is 'Not stated/inadequately described' should be accompanied by a warning that this category is not accommodated in the data systems of certain jurisdictions.

### **Use of state and territory data**

5. When using Indigenous status information for analytical purposes, the data for only Queensland, Western Australia, South Australia and the Northern Territory should be used, individually or in aggregate.
6. Analyses based on data for Queensland, Western Australia, South Australia and the Northern Territory in aggregate should be accompanied by caveats about limitations imposed by jurisdictional differences in data quality and about the data not necessarily being representative of the jurisdictions excluded.
7. Caution should be exercised in time series analysis of data for Queensland, Western Australia, South Australia and the Northern Territory (individually or

in aggregate) and findings should include a caveat about the possible contribution to changes in hospitalisation rates for Indigenous people of changes in ascertainment of Indigenous status for Indigenous patients.

### **Use of private hospital data**

8. In the case of Indigenous status information in relation to public and private hospitals, data should be analysed for the combined public and private sectors or the public sector alone. Data for the private sector alone should not be used.

### **Use of data for the Indigenous subcategories**

9. Use of data reported for the 'Aboriginal but not Torres Strait Islander origin' subcategory is recommended for Queensland, Western Australia, South Australia and the Northern Territory, individually or in aggregate.
10. Use of data reported for the 'Torres Strait Islander but not Aboriginal origin' subcategory is recommended for Queensland and (with caution) for Queensland, Western Australia, South Australia and the Northern Territory in aggregate.
11. Separate use of data reported for the 'Both Aboriginal and Torres Strait Islander origin' subcategory is not recommended.
12. Use of the combined subcategories 'Torres Strait Islander but not Aboriginal origin' and 'Both Aboriginal and Torres Strait Islander origin' is recommended for Queensland and (with caution) for Queensland, Western Australia, South Australia and the Northern Territory in aggregate.
13. Use of the combined subcategories 'Aboriginal but not Torres Strait Islander origin' and 'Both Aboriginal and Torres Strait Islander origin' is recommended for Queensland, Western Australia, South Australia and the Northern Territory, individually or in aggregate.

### **Regional analysis of separations data**

14. Analysis of separations for Indigenous people should generally not be undertaken by remoteness area of either the patient's usual residence or the hospital's location.

### **Use of age standardisation and population data**

15. Indirect age standardisation is recommended for comparing the separation rate for a single Indigenous population of interest with the rate for a single not-reported-as-Indigenous comparison group.
16. For comparing separation rates for Indigenous and not-reported-as-Indigenous populations across multiple jurisdictions, time periods or other groupings, direct age standardisation should be used whenever populations are large enough to provide reliable results.
17. When deriving age-standardised Indigenous separation rates, age groups should be amalgamated where greater than an age determined by analysis of the data in question, as necessary, to ensure that all age groups have sufficient numbers for reliable results.

18. When deriving separation rates for Indigenous populations, the official Australian Bureau of Statistics population estimates or projections should be used without adjustment for possible under-identification in those data.
19. Reporting of Indigenous separation rates based on the Australian Bureau of Statistics population projections should indicate whether the high or low projection series was used. The low series is recommended.

## **Recommendations for improving Indigenous identification in separations data**

In the interest of brevity, this summary includes only some of the sub-elements of each recommendation.

### **Data collection processes**

1. [High priority] Procedures should be established in all hospitals to ensure ascertainment of Indigenous status for every patient at every admission.
2. [High priority] Indigenous status information should be ascertained for patients being admitted at all public and private hospitals, using the standard Indigenous identification question formulated by the Australian Bureau of Statistics, as set out in the *National Health Data Dictionary*.
3. [High priority] The data recording systems of all hospitals and health authorities should classify Indigenous status using the standard in the *National Health Data Dictionary*. In particular:
  - (a) With the exception of forms for patients to complete, a 'Not stated/inadequately described' category should always be provided.
  - (b) Responses of 'Not stated/inadequately described' should be permitted in separations records hospitals forward to health authorities.
  - (c) Data recording systems should not include arrangements whereby the category 'Not stated/inadequately described' (or no category selected at all) defaults either manually or automatically to the 'Neither Aboriginal nor Torres Strait Islander origin' category.
4. Procedures and training should be introduced to ensure that data collection staff ascertain the Indigenous status of all babies born at the hospital and other patients aged less than 1 year. These arrangements should take into consideration the Indigenous status of both the mother and the father, as necessary.
5. A protocol should be established to specifically exclude non-Australian indigenous patients from identification as Aboriginal or Torres Strait Islander.

### **Training of data collection staff**

6. [High priority] Comprehensive training in data collection and data quality should be provided to all staff involved in the collection of patient information at

all public and private hospitals. It should be provided on an as-needs basis to all new staff and as periodic refresher training to established staff.

7. [High priority] The training should include the asking about and recording of Indigenous status, and it should accord with the standard package developed by the Australian Bureau of Statistics. It should be directed towards a specific set of outcomes for hospital staff.
8. [High priority] The training efforts of both public and private hospitals should be supported by provision of centralised training of trainers, a policy and procedures manual, and a question and answer guide.
9. At all hospitals the adequacy of training should be periodically assessed by means of direct evaluation of training outcomes and audits of Indigenous identification.
10. Training of data collection staff should be augmented by their direct participation in the conduct and evaluation of hospital-based data quality audits.

### **Organisational policies and practices**

11. [High priority] Health authorities should give consideration to the carrying out of a thorough review of state-wide procedures for the collection, recording and verification of Indigenous status information as the basis for planning action to improve Indigenous status data quality.
12. Mechanisms should be established to increase hospital administrators' commitment to improved Indigenous status data quality – for example, by incorporating requirements in service agreements and identifying sources of funding to be directed at the adoption of improved arrangements in private hospitals.
13. Hospital administrators should be encouraged to accompany improved data collection practices with sound arrangements for system oversight and the employment of Indigenous hospital liaison officers.
14. Consideration should be given to instituting a scheme for public recognition of best practice in ascertaining the Indigenous status of hospital patients.
15. An assessment should be made of the potential role of public education in relation to asking about the Indigenous status of hospital patients.

### **Data monitoring and audit**

16. [High priority] Each jurisdiction should introduce arrangements for regular monitoring of Indigenous status information in separation records, as a basis for providing continuing feedback on data quality at the hospital level and evaluating changes in data quality stemming from the adoption of new data collection practices.
17. An audit of Indigenous identification using patient interviews or another robust methodology should be periodically conducted for public and private hospitals on a nationally coordinated basis, in order to assess data quality and generate comparable and up-to-date under-identification factors.

# 1 Introduction

## 1.1 Background

In view of the health disadvantage of Indigenous Australians relative to other Australians (ABS & AIHW 2005) and the need for accurate statistical information about the health status of Indigenous Australians, the quality of Indigenous status information in hospital admitted patient statistics has been a matter of longstanding concern for the users of those statistics and for the organisations responsible for collection of the statistics. This is because of the potential value of admitted patient statistics in describing the use of hospitals by Indigenous Australians, given the comprehensive coverage of the data collections and the generally well established infrastructure that exists for the data collections at the state and territory and national levels. The correct identification of the Indigenous status of Indigenous patients is also essential if hospital services specifically directed towards assisting Indigenous patients are to be effective.

Concern has centered on the apparent under-identification of Indigenous patients and the representativeness of separations that are identified as being for Indigenous people. The findings of various studies of hospital separations data have suggested that this under-identification stems from the lack of collecting or reporting of Indigenous status information using the agreed national standards (Box 1). It has also been found that the under-identification has not been uniform – with geographically based variation, for example. The possibility of misclassification involving the Indigenous subcategories ('Aboriginal but not Torres Strait Islander origin', 'Torres Strait Islander but not Aboriginal origin' and 'Both Aboriginal and Torres Strait Islander origin') has also raised questions about data analysis using these subcategories.

In recognition of the uncertainty about the precise magnitude of the health disadvantage of Indigenous people and about their use of health services because of incomplete identification of Indigenous people in administrative records and uncertainties in estimating the size and composition of the Indigenous population, *The Aboriginal and Torres Strait Islander Health Information Plan* (ATSIHWIU 1997) made 42 recommendations for collection and maintenance of quality statistics on the health status of Indigenous people. Several of the recommendations relate to improving the quality of hospital separations data.

At its December 2002 meeting the National Advisory Group on Aboriginal and Torres Strait Islander Health Information and Data (NAGATSIHID) discussed the need to monitor and improve the quality of Indigenous identification in hospital separations data. A project directed towards these goals was subsequently included as part of the work program of the Australian Institute of Health and Welfare, with funding provided by the Australian Health Ministers' Advisory Council.

**Box 1: The standard *National Health Data Dictionary* question and classification for Indigenous status**

The *National Health Data Dictionary* recommends that the following standard question be used to elicit information about Indigenous status. The question is based on the Australian Bureau of Statistics standard for Indigenous status:

[Are you] [Is the person] [Is (name)] of Aboriginal or Torres Strait Islander origin?

The response categories are as follows:

(For persons of both Aboriginal and Torres Strait Islander origin, mark both 'Yes' boxes.)

- No
- Yes, Aboriginal
- Yes, Torres Strait Islander

The dictionary recommends the following output classification for Indigenous status:

- Aboriginal but not Torres Strait Islander origin
- Torres Strait Islander but not Aboriginal origin
- Both Aboriginal and Torres Strait Islander origin
- Neither Aboriginal nor Torres Strait Islander origin
- Not stated/inadequately described

The classification includes a broader grouping of the detailed categories, as follows:

Indigenous:

- i.e. Aboriginal but not Torres Strait Islander origin, Torres Strait Islander but not Aboriginal origin and Both Aboriginal and Torres Strait Islander origin

Non-indigenous:

- i.e. Neither Aboriginal nor Torres Strait Islander origin
- Not stated/inadequately described

The aim of the project was to monitor and improve the completeness of Indigenous identification in hospital records over time. The project outcomes were to be:

- a description of the extent to which the Indigenous origin of Indigenous patients is under-identified in separations data from a summary of work done previously
- an outline of methods jurisdictions use to improve Indigenous identification data – including examples of best practice and of methods that have not worked
- development of guidelines to support consistent and appropriate analysis of Indigenous status information in hospital separations data. The guidelines were planned to deal with adjustment for under-identification of Indigenous patients, analysis of data with unreported Indigenous status, use of data for the Indigenous subcategories, and use of state and territory data.

Following some initial work done by the Aboriginal and Torres Strait Islander Health and Welfare Information Unit – a collaboration between the Australian Bureau of Statistics and the AIHW – the AIHW completed the project with advice from NAGATSIHID, the AIHW's Australian Hospital Statistics Advisory Committee, and the Statistical Information Management Committee of the Australian Health Ministers' Advisory Council's National Health Information Group.

The project outcomes were consolidated into this report, which was endorsed by the Statistical Information Management Committee.

## 1.2 This report

Chapter 2 reports on assessments of the quality of Indigenous identification in hospital separations data. It brings together the findings of formal studies of the extent to which Indigenous status is misclassified or not reported in the data and current assessments of the overall quality of states' and territories' Indigenous status information, as made by state and territory health authorities and by the AIHW. The reasons for poor Indigenous identification suggested in this literature are also summarised.

Chapter 3 provides an account of state and territory policies and processes relating to ascertainment of the Indigenous status of hospital admitted patients, including details of methods used to improve ascertainment and examples of good practice. This material was obtained from information reported in questionnaires the AIHW sent to state and territory health authorities in late 2004.

Chapter 4 provides an analysis of Indigenous identification in national hospital separations data. This analysis was undertaken to inform assessments of the quality of Indigenous status data and needs for improvement in the data.

Guidelines for consistent and appropriate analysis of Indigenous status information in separations data within the data quality constraints that exist at this time are provided in Chapter 5; these were developed on the basis of the material presented in Chapters 2, 3 and 4.

Recommendations about policies and processes needed to improve the quality of Indigenous identification in separations data are provided in Chapter 6. These are also based on the material presented in Chapters 2, 3 and 4.

Appendix A provides additional data tables that accompany the analysis presented in Chapter 4.

Appendix B shows the questionnaire completed by state and territory health authorities to inform this report.

### **Additional information on hospital separations data**

The AIHW publication *Australian Hospital Statistics 2003–04* (AIHW 2005a) provides comprehensive information about important data structures, data elements and analytical techniques pertaining to hospital separations data.

## **2 Assessments of the quality of Indigenous identification in hospital separations data**

This chapter brings together the findings of studies of the extent to which Indigenous status has been misclassified or not reported in hospital separations data and current assessments of the overall quality of states' and territories' Indigenous status information, as made by the state and territory health authorities and by the AIHW. These results are presented in Sections 2.1 and 2.2 respectively. Section 2.3 summarises the reasons for poor Indigenous identification, as suggested in the literature discussed.

### **2.1 Formal studies of the quality of Indigenous identification**

This section summarises the findings of studies of the extent to which Indigenous status is misclassified or not reported in separations data and provides brief commentary on the strengths and weaknesses of the methods used in those studies.

The studies provide valuable insights, but their restricted geographical scope and methodological limitations have precluded any conclusive assessment to date of the quality of Indigenous identification in hospital separations data collections Australia-wide.

The studies fall into three broad groups:

- assessments that have used face-to-face patient interviews after admission to determine the accuracy of Indigenous status information in the hospital records
- assessments using external data – either population data or survey data
- assessments involving comparison of separations data for multiple admissions.

#### **Assessments based on patient interviews**

The accuracy of information about Indigenous status in hospital separations data has been assessed in a number of studies in which responses obtained from interviews with patients in the hospital ward after admission (assumed to be correct) were compared with the information in the hospital record. Table 1 summarises the main studies that have used this method.



**Table 1: Studies using face-to-face interviews to assess the accuracy of information on Indigenous status in hospital records**

Author and year of publication	Year of study	Hospitals included in the study	Number of patients interviewed	Number of patients identified as Indigenous at interview	Proportion of Indigenous people <sup>(a)</sup> correctly identified in hospital records
Shannon, Brough & Haswell-Elkins 1997	1997	2 Queensland hospitals	451	25	44% overall
Lynch & Lewis 1997	1997	2 Queensland hospitals	1,836	76	66% and 70%
Condon et al. 1998	1997	All 5 public hospitals in the Northern Territory	400	216	93% overall
ATSIHWIU 1999	1998	11 hospitals in 5 jurisdictions	8,276	648	85% overall (range 55–100%)
Young 2001	2000	26 hospitals in Western Australia	10,106	754	86% overall (range 78–94%)
Mahoney 2001	2000	2 Queensland hospitals	1,090	35	74% overall (range 62%, 82%)

(a) Based on identification at interview.

### The 1997 Northern Territory study

In 1997 the Northern Territory Department of Health and Community Services used patient interviews in an audit of the recording of demographic items in hospital separation records at all five public hospitals in the Northern Territory (Condon et al. 1998). The items selected for audit were Indigenous status, sex, date of birth, country of birth, marital status and place of residence.

The audit involved a sample of 1% of annual admissions for each of the five hospitals. This produced an unweighted sample of the entire Northern Territory data set, plus samples of sufficient size to assess data quality at each of the two larger hospitals (Royal Darwin and Alice Springs).

The demographic items recorded at 400 interviews were compared with the corresponding records in the Northern Territory hospital separations data. Overall, the audit found a high level of agreement between the interviews and the separations data for patients' sex and Indigenous status, a reasonable level of agreement for country of birth, and an unsatisfactory level of agreement for place of residence, marital status and date of birth.

The audit found that, among 216 patients identified at interview as Indigenous, 200 (92.6%) had been recorded as such at admission and 16 (7.4%) had been recorded as non-Indigenous. Among 182 patients identified at interview as non-Indigenous, 176 (96.7%) had been recorded at admission as non-Indigenous, five (2.7%) had been recorded as Indigenous, and one (0.5%) had no recorded Indigenous status (Table 2).

**Table 2: Number of patients interviewed, by Indigenous status obtained at admission and Indigenous status obtained via interview, 1997 Northern Territory study**

Indigenous status identified at interview	Indigenous status recorded at admission			Total
	Indigenous	Non-Indigenous	Not stated	
Indigenous	200 (92.6%)	16 (7.4%)	0 (0.0%)	216
Non-Indigenous	5 (2.7%)	176 (96.7%)	1 (0.5%)	182
Not stated	0	2	0	2
<b>Total</b>	<b>205</b>	<b>194</b>	<b>1</b>	<b>400</b>

Source: Based on Condon et al. (1998).

Overall, using the assumption that Indigenous status was correctly identified at interview, the study found a 5.1% net undercount of Indigenous patients across the survey data set. This suggested the need to apply a correction factor of 1.05 (i.e. 216/205) to the recorded count of separations for Indigenous people in the Northern Territory. None of the undercount was the result of non-reporting of Indigenous status: it stemmed solely from the misclassification of Indigenous people as non-Indigenous.

### The 1998 ATSIHWIU pilot study

A 1998 pilot study conducted by the Aboriginal and Torres Strait Islander Health and Welfare Information Unit – a collaboration between the Australian Bureau of Statistics and the AIHW – developed the patient interview methodology for use nationally (ATSIHWIU 1999).

In order to assess procedures across a range of settings, the hospitals included in the study covered a number of jurisdictions, both large and small hospitals, and hospitals with either a large or a small Indigenous representation in the population living in the hospital's catchment area. Twelve hospitals were included – five in South Australia, three in the Northern Territory, two in the Australian Capital Territory, one in Victoria and one in Queensland. The study was successfully completed at 11 of these hospitals.

Although the project design was directed mainly at development of the methodology, an intended by-product was the production of estimates of data quality for each of the hospitals in the study (but not for jurisdictions or for Australia as a whole). The necessary sample size at each hospital was estimated from the formula  $sample\ size = 1/(y * y(1-s) * p)$ , which depended on three factors:

- the proportion of the hospital's patients who were of Indigenous origin – p
- the proportion of the hospital's Indigenous patients who were correctly identified as Indigenous in current hospital records – s
- the required standard error to apply to the sample estimate of the proportion of Indigenous patients correctly identified as such in hospital records – y.

The proportion of the hospital's patients who were correctly identified as Indigenous and the proportion who were actually Indigenous were estimated, for example, from information from previous studies and from information on the population in the hospital catchment area. The standard error was set to achieve a two out of three

chance that results would be accurate to within 25%. To achieve substantially better precision would have required impracticably large sample sizes.

Sample sizes for the participating hospitals ranged from 100 to 1,500 patients. The main determinant of the variation in sample sizes between hospitals was the proportion of the hospital’s patients who were of Indigenous origin: the smaller this proportion, the larger the sample size needed to achieve the required standard error.

With the exception of people in intensive care units and other people who were not well enough or competent enough to be included, the scope of the study covered all patients who were in hospital on the day the interviewers visited, including children for whom parental consent was obtained. The aim was to maximise the completeness and representativeness of the sample, including coverage of most wards and the correct representation of day-only and longer stay patients.

Patients were asked the standard question for determining Indigenous status that is set out in the *National Health Data Dictionary*. At four of the hospitals some of the interviews were conducted by Indigenous interviewers, and comparison of the results of these interviews with the results of interviews conducted by non-Indigenous interviewers indicated that the Indigenous status of the interviewer did not greatly influence the way Indigenous patients identified at interview.

The project also explored the quality of other demographic data collected at admission – sex, date of birth, country of birth and place of usual residence. This provided a base for assessment of the relative accuracy of the Indigenous status data; it had the additional benefit of avoiding an exclusive focus on the question of Indigenous status.

The project found that the extent to which Indigenous patients had been correctly recorded at admission varied greatly between the 11 hospitals that completed the study (55% to 100% correct) but was consistently lower than the extent to which non-Indigenous patients had been correctly recorded at admission (94% to 100% correct).

Data were obtained for 8,269 patients. Among the 648 patients identified at interview as Indigenous, 549 (84.7%) had been recorded as such at admission, 86 (13.3%) had been recorded as non-Indigenous, and 13 (2.0%) had unreported Indigenous status. Among the 7,617 patients identified at interview as non-Indigenous, 7,507 (98.6%) had been recorded at admission as non-Indigenous, 15 (0.2%) had been recorded as Indigenous, and 95 (1.2%) had unreported Indigenous status (Table 3).

**Table 3: Number of patients interviewed, by Indigenous status obtained at admission and Indigenous status obtained via interview, 1998 ATSIHWIU study**

Indigenous status identified at interview	Indigenous status recorded at admission			Total
	Indigenous	Non-Indigenous	Not stated	
Indigenous	549 (84.7%)	86 (13.3%)	13 (2.0%)	648
Non-Indigenous	15 (0.2%)	7,507 (98.6%)	95 (1.2%)	7,617
Not stated	0	2	2	4
<b>Total</b>	<b>564</b>	<b>7,595</b>	<b>110</b>	<b>8,269</b>

Source: Based on ATSIHWIU (1999).

Overall, using the assumption that Indigenous status was correctly identified at interview, the study found a 13.0% net undercount of Indigenous patients across the survey data set (i.e. 564 patients recorded as Indigenous compared with 648 patients identified at interview as Indigenous). The misclassification of Indigenous people as non-Indigenous made a substantially greater contribution to this undercount than did the non-reporting of Indigenous status.

Other demographic data elements were also inaccurately and incompletely recorded, but recording of Indigenous status showed the greatest variation from hospital to hospital and had the lowest level of accuracy overall.

The quality of Indigenous identification varied between hospitals, largely in accord with the degree of Indigenous representation in the population living in the hospital's catchment area. It was greatest for the group of hospitals that had catchments with a relatively high proportion of people of Indigenous origin: 94.4% of Indigenous patients were recorded as such at admission for this group of hospitals. It was least for the group of hospitals that had catchments with a relatively low proportion of people of Indigenous origin (66.4% correctly recorded), although accuracy was excellent for some individual hospitals in the group. Consistent with that, the quality of Indigenous identification tended to be greater at hospitals outside capital cities (90.8% of Indigenous patients were recorded as such at admission) than at capital city hospitals (78.5% correctly recorded).

The accuracy with which Indigenous status had been recorded varied little with other characteristics of the patient (sex and age) or the hospitalisation (length of stay, medical or surgical care, and relative cost weight) (ATSIHWIU 1999, Hargreaves 2001).

Overall, this pilot study demonstrated that it was possible to assess Indigenous data quality using a simple set of procedures. Valuable results were obtained without excessive use of resources.

### **The 2000 Western Australian study**

The accuracy of hospital separations data was assessed in a study involving 10,106 patient interviews conducted at 26 public hospitals in Western Australia during 2000 (Young 2001). The study involved a two-tier sample that was selected as a random sample of patients taken at each of a random sample of hospitals.

With the exception of patients incapable of responding or not well enough to do so, patients in intensive care units, and other cases deemed inappropriate by hospital staff, all admitted patients in those hospitals were included in the scope of the study. Children were included if parental consent was obtained.

Interviewers were encouraged to include patients who did not speak English, but the sample probably under-represented such patients. Interviewers were unable to make use of interpreter services at hospitals because they did not have access to relevant patient information such as age, sex and ethnicity, and they were unable to use telephone interpreter services because of bans on mobile phone use.

As the ATSIHWIU study found, the Western Australian study found that recording of Indigenous status tended to be most complete and accurate at hospitals with a

relatively higher proportion of Indigenous people living in the hospital's catchment area. Using the assumption that Indigenous status was correctly identified at the interview, the study found that the extent to which Indigenous patients had been correctly recorded at admission ranged from 78.3% in the Metropolitan health region to 93.5% in the Pilbara/Kimberly region. The extent to which non-Indigenous patients had been correctly recorded at admission was consistently higher than for Indigenous patients, ranging from 98.9% to 99.7% across health regions.

Overall, the study found that, among the 754 patients identified at interview as Indigenous, 647 (85.8%) had been recorded as such at admission and 107 (14.2%) had been recorded as non-Indigenous. Among the 9,314 patients identified at interview as non-Indigenous, 9,271 (99.5%) had been recorded at admission as non-Indigenous and 43 (0.5%) had been recorded as Indigenous (Table 4).

There were no instances of unreported Indigenous status in the hospital records, a result of the fact that this category is not accommodated in systems for recording the Indigenous status of patients at public hospitals in Western Australia (as discussed in Section 3.1).

**Table 4: Number of patients interviewed, by Indigenous status obtained at admission and Indigenous status obtained via interview, 2000 Western Australian study**

Indigenous status identified at interview	Indigenous status recorded at admission			Total
	Indigenous	Non-Indigenous	Not stated	
Indigenous	647 (85.8%)	107 (14.2%)	0	754
Non-Indigenous	43 (0.5%)	9,271 (99.5%)	0	9,314
Not stated	1	37	0	38
<b>Total</b>	<b>691</b>	<b>9,415</b>	<b>0</b>	<b>10,106</b>

Source: Based on Young (2001).

Using the assumption that Indigenous status was correctly identified at interview, the study found an 8.5% net undercount of Indigenous patients across the survey data set. The undercount ranged between 12.6% in the Metropolitan health region and 4.7% in the Pilbara/Kimberly region. These results suggested the need for correction factors to be applied to the recorded counts of separations for Indigenous people, ranging between 1.14 for the Metropolitan region and 1.05 for the Pilbara/Kimberly region (or 1.09 state-wide).

The study found that the quality of Indigenous identification did not vary according to a patient's sex or age or a hospital's urban or rural location.

### **The 2000 Queensland study**

Various smaller data quality audits based on patient interviews have been carried out in Queensland. The latest of these was conducted at two metropolitan hospitals in early 2000 (Mahoney 2001). Information collected at interview on Indigenous status, Department of Veterans' Affairs eligibility, transfer status and hospital insurance cover was compared with Queensland hospital separations data.

Overall, the audit found that, among 35 patients identified at interview as Indigenous, 26 (74.3%) had been recorded as such at admission, eight (22.9%) had

been recorded as non-Indigenous, and one (2.9%) had unreported Indigenous status (Table 5). At the individual hospitals 61.5% and 81.8% of those identified at interview as Indigenous had been recorded as such at admission.

Among 1,046 patients identified at interview as non-Indigenous, 1,021 (97.6%) had been recorded at admission as non-Indigenous, four (0.4%) had been recorded as Indigenous, and 21 (2.0%) had unreported Indigenous status.

**Table 5: Number of patients interviewed, by Indigenous status obtained at admission and Indigenous status obtained via interview, 2000 Queensland study**

Indigenous status identified at interview	Indigenous status recorded at admission			Total
	Indigenous	Non-Indigenous	Not stated	
Indigenous	26 (74.3%)	8 (22.9%)	1 (2.9%)	35
Non-Indigenous	4 (0.4%)	1,021 (97.6%)	21 (2.0%)	1,046
Not stated	0	9	0	9
<b>Total</b>	<b>30</b>	<b>1,038</b>	<b>22</b>	<b>1,090</b>

Source: Based on Mahoney (2001).

Of five patients identified at interview as of Torres Strait Islander but not Aboriginal origin, three had had been recorded as such at admission, one had been recorded as of Aboriginal but not Torres Strait Islander origin, and one had been recorded as non-Indigenous.

Using the assumption that Indigenous status was correctly identified at interview, the study found a 14.3% net undercount of Indigenous patients across the survey data set. The misclassification of Indigenous people as non-Indigenous made a greater contribution to this undercount than did the non-reporting of Indigenous status.

### Comments on the methodology

The methodology is widely considered to be the ‘gold standard’ for assessment of the quality of Indigenous identification in hospital records. This reputation is based largely on the belief that more accurate information is collected at interview as a result of well-trained interviewers asking each patient’s Indigenous status strictly in accord with the standard question developed for this purpose by the Australian Bureau of Statistics, as opposed to other practices that might be used as part of patient admission procedures.

The relatively high resource costs of the method militate against it being used frequently for audits. Foremost among these costs is the payment of interviewers, a consequence of the number of interviews needed to give a rigorous sample and the time needed to obtain and conduct the interviews.

In smaller hospitals the time elapsed in obtaining sufficient interviews can also be considerable.

## Assessment based on external data

### Assessment based on population data

In developing an estimate of the under-enumeration of separations for Indigenous patients to inform the AIHW's analysis of expenditure on health services for Indigenous people for 2001–02, the Victorian Department of Human Services used a method involving adjustment to the counts of separations for Indigenous people for specific hospitals, so that the ratio of the hospital's separations for Indigenous people to total separations was no less than the ratio of Indigenous people to total people in the state or, where appropriate, the local area (Victorian Department of Human Services, pers. comm., 19 April 2004).

Counts of separations for Indigenous people were extracted from the Victorian admitted episodes data set for 2001–02 for each public hospital in Victoria. Dialysis patients were not included. Population-based adjustment was then applied to the counts for six groups of hospitals. In general, for hospitals with a state-wide role or undefined catchment, the counts of separations for Indigenous people were scaled up, where necessary, so that Indigenous representation in the total separations was no less than the proportion of the state-wide population that was of Indigenous origin – that is, 1.12% for children aged less than 15 years and 0.44% for people aged 15 years or more. Similarly, for hospitals with a defined local catchment, the Indigenous representation in the local population was used. The six groups of hospitals were as follows:

- *Group 1* – hospitals with Koori Hospital Liaison Officers (KHLOs), where this officer provided an independent (though not necessarily more precise) count of separations for Indigenous people. For these hospitals the count was taken to be the higher of the reported number and the number identified by the KHLO unless both counts were below the number expected on a population basis, in which case population-based adjustment was done, using the state-wide population or the local population (as appropriate). Conclusions drawn from in-depth consultations with the KHLO network were incorporated in these adjustments. For some hospitals, an assessment was also made of the degree of overlap between the hospital and KHLO counts, and this was used to estimate the number of patients omitted by both systems.
- *Group 2* – other rural hospitals with a well-defined catchment, where counts of separations for Indigenous people could be matched against the local Indigenous population. The counts of separations for Indigenous people were scaled up, where necessary, by means of population-based adjustment.
- *Group 3* – other rural hospitals without a well-defined catchment, where the number of separations and the size of the local Indigenous population made it unlikely that large numbers of Indigenous patients were not identified. No population-based adjustment was done.
- *Group 4* – other metropolitan hospitals with a state-wide function, for which Indigenous representation in total separations could be assumed to match Indigenous representation in the state-wide population. The counts of

separations for Indigenous people were scaled up, where necessary, by means of population-based adjustment.

- *Group 5* – other metropolitan hospitals lacking a state-wide function but serving large local Indigenous populations. The counts of separations for Indigenous people were scaled up, where necessary, by means of population-based adjustment.
- *Group 6* – other metropolitan hospitals with a poorly defined local catchment, where population cannot be used to scale up the reported separations. No population-based adjustment was done.

By this method, separations for Indigenous people in Victoria were estimated to have been 10,560 in 2001–02, some 28% higher than the 8,271 separations recorded in the Victorian hospital separations data set. From this, the Victorian separations data were assessed to have undercounted by 22% separations for Indigenous people in 2001–02.

### **Assessment based on survey data**

During 2002 the Australian Bureau of Statistics conducted a project designed to estimate the extent of under-identification of Indigenous people in separations data for New South Wales and to assess the feasibility of developing a statistical model for small-area estimates of Indigenous hospitalisation (ABS, unpublished).

The work was based on episodes of hospitalisation reported by respondents to the 1994 National Aboriginal and Torres Strait Islander Survey (NATSIS). NATSIS was chosen for the study because it provided the largest sample of Indigenous people. Same-day hospitalisations were excluded from the analysis.

The main outcome of the project was the strong indication that separations for Indigenous people were substantially undercounted in the New South Wales hospital separations data for 1994–95. A total of 41,600 hospitalisations of Indigenous people was estimated from NATSIS, whereas the New South Wales hospital separations data set recorded 17,414 separations of Indigenous people.

In order to make such a comparison, it was necessary to establish the overall compatibility of NATSIS with the New South Wales separations data. This was done by indirect means because NATSIS did not extend to the non-Indigenous population. The project first established that the estimate derived from the 1995 National Health Survey (NHS) of annual hospitalisations in New South Wales for the total population was of a magnitude comparable with the total number of separations recorded in the New South Wales hospital data set. The project then established that the estimate derived from NATSIS of annual hospitalisations in New South Wales for Indigenous people was of a magnitude comparable with that obtained from the NHS (Table 6).

The confidence interval reported in Table 6 indicates that a fairly large range of uncertainty applies to the estimated number of hospitalisations of Indigenous patients as obtained from NATSIS (and therefore to the estimated under-identification of separations for Indigenous patients in the New South Wales hospital separations data). This reflects the small number of relevant observations obtained in NATSIS – 366 hospital separations reported in 14,824 survey records.



**Table 6: Assessment of Indigenous status data quality in New South Wales conducted in 2002 by the Australian Bureau of Statistics and based on survey data**

Data	Number and confidence interval
New South Wales hospital separations in 1994–95 <sup>(a)</sup>	950,724
Estimated number of hospitalisations, 1995 NHS <sup>(b)(c)</sup>	1,060,800
	<i>(95% confidence interval: 823,200 to 1,298,400)</i>
Estimated number of Indigenous hospitalisations, 1995 NHS <sup>(c)(d)</sup>	52,900 <sup>(e)</sup>
Estimated number of Indigenous hospitalisations, 1994 NATSIS <sup>(c)(f)</sup>	41,600
	<i>(95% confidence interval: 31,500 to 51,700)</i>
New South Wales hospital separations for Indigenous people, 1994–95 <sup>(a)</sup>	17,414

(a) Same-day separations excluded. *Source:* Unpublished data from AIHW National Hospital Morbidity Database.

(b) *Source:* *National Health Survey: summary of results, states and territories* (ABS cat. no. 4368.0).

(c) Annual hospitalisations was estimated by multiplying the estimated number of hospitalisations for the two-week survey period by 26.

(d) *Source:* *National Health Survey: summary of results, states and territories* (ABS cat. No. 4368.0) and unpublished data from the 1995 National Health Survey.

(e) The relative standard error of the estimate is more than 50%.

(f) *Source:* *National Aboriginal and Torres Strait Islander Survey 1994: health of Indigenous Australians* (ABS cat. no. 4395.0) and *National Aboriginal and Torres Strait Islander Survey 1994: detailed findings* (ABS cat. no. 4190.0).

An unquantified degree of uncertainty also exists as a result of differing reference periods and the definitional/classification differences for the three data sets that were compared. Both NHS and NATSIS used just a two-week reference period and were conducted over only a number of months, which raises a concern, for example, about the representation by these surveys of seasonal variation in hospital separations.

The project also attempted to develop a predictive model for regional estimates of Indigenous hospitalisation based on the NATSIS data, but satisfactory estimates were not obtained. A major reason for this was the small number of hospitalisations for Indigenous people reported in NATSIS. The Australian Bureau of Statistics recommended further development of the model using data from the 2001 NHS to make it at least capable of identifying priority areas where education or promotion effort could be directed.

## Comments on the methodology

### *Assessment based on population data*

In the Victorian study, population-based adjustments to separation numbers for hospitals for which the Indigenous representation in total separations could be assumed to match the Indigenous representation in the population were amalgamated with two other sets of information – independent counts of separations provided by KHLOs and in-depth knowledge of individual hospitals obtained from the KHLO network.

In circumstances of incomplete coverage of hospitals by KHLOs, this method relies to an extent on an assumed standard relationship between the proportion of separations that involve Indigenous patients and the proportion of Indigenous people in a hospital's catchment area; accordingly, it cannot be expected to precisely quantify the under-identification of Indigenous patients in hospital separations data. The relationship between separations and population is, for example, likely to differ

substantially between regions, in keeping with the differing circumstances of Indigenous people in different areas.

Nevertheless, as a yardstick for broadly gauging the under-identification of Indigenous patients – particularly if under-identification is so substantial that the ratio of the separation rate for Indigenous people to that for non-Indigenous people is less than 1 – the method is potentially useful for monitoring change in the extent of under-identification. It may, for example, be useful in identifying an improvement in under-identification associated with the introduction of improved data collection processes.

The method would be expected to provide greater precision in circumstances of complete coverage of hospitals by the KHLO network.

#### *Assessment based on survey data*

The Australian Bureau of Statistics methodology employed an estimate of hospitalisations of Indigenous people in New South Wales in 1994–95 derived from the 1994 National Aboriginal and Torres Strait Islander Survey. A fairly large range of uncertainty applied to this estimate as a result of the small number of relevant observations obtained in the survey. The survey is also now rather dated. The future use of the Australian Bureau of Statistics methodology would require the availability of more contemporary survey results with sufficient observations to give a reasonably precise estimate of hospital separations of Indigenous people.

It is also important that the survey duration and survey recall period are of sufficient duration to provide adequate survey representation of seasonal variation in separations and that there is a reasonably high degree of comparability between the survey and hospital separations data sets in relation to reference periods, definitions, classifications and interpretation.

If these requirements can be met, the methodology could prove useful.

## **Assessment involving comparison of data for multiple admissions**

### **Assessment done in Victoria**

In Victoria a study of hospital separations data was conducted to determine the accuracy of Indigenous identification among patients admitted at least twice in the state between 1994 and 1998 where an Indigenous status of Aboriginal and/or Torres Strait Islander was recorded on at least one occasion (AIHW 2001). This work relied on the statistical linkage of records for multiple patient episodes.

Patients were grouped into the following categories after an assessment (stated to be somewhat subjective) of probable Indigenous status based on information available in the hospital files and the consistency of identification over multiple episodes:

- definitely Indigenous – where sufficient evidence allowed that conclusion
- probably Indigenous – where the balance of probabilities supported that conclusion
- uncertain – because of insufficient or conflicting evidence

- probably non-Indigenous – on the balance of evidence
- non-Indigenous.

The extent to which patients had been recorded as Indigenous or non-Indigenous at each admission was examined for each group. For patients classified as definitely or probably Indigenous, 34% of admissions (199 of 580) had been recorded as non-Indigenous. For patients classified as definitely or probably non-Indigenous, 16% of admissions (334 of 2,083) had been recorded as Indigenous. The net result was the probable overstatement of admissions of Indigenous people by 135 – about 19% of all admissions recorded as Indigenous. A large proportion of the probable incorrect recording of patients as Indigenous was, however, the result of coding errors involving some dialysis patients at a single hospital.

### **Assessment done in New South Wales**

The New South Wales Department of Health has conducted assessments based on the linking of individual patients within annual sets of data from its hospital separations data collection. Linked separations were identified for all Indigenous patients, and an estimate of under-identification of separations for Indigenous patients was then derived from the number of these linked separations that had Indigenous status recorded as other than Indigenous. An assumption implicit in this methodology is that every instance of ascertainment as Indigenous is correct. Results for 1997–98 suggested that Indigenous status was incorrectly specified for 12% of admissions of Indigenous people (AIHW 2001). As with the 1998 ATSIHWIU pilot study, this work found that under-identification was much higher at hospitals in metropolitan areas (where the proportion of the population that is Indigenous is relatively low) than in the remote areas (where it is relatively high).

### **Assessment done in the Northern Territory**

In the Northern Territory comparison of multiple patient episodes is facilitated by the use of a common patient identifier throughout the public hospital system. The department conducted a study in 2003 that used this identifier to examine the history of reported Indigenous status for admitted patients and patients presenting at emergency departments. This showed no instances of Indigenous status being reported variably for any patient recorded in the hospital information system (admission or other attendance). Additional work would be needed to determine the extent to which this consistency was the result of people being re-questioned at each presentation and consistently identifying their Indigenous status.

### **Comments on the methodology**

In the absence of a unique and universal patient identifier, comparison of data for multiple patient episodes is reliant on the precision of the record linkage. This can be problematic when linkage is attempted over a prolonged period or for large numbers of records, where opportunities for false matches become magnified. The problem is not so great for the New South Wales methodology, which deals with single years of data. Every data linkage technique will also miss a proportion of true matches. The linkage technique used in the New South Wales study was found, for example, to

have given a 35% overstatement in the total number of individuals using the public hospital system as a result of failures to correctly match admissions to individuals.

A somewhat smaller concern relates to the fact that the methodology generally incorporates the assumption that all differences in individual Indigenous status over time stem from data recording errors, rather than from a deliberate change in a person's self-identification as Indigenous.

A specific concern about the New South Wales methodology is the assumption of no incorrect ascertainment as Indigenous. That methodology assumes that every ascertainment of a patient as Indigenous is correct and that all conflicting records are incorrect. As described earlier, however, the Victorian data linkage exercise found that some patients reported as Indigenous were probably incorrectly ascertained as such. The common assumption that all ascertainment errors must lead to understatement of the number of separations for Indigenous patients is questionable in the case of states with low proportions of Indigenous people: even very low rates of random recording error for non-Indigenous people in these states could outweigh any systematic under-identification of Indigenous patients.

## **2.2 Current health authority and AIHW assessments of the quality of Indigenous identification**

This section reports current assessments of the quality of Indigenous identification in separations data, specifically:

- assessments provided by state and territory health authorities to the AIHW, both for this report and as part of the annual national reporting of separations data
- assessments – in the form of Indigenous under-identification factors – formulated by the AIHW in consultation with the health authorities for use in the AIHW's reports on hospital expenditure for Indigenous admitted patients for 1995–96 (Deeble et al. 1998), 1998–99 (AIHW 2001) and 2001–02 (AIHW 2005b).

These assessments were based on a range of inputs, among them review of the separation numbers, detailed internal data consistency checking, and formal data quality studies. While not providing precise estimates of the accuracy of Indigenous status data, and rarely extending to specific subgroups such as metropolitan and non-metropolitan hospitals, they provide an overall evaluation of each jurisdiction's data quality as assessed by the jurisdiction in question and the AIHW.

### **Assessments provided in survey responses and as part of national reporting of hospital separations**

In late 2004 the AIHW sent a questionnaire to each state and territory health authority, seeking information on policies and processes for ascertainment of the Indigenous status of hospital admitted patients in their jurisdiction, together with an assessment of the quality of the Indigenous status information in current data for their jurisdiction. A copy of the questionnaire is provided here as Appendix B.

Assessments of the quality of information on Indigenous status in hospital separations data collections are also provided annually to the AIHW by the health authorities as part of the national reporting of these data. The latest accounts were published in *Australian Hospital Statistics 2003–04* (AIHW 2005a), with data quality being noted there as in need of improvement at the national level and as acceptable only for Western Australia, South Australia and the Northern Territory.

The information published in *Australian Hospital Statistics 2003–04* and that provided in the questionnaires is summarised below.

### **New South Wales**

In its account provided for *Australian Hospital Statistics 2003–04* New South Wales Health reported that its Indigenous status data were in need of improvement; in its survey response it rated the data quality as poor overall but with somewhat better reporting at hospitals in areas of high Indigenous population.

### **Victoria**

In its account provided for *Australian Hospital Statistics 2003–04* the Victorian Department of Human Services reported:

... despite data quality improvement in recent years, Indigenous status data for 2003–04 should be treated with some caution. Studies in Victoria have shown that data are more accurate if the hospital employs a Koori Hospital Liaison Officer (KHLO), particularly in regional hospitals, where the KHLOs are located in the main Koori communities. Indigenous status data are considered less reliable in tertiary hospitals drawing Indigenous patients from outside their local communities, and in private hospitals.

The department reported in its survey response that, based largely on the derivation of population-based adjustments to hospitals' counts of separations for Indigenous people (reported in Section 2.1), it estimated separations for Indigenous people for 2001–02 to be 28% higher than the number recorded in the Victorian admitted episodes data set (equivalent to 22% under-enumeration). The extent of under-enumeration was reported to vary between hospitals, and a degree of over-identification was suspected for a small number of hospitals.

### **Queensland**

In its account provided for *Australian Hospital Statistics 2003–04* Queensland Health stated that the available evidence suggested that separations for Indigenous people were significantly understated in the Queensland hospital separations data as a result of the non-reporting and misreporting of Indigenous status. The department reported in its survey response that, based largely on the results of patient interviews conducted at public hospitals in south-east Queensland between 1997 and 2000 (described in Section 2.1), together with the assumption that identification is better in rural and remote areas – where representation of Indigenous patients is higher – and the results of cross-checks between various data collections, it estimated a 20% under-identification of Indigenous patients across the state's public hospitals.

## **Western Australia**

In its account provided for *Australian Hospital Statistics 2003–04* the Western Australian Department of Health rated its Indigenous status data as being of acceptable quality, although data from metropolitan hospitals were considered less accurate than data from remote areas. The department reported in its survey response that, based largely on patient interviews (Young 2001, described in Section 2.1), it assessed the quality of Indigenous status information in separations data as acceptable for both public and private hospitals.

## **South Australia**

In its account provided for *Australian Hospital Statistics 2003–04* the South Australian Department of Health rated its 2003–04 Indigenous status data as suitable for inclusion in national statistical reports. The department reported in its survey response that, based on the results of patient interviews (ATSIHWIU 1999, described in Section 2.1), and subsequent informal evaluations, it assessed the quality of Indigenous identification in its hospital separations data as generally good for public hospitals but unacceptable for private hospitals, with identification being generally better at hospitals with higher representation of Indigenous patients.

## **Tasmania**

In its account provided for *Australian Hospital Statistics 2003–04* the Tasmanian Department of Health and Human Services said the quality of its Indigenous status data had continued to improve in 2003–04 (in that it was being reported for most patients) but that some private hospitals did not collect Indigenous status data at all. The department reported in its survey response that it assessed overall separations counts for Indigenous people in Tasmania as below the number expected from population counts, with private sector counts poor.

## **The Australian Capital Territory**

In its account provided for *Australian Hospital Statistics 2003–04* the Australian Capital Territory Department of Health stated that its monitoring of public hospital data had revealed a significant reduction in the number of separations for which Indigenous status was not reported. The department reported in its survey response that, based on the results of patient interviews (ATSIHWIU 1999) and subsequent data analyses that have indicated some improvement in the quality of Indigenous identification, it estimated a 40% under-identification of separations for Indigenous people in the Australian Capital Territory.

## **The Northern Territory**

In its account provided for *Australian Hospital Statistics 2003–04* the Northern Territory Department of Health and Community Services reported that it considered the overall quality of Indigenous identification in its 2003–04 separation data to be acceptable. The department's survey response rated Indigenous identification as of high quality for public hospitals but considerably poorer for Darwin Private Hospital.

## **Under-identification factors used for reporting expenditure on health services for Indigenous people**

The AIHW used jurisdiction-level factors to adjust for the under-identification of separations for Indigenous people for its reports on hospital expenditure for Indigenous people for 1995–96 (Deeble et al. 1998), for 1998–99 (AIHW 2001) and for 2001 (AIHW 2005b), based on available information on the quality of Indigenous identification in separations data.

The factors used for the 1995–96 report were derived from a mixture of jurisdictional estimates, anecdotal evidence, and consideration of whether the ratios of adjusted separations for Indigenous people to separations for non-Indigenous people were consistent with the demography of the jurisdictions and with the expectation that public hospital separations for Indigenous people would be greatest for those jurisdictions where the proportion of Indigenous people living in remote areas was highest (Deeble et al. 1998). All together, the factors implied a national under-identification factor of 25% for 1995–96.

The factors used for the 1998–99 report (AIHW 2001) took into account analysis of the 1998–99 separations data, the 1998 ATSIHWIU study results and a number of the other data quality assessments, as described in Section 2.1. All together, the factors implied a national under-identification factor of 16% for 1998–99. For Tasmania, a distribution formula derived from the results of a 1997 survey of outpatient clinic use was used instead of an under-identification factor because of the poor quality of Indigenous identification in the state's separations data.

The factors used for analysis of the 2001–02 data were developed in close consultation with state and territory health authorities, using the available data quality assessments, the adjustments that had been applied in the two previous reports, and comparison across jurisdictions of separation rates for Indigenous people for 2001–02 and earlier years.

Included in these considerations were the data quality assessments that had been conducted since the previous expenditure report – notably under-identification estimates obtained for Victoria and Western Australia based respectively on population-based adjustment to hospitals' counts of separations for Indigenous people for 2001–02 and interviews with patients at public hospitals in Western Australia, as described in Section 2.1.

For some jurisdictions it was concluded that identification had not improved since the 1998–99 report. In other cases it was considered that the adjustments applied in that report might have understated the rate of Indigenous under-identification at the time. As a result, the under-identification factors applied in the 1998–99 report for New South Wales, Victoria, Queensland, Western Australia and the Northern Territory were retained for the 2001–02 report. All together, the adjustment factors implied a national under-identification factor of 16% in 2001–02.

No factor was derived for Tasmania. The Tasmanian Department of Health and Human Services advised that Indigenous identification was very poor as a result of poor systems and poor levels of self-identification because of stigma and local factors

associated with Indigenous identity. The department asked that separation numbers be used in an unadjusted form, stating that this would provide a valid baseline for measuring change in the disparity in health outcomes between Indigenous and non-Indigenous people.

Table 7 shows the factors used for the 1998–99 and 2001–02 data.

**Table 7: Under-identification factors the AIHW used for estimating hospital expenditure on Indigenous admitted patients, 1998–99 and 2001–02**

State/ territory	1998–99		2001–02	
	Under- identification factor	Primary considerations	Under- identification factor	Primary considerations
NSW	30%	Data linkage study and modelling	30%	As before
Vic	25% <sup>(a)</sup>	Data linkage study	25%	Data analysis <sup>(b)</sup> and data linkage study
Qld	20%	Patient interviews plus small-area analysis	20%	As before
WA	6%	A data linking exercise	6%	The data linking exercise and patient interviews (Young 2001)
SA	10%	The factor used in the 1995–96 report	0%	South Australian submission
Tas	No under-identification factor applied		No under-identification factor applied	
ACT	44%	Patient interviews (ATSIHWIU 1999)	30%	As before
NT	0%	Patient interviews (ATSIHWIU 1999)	0%	As before

(a) The Victorian Department of Human Services considers that the true undercount might have been higher.

(b) Victorian Department of Human Services (pers. comm., 19 April 2004).

Sources: Based on *Expenditures on Health Services for Aboriginal and Torres Strait Islander People 1998–99* (AIHW 2001) and *Expenditures on Health for Aboriginal and Torres Strait Islander People 2001–02* (AIHW 2005b).

## 2.3 The causes of poor Indigenous identification

The reports from past studies into data quality shortcomings have put forward several reasons for the poor quality of Indigenous identification in hospital separations data.

The lack of collecting or reporting of Indigenous status information using the agreed national standards is widely recognised as a major contributor to the poor quality of this information. The reports also point to a range of other interrelated factors.

Commonly mentioned is inadequacy of training in the data collection task, especially a lack of awareness about the importance of collecting accurate patient information. Better Indigenous identification was commonly reported for hospitals where staff understand the importance of accurate and complete patient records, particularly where this message was reinforced by hospital administrators and supported by a culture that encourages follow-up of patient information that is missing.



Inadequate development of interview skills is also mentioned. Some hospital staff are apparently inhibited by concern about negative reactions to the Indigenous status question from Indigenous and non-Indigenous patients or by fear that they could appear foolish or impertinent in asking the question. It has also been suggested that Indigenous patients might be discouraged from identifying as Indigenous if they believe the question has been asked in an inappropriate manner.

The role of various structural factors has also received considerable mention. Prominent among these is hospital staff's lack of day-to-day familiarity with local Indigenous communities – a view supported by a number of studies that have found poorer Indigenous identification at hospitals with catchment areas with relatively low representation of Indigenous people.

Other structural factors mentioned are the work pressures commonly faced by hospital admission staff and their supervisors and the fact that some hospitals lack appropriate organisational structures for ascertaining Indigenous status. Shannon et al. (1997) considered the lack of organisational structures to be more deleterious to data quality than staff concern that Indigenous patients might not wish to identify themselves as Indigenous.

It has been suggested that Indigenous patients might sometimes be discouraged from identifying as Indigenous because of previous negative experiences or concern that their information might be used to discriminate against them or will not be kept confidential. Another suggestion is that non-Indigenous people might also sometimes be unwilling to respond to the identification question if they believe Indigenous people receive special services.

# 3 Current arrangements for ascertaining Indigenous status

This chapter summarises each jurisdiction's processes and policies for ascertaining the Indigenous status of admitted patients; it also provides information about the methods jurisdictions use to improve ascertainment, examples of best practice, and details of methods that have not been successful.

The account is based on information obtained from the questionnaire (Appendix B) the AIHW sent to health authorities in late 2004 and information provided to the AIHW by the health authorities as part of national reporting of hospital separations data, as published in *Australian Hospital Statistics 2003–04* (AIHW 2005a).

It is usually assumed that 'best practice' includes use of the standard question and categories established by the Australian Bureau of Statistics for ascertainment of Indigenous status, with the question being asked of every patient as part of the admission process for every admission.

## 3.1 Arrangements at public hospitals

### Ascertainment

Information was solicited from state and territory health authorities about the data collection systems and staff procedures used for ascertaining the Indigenous status of patients being admitted to public hospitals in their jurisdiction.

### Data collection systems

The standard question and categories established by the Australian Bureau of Statistics for ascertaining Indigenous status are presented to patients at all or most public hospitals in jurisdictions other than New South Wales (not reported), Victoria and the Northern Territory (used in the patient administration systems but not on the patient admission forms).

With the following important exceptions, all states and territories record Indigenous status in keeping with the classification set out in the *National Health Data Dictionary*:

- An additional category 'Declined to respond' is included in New South Wales.
- The category 'Not stated/inadequately described' is not provided in the electronic patient administration systems used at public hospitals in Victoria. As a result, unreported Indigenous status is absent from Victorian public hospital separations records received annually by the AIHW.
- The electronic patient administration system used at rural public hospitals in Western Australia does not provide for responses of 'Not stated/inadequately

described' and 'Neither Aboriginal nor Torres Strait Islander origin'. Such responses are instead coded to the category 'Other'. The two categories are provided in the electronic patient administration system used at metropolitan public hospitals in Western Australia, but they both subsequently default to a category 'Other'. As a result, unreported Indigenous status is absent from Western Australian public hospital separations records received annually by the AIHW.

### **Follow-up of patients whose Indigenous status is recorded at admission as 'Not stated/inadequately described'**

As noted, no category is available for final reporting of unstated or inadequately described Indigenous status at public hospitals in Victoria, and the policy of the state's Department of Human Services is that there should instead be follow-up of patients to obtain a valid response. No information was provided about the rigour of such follow-up, as opposed to arbitrary assignment of Indigenous status by hospital admissions staff.

There is no established practice of follow-up in Western Australia, where separations with unreported Indigenous status become grouped with separations for non-Indigenous patients under the category 'Other'.

A 'Not stated/inadequately described' response is permitted for patients admitted at public hospitals elsewhere, but, with the exception of Tasmania and the Northern Territory, there is no policy for follow-up of these patients, and it is unknown to what extent this policy is followed in practice in Tasmania.

It is also policy in the Northern Territory that, where a patient is admitted by a clinician (usually an after-hours admission), the admission clerk must re-interview the patient and modify the patient's record where necessary.

### **Aboriginal and Torres Strait Islander liaison officers**

Aboriginal and Torres Strait Islander liaison officers are extensively employed to help obtain accurate Indigenous identification at public hospitals in Victoria. They were employed in 18 hospitals at June 2004. The officers have access to hospital admission records and, with the patient's permission, they may correct Indigenous status information in patient records. Among their duties is provision of monthly counts of admitted Indigenous patients to the state's Department of Human Services.

Aboriginal and Torres Strait Islander liaison officers also work to improve Indigenous identification at many public hospitals in Queensland and at public hospitals in the Australian Capital Territory and the Northern Territory.

### **Use of a protocol for responses by non-Australian indigenous people**

Victoria has a protocol specifically excluding non-Australian indigenous people from identification as Aboriginal or Torres Strait Islander, as set out in the Department of Human Services' guidelines *Principles of Recording Aboriginal Status in Victoria*. No protocol is applied in the other jurisdictions.

## **Updating of Indigenous status data at re-admission**

At public hospitals in Western Australia and the Australian Capital Territory a patient's Indigenous status is automatically derived from the record of a previous admission. There is no policy for updating this by checking with the patient.

At public hospitals in all other jurisdictions it is a requirement that a patient's Indigenous status be updated on re-admission. Adherence to this is variable in New South Wales, is unknown in Victoria and is unlikely in Queensland.

## **Staff training**

### **Provision and frequency**

In New South Wales training is provided by individual hospitals and possibly also by area health services, and staff at all or most public hospitals in the state have access to training that includes the asking and recording of Indigenous status.

In Victoria training is provided by individual hospitals and, where requested, by the Koori Human Services Unit of the Department of Human Services. The training occurs on an as-needed basis and is not mandatory for all new staff. A question and answer guide is also available.

In Queensland training is provided by hospital-based trainers, and staff at all or most public hospitals in the state have access to training that includes the asking and recording of Indigenous status. The training occurs on an as-needed basis. Provision of training to new staff varies from hospital to hospital, but larger hospitals would require and supply training. Hospital-based training is supported by trainers organised centrally on a train-the-trainer model.

Training occurs on an as-needed basis in Western Australia and is mandatory for all new staff.

In South Australia training is provided by both the individual hospitals and a central agency, and staff at all or most public hospitals have access to training that includes the asking and recording of Indigenous status. The training occurs on an as-needed basis, but requirements for the training of new staff are unknown.

In Tasmania training is provided by hospital-based trainers, and staff at all or most public hospitals have access to training that includes the asking and recording of Indigenous status. Training is mandatory for all new staff, and there are occasional refresher courses.

In the Northern Territory training is provided by both the individual hospitals and a central agency, and staff at all or most public hospitals have access to training that includes the asking and recording of Indigenous status. Training occurs on an as-needed basis and is mandatory for all new staff.

### **Training content and usefulness**

In all six jurisdictions for which information was reported training covers the reasons for asking the Indigenous status question and the use of Indigenous status data;

guidance is also provided on dealing with queries about and objections to the Indigenous status question.

In Victoria, South Australia, Tasmania and the Northern Territory training is based on the standard package developed by the Australian Bureau of Statistics.

The New South Wales Health Collecting Patient Registration Information Training Program <[http://www.health.nsw.gov.au/im/ahisu/training/pr\\_manual.pdf](http://www.health.nsw.gov.au/im/ahisu/training/pr_manual.pdf)> has been implemented at all public hospitals in that state. The program incorporates the resources developed by the Australian Bureau of Statistics and is regarded by New South Wales Health as an outstanding example of training. The training raises awareness of data elements, including Indigenous status, that may relate to sensitive matters and it reviews strategies to aid the collection of complete and accurate patient information. (Further comments about the program are made in Section 3.3.)

Training in Queensland does not follow any standard package.

Training is regarded as very useful by staff in New South Wales and Tasmania and as somewhat useful by staff in Queensland, South Australia and the Northern Territory. In Victoria it is regarded as very useful at the small number of hospitals where training has been provided by the Koori Human Services Unit.

### **Outstanding examples of training**

As noted, the New South Wales Health Collecting Patient Registration Information Training Program was identified by New South Wales Health as an outstanding example of training. The Victorian Department of Human Services also identified as outstanding the incidental training provided to data collection staff at the state's Mercy Hospital for Women through participation of those staff in an Indigenous identification audit (described in Section 3.3.) that was conducted at the hospital during 2001 and 2002.

### **Processes and policies for encouraging or requiring hospitals to ascertain Indigenous status correctly**

The following processes and policies designed to encourage or require hospitals to ascertain Indigenous status correctly are in operation:

- Service agreements are in operation in New South Wales and Western Australia.
- Financial incentives are offered in New South Wales, Victoria and South Australia.
  - In New South Wales, an additional 10% cost weighting is allowed for admitted patient episodes for Indigenous patients. This provides an incentive for better identification; however, because hospitals may or may not be actually funded on a casemix basis, the degree of incentive is variable.
  - Victoria had an admitted patient funding supplement of 10% for Indigenous patients in public hospitals before July 2004; and since then the supplement has been 30%. Hospitals in receipt of the supplement are obliged to provide appropriate services to Indigenous patients and to improve the quality of data.

The goals set out in the draft guidelines for improving care for Indigenous patients associated with this funding supplement are: to achieve accurate identification of all Aboriginal and Torres Strait Islander (ATSI) patients; to ensure that ATSI people have access to health services; to ensure that all ATSI patients receive culturally sensitive care and appropriate referrals; to promote partnerships with health services and Aboriginal community-controlled health organisations in the planning of service responses for ATSI patients; and to establish a whole-of-health-service responsibility for meeting the needs of ATSI patients.

- A 30% loading is applied to separations for Indigenous people in public hospitals under South Australia's casemix funding system. Records with invalid values are not eligible for funding, which creates an incentive for hospitals to correct invalid values identified by the Department of Health.
- Feedback or analysis of data is provided in New South Wales, Victoria, Queensland, Tasmania and the Australian Capital Territory.
- The documentation provided includes instruction manuals (New South Wales, Queensland, Western Australia and the Northern Territory), data collection guidelines or best-practice guidelines (New South Wales, Victoria, South Australia and Tasmania), departmental circulars (New South Wales, Victoria and Queensland), and data dictionaries (all jurisdictions other than the Australian Capital Territory where a data dictionary is currently under development).

## 3.2 Arrangements at private hospitals

### Ascertainment

Information was solicited from state and territory health authorities about the data collection systems and staff procedures used for ascertaining the Indigenous status of patients being admitted to private hospitals in their jurisdiction.

### Data collection systems

The standard Indigenous status question and categories established by the Australian Bureau of Statistics are presented to patients at all or most hospitals in Western Australia and South Australia and to patients at some hospitals in Victoria. No information was reported on this topic for the other jurisdictions.

Indigenous status is recorded in line with the classification set out in the *National Health Data Dictionary* in all patient administration systems in Victoria and the Australian Capital Territory and in some systems in South Australia. It is not in line with the dictionary in Western Australia, where it appears to be the case that a 'Not stated/inadequately described' response is either unavailable or is amalgamated with the 'Neither Aboriginal nor Torres Strait Islander origin' category. No information was reported on this topic for the other jurisdictions.

### **Follow-up of patients whose Indigenous status is recorded at admission as 'Not stated/inadequately described'**

Processes and policies for patients whose Indigenous status is recorded at admission as 'Not stated/inadequately described' were reported for three jurisdictions.

Although a 'Not stated/inadequately described' response is permitted for patients at private hospitals in Victoria, the category is not permitted in separation records sent to the Department of Human Services. No information was provided to indicate whether staff of private hospitals achieve an absence of separations in this category through appropriate application of the standard Indigenous status question and categories, backed up by follow-up for uncertain cases, or through more arbitrary means.

A 'Not stated/inadequately described' response is permitted for patients admitted at private hospitals in South Australia and the Australian Capital Territory, and there is no established practice for follow-up of these patients.

### **Aboriginal and Torres Strait Islander liaison officers**

Aboriginal and Torres Strait Islander liaison officers are not employed to help obtain accurate Indigenous identification at private hospitals in the five jurisdictions for which information was reported – that is, Victoria, Queensland, Western Australia, South Australia and Tasmania.

### **Use of a protocol for responses by non-Australian indigenous people**

No specific protocol for responses by non-Australian indigenous people was in operation at private hospitals in the three jurisdictions for which information was reported – that is, Queensland, Western Australia and South Australia.

### **Updating of Indigenous status data at re-admission**

Updating Indigenous status data at re-admission was reported as mandatory at private hospitals in New South Wales. It was also reported as mandatory in Victoria, but with the rider that Indigenous status is less likely to be either asked or updated at private hospitals than at public hospitals. It is not mandatory in Western Australia. No information on this topic was reported for the other jurisdictions.

### **Staff training**

Information about staff training in private hospitals was reported for three jurisdictions; no outstanding examples of training were described.

Queensland Health reported that it is not involved in providing training for private hospitals but that each year all private hospitals receive a manual covering all data elements, including information about the Indigenous status data element, its purpose and its method of collection.

Staff at all or most private hospitals in South Australia have access to training that includes the asking and recording of Indigenous status. Training is provided by the Department of Health and takes place on an as-needed basis. Requirements for the

training of all new staff are unknown. The training is based on the standard package developed by the Australian Bureau of Statistics. It includes the reasons for asking the Indigenous status question and the use of Indigenous status data, and it provides guidance on dealing with queries about and objections to the question. The training is reported to be regarded as somewhat useful by hospital staff.

In Tasmania the Department of Health and Human Services offers training, but the offer has been taken up by only one hospital. The training is based on the standard package developed by the Australian Bureau of Statistics. It includes the reasons for asking the Indigenous status question and the use of Indigenous status data, and it provides guidance on dealing with queries about and objections to the question. The training was reported to have been well received by hospital staff.

### **Processes and policies for encouraging or requiring hospitals to ascertain Indigenous status correctly**

Information about processes and policies for encouraging or requiring hospitals to ascertain Indigenous status correctly was reported for all jurisdictions other than the Northern Territory; it indicated an absence of financial incentives and a very limited number of other processes and policies, as follows:

- data provision requirements in the operating license of all private hospitals in Western Australia
- provision of feedback or analysis of data in Victoria
- provision of instruction manuals (New South Wales and Western Australia), data collection guidelines or best-practice guidelines (Victoria and South Australia), departmental circulars (Victoria and Queensland) and data dictionaries (all responding jurisdictions).

## **3.3 Initiatives to improve data quality**

### **Regular monitoring of Indigenous status data**

Non-reporting of Indigenous status is regularly monitored in separations data for every hospital in Queensland, Tasmania and the Australian Capital Territory, with feedback provided to individual hospitals in some cases.

Regular monitoring of the quality of Indigenous status data does not occur in New South Wales at present, but New South Wales Health reported its intention to initiate state-wide and local monitoring together with reporting back to area health services and hospitals.

In Victoria data provided by Koori Hospital Liaison Officers for 18 hospitals are cross-checked with data submitted through the state-wide hospital morbidity collection and the perinatal data collection. These comparisons are reported annually



for each hospital in the publication *Koori Health Counts!* Counts are also checked on a population basis against age, sex and cause of admission.

Regular monitoring of Indigenous status data quality does not take place in Western Australia at present, but the Department of Health advised its intention to implement an annual check.

The monitoring done in South Australia was reported as being limited to the editing of individual separation records to ensure the presence of valid values for Indigenous status and the follow-up of separations for Indigenous patients recorded with an overseas country of birth.

The AIHW contributes to regular monitoring of Indigenous status data in several ways:

- It checks the data provided annually by jurisdictions for the AIHW National Hospital Morbidity Database and seeks clarification or correction of invalid values, unusual distributions of separation numbers across the Indigenous subcategories, and unusual combinations of values (such as an overseas country of birth reported for an Indigenous patient).
- It publishes summary statistics on separations by Indigenous status in *Australian Hospital Statistics*, by jurisdiction, hospital sector and same-day or overnight stay, and by age group and sex. This document includes information on the quality of the data, as presented for 2003–04 in Chapter 2 here.
- It uses Indigenous status data and provides commentary on the quality of the data in other reports, such as the biennial report *The Health and Welfare of Australia's Aboriginal and Torres Strait Islander Peoples 2005* (ABS & AIHW 2005).

## **Recent, current or planned activities**

In its account of Indigenous status data quality provided for publication in *Australian Hospital Statistics 2003–04* (AIHW 2005a), New South Wales Health stated:

...the department continues to be active in the implementation of initiatives aimed at improving the quality of Indigenous status information in separations data. Departmental publications and circulars continue to be used to encourage a uniform approach to the identification of Indigenous patients in addition to providing a framework for continuous improvement in this data collection. To complement these strategies the New South Wales Health Department has developed and implemented its Collecting Patient Registration Information Training Program...

The Victorian Department of Human Services identified Victoria's Koori Information Plan, a response to the 1997 Aboriginal and Torres Strait Islander Health Information Plan, as a vehicle for ongoing improvement to Indigenous identification in health data. It also reported that changes to the Koori Hospital Liaison Officer program and the increase in July 2004 to the admitted patient funding supplement for admitted Indigenous patients in public hospitals would mean the increased employment of these officers.

Queensland Health reported that two project officer positions were to be established to work on improving Indigenous information, including Indigenous status, across the department's health data collections.

The Western Australian Department of Health reported the intention to develop a technical bulletin about the Indigenous status data element, followed by regular training to improve identification of Indigenous admitted patients in the state's hospitals. The department also reported that its Office of Aboriginal Health had been working with the Australian Bureau of Statistics to provide information sessions on Indigenous identification to relevant hospital staff at four country centres and that this training would probably be extended to other hospitals.

The South Australian Department of Health reported that information on the need to record Indigenous status and the appropriate procedures for collection of such data was included in general training sessions recently conducted for metropolitan and country public hospitals. The training was based on the training package produced by the Australian Bureau of Statistics. The department reported that planned future activities mainly involved the provision of additional training.

The Tasmanian Department of Health and Human Services reported the appointment for six months of an Aboriginal health project officer who highlighted the importance of correct Indigenous identification. The department noted that this had been well received in public hospitals.

The Australian Capital Territory Department of Health and Community Care reported that from 2004–05 it had removed from the patient administration system used at one of its public hospitals the arrangement whereby unreported Indigenous status defaulted to the 'Neither Aboriginal nor Torres Strait Islander origin' category; it also advised new arrangements for the follow-up of patients for whom Indigenous status was not reported. The department noted its intention to inform the development of improved processes by means of a study into why some Indigenous patients are not identified in its admitted and non-admitted patient data collections.

The Northern Territory Department of Health and Community Services reported that greater opportunities now exist for updating patients' Indigenous identification through a system whereby Northern Territory residents receiving treatment across the acute, community and primary health services are issued with a unique identifier that enables the exchange of client demographic information between client information systems. The department retains historical reporting of Indigenous status, and individual client systems receive a report on individuals who have been ascertained as Aboriginal on one occasion and as Torres Strait Islander on another. The department also reported that consideration was being given to a repeat of its 1997 evaluation of the ascertainment of patient's demographic information by hospital staff.

## **Most successful and least successful activities, and factors that contribute to or limit best practice**

The most successful and least successful activities reported by New South Wales Health involved, respectively, the current and former versions of its Collecting Patient Registration Information Training Program. The former version of the program was assessed as having poor effectiveness because of an emphasis on Indigenous identification and the fact that it was presented by Aboriginal health workers, which caused it to be perceived as Aboriginal awareness training. The department found the current program very effective because of its focus on overall data quality, rather than just the quality of Indigenous identification.

The Victorian Department of Human Services identified its most successful activity as a detailed audit involving personal interviews with 443 hospital patients (including 392 obstetric patients) conducted during 2001 and 2002 at the Mercy Hospital for Women. The process assessed the procedures followed at the hospital for ascertainment of patients' Indigenous status – specifically the extent to which the patients had been asked for details of their Indigenous status and the Indigenous status of their babies at the time of admission. The department regards the study as a model for possible future audits at all public hospitals in Victoria, in that it provided reliable findings, highlighted areas in need of improvement (such as the need for a specific question about the Indigenous status of each baby's father) and served as a valuable vehicle for training patient data collection staff about the consequences of their data recording practices. Factors contributing to best practice in ascertainment of Indigenous status were said to be the employment of Koori Hospital Liaison Officers and a higher proportion of Indigenous people among the hospital's patients.

The South Australian Department of Health reported successes with regular training sessions run by the department that reinforced the need to accurately record Indigenous status; hospitals taking responsibility for in-house training, with a focus on training new staff; and provision of guidance about dealing with patients who are reluctant to answer the Indigenous status question. The department said best practice generally occurs at rural and remote hospitals, contributing factors being a higher representation of Indigenous people among the hospital's patients and staff familiarity with Indigenous patients.

The Tasmanian Department of Health and Human Services advised that key limiting factors to improved Indigenous identification were the reluctance of staff to ask the question and the registration of patients without face-to-face interviews – for example, newborns.

The Australian Capital Territory Department of Health and Community Care reported that its most successful activities appeared to be improvements to training and its efforts to increase hospital staff's awareness of the need for accurate Indigenous status information.

The most successful and least successful activities described by the Northern Territory Department of Health and Community Services both involved the training sessions given by the Australian Bureau of Statistics during 2000. This training was found to be of a suitable format for small-group training (such as applies in the

community services sector) but unsuccessful on the large scale of an acute care setting. Outstanding examples of best practice were considered to be Gove District Hospital and Alice Springs Hospital, a contributing factor being the consistent and reinforced training of new and existing staff.

## **Other considerations**

New South Wales Health reported its support for the inclusion of a category 'Declined to respond', in addition to the category 'Not stated/inadequately described', in national standards for the asking of Indigenous status. The department said the inclusion of the category in public hospital patient administration systems in the state had ensured the avoidance of follow-up in relation to Indigenous status for these patients. The question also provided information about whether non-reporting was a matter relating to staff education or community education. The potential usefulness of such a category was also identified by the Tasmanian Department of Health and Human Services and by the Northern Territory Department of Health and Community Services. The Northern Territory department also suggested pilot testing of the categories 'Uncomfortable to ask the question' and 'Difficult to ask the question in the circumstances', with follow-up to determine what led to the discomfort in order to inform the assessment of possible alternative ways of asking the question.

The South Australian Department of Health put forward the view that efforts need to be targeted at hospitals that treat the largest numbers of Indigenous people – that is, rural and remote hospitals in the case of that state.

The Northern Territory Department of Health and Community Services reported that public education would be beneficial, possibly by means of in-hospital videos in emergency department and outpatient settings, pamphlets, websites and occasional television advertisements. The department also said a nationally coordinated, Commonwealth-funded approach to improved data collection would be beneficial but would need input from the states and territories to ensure that the collection processes were relevant to each jurisdiction and its various hospitals.

## 4 Analysis of Indigenous status information in national hospital separations data

This chapter analyses Indigenous status information in the AIHW National Hospital Morbidity Database for the period 1996–97 to 2003–04 in order to assess the quality of the information and to make recommendations about how the information should be analysed and could be improved.

Slight differences exist between the separations counts reported here and those reported in the AIHW's annual publication *Australian Hospital Statistics* for 2003–04 and earlier years as a result of minor updates to the National Hospital Morbidity Database.

In keeping with the classification structure for the Indigenous status question set out in the *National Health Data Dictionary* (as summarised in Box 1), patients termed Indigenous here are those reported to any of the three Indigenous status subcategories 'Aboriginal but not Torres Strait Islander origin', 'Torres Strait Islander but not Aboriginal origin' and 'Both Aboriginal and Torres Strait Islander origin'; patients termed non-Indigenous are those reported to the category 'Neither Aboriginal nor Torres Strait Islander origin'. An additional grouping, 'Patients not reported as Indigenous', is used here; it comprises patients reported to the category 'Neither Aboriginal nor Torres Strait Islander origin' and patients whose Indigenous status was reported as 'Not stated/inadequately described'.

Section 4.1 provides an account of separation numbers reported for each category of Indigenous status in each jurisdiction and compares (in the form of rate ratios) the separation rates for Indigenous patients and those for patients not reported as Indigenous in each jurisdiction. Section 4.2 provides an analysis of the occurrence and characteristics of separations for which Indigenous status was reported as 'Not stated/inadequately described'. Section 4.3 provides an analysis of the occurrence and characteristics of separations for each of the three Indigenous subcategories.

The separation rates for Indigenous patients presented in Section 4.1 are based on population data published by the Australian Bureau of Statistics in *Experimental Estimates and Projections, Aboriginal and Torres Strait Islander Australians* (ABS 2004b). That publication contains experimental estimates of the resident Indigenous population at 30 June of each year from 1991 to 2001, based on the 2001 census. It also contains two series of experimental projections of the resident Indigenous population at 30 June of each year for the period 2002 to 2009, also based on the 2001 census. In accord with standard AIHW practice, the low-series projections have been used for this report.

Estimates of the population of each of the Indigenous subcategories at June 2001 are given in the Australian Bureau of Statistics publication, and the estimates for each

state and territory are reproduced here in Table A20. Because of the unavailability of later population data for the subcategories, these data were used to calculate the age-specific rates incorporated in the age-standardised separation rates that are presented as rate ratios in Section 4.3 for patients reported to each of the subcategories in 2003–04.

Separation rates are presented in Sections 4.1 and 4.3 for patients not reported as Indigenous, based on population counts derived by subtraction of the estimates and projections for the Indigenous population from the Australian Bureau of Statistics estimates for the total Australian population.

## 4.1 Overview

### Separation numbers, 2003–04

Table 8 provides, for 2003–04, the counts of separations included in the AIHW National Hospital Morbidity Database for the public and private sectors in each jurisdiction categorised as Indigenous (i.e. ‘Aboriginal but not Torres Strait Islander origin’, ‘Torres Strait Islander but not Aboriginal origin’ or ‘Both Aboriginal and Torres Strait Islander origin’), non-Indigenous (i.e. ‘Neither Aboriginal nor Torres Strait Islander origin’) or Not reported (i.e. ‘Not stated/ inadequately described’).

**Table 8: Hospital separations, by Indigenous status, hospital sector and jurisdiction, 2003–04**

<b>Hospital sector and Indigenous status</b>	<b>NSW</b>	<b>Vic</b>	<b>Qld</b>	<b>WA</b>	<b>SA</b>	<b>Tas</b>	<b>ACT</b>	<b>NT</b>	<b>Australia</b>
<b>Public hospitals</b>									
Indigenous	39,609	9,162	54,043	37,315	14,485	1,779	1,538 <sup>(a)</sup>	45,095	203,026
Non-Indigenous	1,277,014	1,178,367	654,784	329,931	354,177	74,397	65,176	25,013	3,958,859
Not reported	8,912	0 <sup>(b)</sup>	12,186	0 <sup>(b)</sup>	10,458	4,745	2,315 <sup>(b)</sup>	16	38,632
<i>Total</i>	<i>1,325,535</i>	<i>1,187,529</i>	<i>721,013</i>	<i>367,246</i>	<i>379,120</i>	<i>80,921</i>	<i>69,029</i>	<i>70,124</i>	<i>4,200,517</i>
<b>Private hospitals</b>									
Indigenous	741	232	4,041	7,365	432	n.p.	n.p.	n.p.	13,121
Non-Indigenous	710,715	680,574	482,364	282,828	202,886	n.p.	n.p.	n.p.	2,420,169
Not reported	689	0 <sup>(b)</sup>	153,642	0 <sup>(b)</sup>	2,903	n.p.	n.p.	n.p.	207,418
<i>Total</i>	<i>712,145</i>	<i>680,806</i>	<i>640,047</i>	<i>290,193</i>	<i>206,221</i>	<i>n.p.</i>	<i>n.p.</i>	<i>n.p.</i>	<i>2,640,708</i>
<b>Public and private hospitals</b>									
Indigenous	40,350	9,394	58,084	44,680	14,917	n.p.	n.p.	n.p.	216,147
Non-Indigenous	1,987,729	1,858,941	1,137,148	612,759	557,063	n.p.	n.p.	n.p.	6,379,028
Not reported	9,601	0 <sup>(b)</sup>	165,828	0 <sup>(b)</sup>	13,361	n.p.	n.p.	n.p.	246,050
<b>Total</b>	<b>2,037,680</b>	<b>1,868,335</b>	<b>1,361,060</b>	<b>657,439</b>	<b>585,341</b>	<b>n.p.</b>	<b>n.p.</b>	<b>n.p.</b>	<b>6,841,225</b>

(a) Separation numbers for Indigenous patients in the Australian Capital Territory include a substantial number of same-day separations contributed by a relatively small number of dialysis patients.

(b) As described in Sections 3.1 and 3.2, unreported Indigenous status was not permitted in records for public and private hospitals in Victoria and Western Australia and for a major public hospital in the Australian Capital Territory at the time of data collection.

n.p. Not published for confidentiality reasons.

Source: AIHW National Hospital Morbidity Database.

Nationally, 3.2% of separations (216,147) were for patients recorded as Indigenous and 93.2% (6,379,028) were for patients recorded as non-Indigenous. These

population groups represented 2.4% and 97.6%, respectively, of the Australian population at 30 June 2003.

Only 6.1% of separations for patients reported as Indigenous came from the private sector (13,121 of 216,147 separations), compared with 37.9% of separations for patients reported as non-Indigenous (2,420,169 of 6,379,028 separations). The relatively low representation in private sector separations for Indigenous patients probably reflects the poor arrangements (noted in Section 3.2) for ascertaining Indigenous status at private hospitals and a relatively low use of private hospitals by Indigenous people.

## **Separation rate ratios, 2003–04**

The overall quality of the Indigenous status data can be broadly gauged by examining Indigenous to not Indigenous rate ratios. These are the ratios of the separation rates for Indigenous people to the rates for people not reported as Indigenous. Table 9 shows the ratios for each jurisdiction in 2003–04.

A rate ratio greater than 1.0 indicates a higher separation rate for Indigenous people than for people not identified as Indigenous, and a number substantially in excess of 1.0 would be expected in all or most jurisdictions in view of the relatively poor health status of the Indigenous population. Rate ratios not substantially in excess of 1.0 are therefore suggestive of under-identification of Indigenous patients as a result of non-reporting or misclassification of patients' Indigenous status.

Caution is, however, required when interpreting interstate comparisons between the ratios because interstate variations in both population health and health systems – for example, the availability of hospital and non-hospital services – can have significant effects that might need to be taken into account.

Rate ratios for the Australian Capital Territory should also be interpreted cautiously, since they can be substantially affected by the age profile of the Indigenous patients in the year in question when rates are derived using direct age standardisation.

The Indigenous to not Indigenous rate ratios for all separations (same-day and overnight) were relatively high in 2003–04 for the Northern Territory, the Australian Capital Territory, Western Australia, South Australia and Queensland (3.96, 3.48, 2.95, 2.50 and 2.17 respectively), relatively low for New South Wales and Victoria (1.46 and 1.29) and very low for Tasmania (0.62).

The Indigenous to not Indigenous rate ratios for overnight separations provide a different guide to the quality of Indigenous identification in separations data. This is because the same-day contributions to the Indigenous separation rates include dialysis patients, for whom better Indigenous identification might be facilitated through repeat visits. Subtraction of the same-day separations has a large effect for the Australian Capital Territory and the Northern Territory, and the rate ratios for solely overnight separations in 2003–04 were relatively high for Western Australia, South Australia, the Northern Territory and Queensland (2.60, 2.24, 2.10 and 1.79 respectively), relatively low for the Australian Capital Territory, New South Wales and Victoria (1.63, 1.52 and 1.15) and very low for Tasmania (0.62).

**Table 9: Hospital separation rates<sup>(a)</sup>, for people reported as Indigenous and people not reported as Indigenous<sup>(b)</sup>, and the ratio of these rates, by jurisdiction, 2003–04**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
<b>Total separations per 1,000 population (public and private hospitals)</b>									
Indigenous	431.2	478.3	768.7	972.5	891.3	171.8 <sup>(d)</sup>	1,087.1 <sup>(d)</sup>	1,264.1 <sup>(d)</sup>	721.7
Not Indigenous <sup>(b)</sup>	296.1	371.4	354.8	329.8	357.0	164.7 <sup>(d)</sup>	234.0 <sup>(d)</sup>	228.8 <sup>(d)</sup>	334.7
Rate ratio <sup>(c)</sup>	1.46	1.29	2.17	2.95	2.50	0.62	3.48	3.96	2.16
<b>Overnight separations per 1,000 population (public and private hospitals)</b>									
Indigenous	222.9	179.9	282.0	399.9	380.4	79.7 <sup>(d)</sup>	220.8 <sup>(d)</sup>	329.4 <sup>(d)</sup>	278.1
Not Indigenous <sup>(b)</sup>	146.6	155.9	157.5	153.8	169.9	83.7 <sup>(d)</sup>	102.0 <sup>(d)</sup>	112.2 <sup>(d)</sup>	153.5
Rate ratio <sup>(c)</sup>	1.52	1.15	1.79	2.60	2.24	0.62	1.63	2.10	1.81

(a) The separation rates were directly age standardised, with the standard population taken as the estimated total resident Australian population for 30 June 2001 and the age-specific rates derived using ABS population estimates and low-series Indigenous population projections for 30 June 2003.

(b) People not identified as Indigenous are those identified as non-Indigenous and those for whom Indigenous status was not reported.

(c) Caution is required when interpreting interstate comparisons between the ratios because interstate variations in both population health and health systems can have significant effects that might need to be taken into account.

(d) For confidentiality reasons, the separation rates shown for Tasmania, the Australian Capital Territory and the Northern Territory are for public hospitals only. The rate ratio shown for each of these jurisdictions has, however, been derived from the separation rate for public and private hospitals combined.

Source: AIHW National Hospital Morbidity Database.

## Separation rate ratios, 1996–97 to 2003–04

Table 10 shows, for each jurisdiction, the change between 1996–97 and 2003–04 in the Indigenous to not Indigenous separation rate ratio. As noted, caution is required when making interstate comparisons between ratios because interstate variations in both population health and health systems can have significant effects that might need to be taken into account.

There were relatively high rate ratios throughout the period for Western Australia, South Australia, the Australian Capital Territory and the Northern Territory – increasingly so for the Northern Territory until 2001–02. (Before 2002–03 the Northern Territory data were for public hospitals only, and a substantial decrease in the ratio in 2002–03 was associated with the introduction of data reporting for Darwin Private Hospital at which ascertainment of Indigenous status did not take place.) There were moderately high and increasing rate ratios throughout the period for Queensland. The rate ratios were relatively low for New South Wales and Victoria but were increasing for Victoria. They were very low, but possibly increasing, for Tasmania.

As noted, the ratios for overnight separations between 1996–97 and 2003–04 (Table 11) provide a somewhat different guide to the quality of Indigenous identification in separations data. There were relatively high rate ratios for overnight separations throughout the period for Western Australia, South Australia and the Northern Territory – increasingly so for the Northern Territory until 2001–02. The rate ratios were moderately high for Queensland and the Australian Capital Territory – increasingly so for Queensland. They were relatively low and not increasing for New South Wales and Victoria and very low, but possibly increasing, for Tasmania.



**Table 10: Ratio of the separation rates<sup>(a)</sup> for people identified as Indigenous and people not identified as Indigenous<sup>(b)</sup>, by jurisdiction<sup>(c)</sup>, 1996–97 to 2003–04**

Jurisdiction	1996–97	1997–98	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04
NSW	1.50	1.17	1.09	1.31	1.21	1.27	1.38	1.46
Vic	1.08	1.11	1.08	1.14	1.22	1.27	1.33	1.29
Qld	1.49	1.51	1.68	1.78	1.82	1.96	2.09	2.17
WA	2.43	2.50	2.54	2.47	2.47	2.50	2.67	2.95
SA	2.05	2.00	2.03	2.28	2.12	2.17	2.19	2.50
Tas	0.11	0.41	0.08	0.46	0.40	0.47	0.58	0.62
ACT	2.06	1.31	0.13	4.40	2.59	3.70	3.59	3.48
NT	3.65	4.39	4.33	4.76	4.69	5.33	3.70 <sup>(d)</sup>	3.96 <sup>(d)</sup>
WA, SA & NT	2.45	2.61	2.63	2.73	2.64	2.78	2.88	3.13
Qld, WA, SA & NT	1.98	2.07	2.17	2.27	2.25	2.38	2.51	2.67
<b>Australia</b>	<b>1.71</b>	<b>1.69</b>	<b>1.72</b>	<b>1.88</b>	<b>1.84</b>	<b>1.96</b>	<b>2.05</b>	<b>2.16</b>

(a) The separation rates were directly age standardised, with the standard population taken as the estimated total resident Australian population for 30 June 2001 and age-specific rates for a given year derived using ABS population estimates and low-series Indigenous population projections for the preceding 30 June (e.g. 30 June 2003 for the 2003–04 year).

(b) People not identified as Indigenous are those identified as non-Indigenous and those for whom Indigenous status was not reported.

(c) Caution is required when interpreting interstate comparisons between the ratios because interstate variations in both population health and health systems can have significant effects that might need to be taken into account.

(d) From 2002–03 the Northern Territory data include separations for Darwin Private Hospital. The rate ratio decreased sharply between 2001–02 and 2002–03 as a result of the fact that ascertainment of Indigenous status did not take place at that hospital.

Source: AIHW National Hospital Morbidity Database.

**Table 11: Ratio of the overnight separation rates<sup>(a)</sup> for people identified as Indigenous and people not identified as Indigenous<sup>(b)</sup>, by jurisdiction<sup>(c)</sup>, 1996–97 to 2003–04**

Jurisdiction	1996–97	1997–98	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04
NSW	1.53	1.38	1.29	1.42	1.38	1.37	1.45	1.52
Vic	1.21	1.15	1.11	1.09	1.12	1.20	1.22	1.15
Qld	1.46	1.49	1.72	1.76	1.76	1.80	1.75	1.79
WA	2.82	2.86	2.72	2.59	2.53	2.50	2.59	2.60
SA	1.95	1.87	1.90	2.11	1.97	1.91	1.96	2.24
Tas	0.14	0.52	0.10	0.58	0.41	0.39	0.52	0.62
ACT	1.80	0.81	0.18	1.06	1.14	2.11	1.58	1.63
NT	2.15	2.33	2.38	2.44	2.51	2.83	2.02 <sup>(d)</sup>	2.10 <sup>(d)</sup>
WA, SA & NT	2.17	2.20	2.19	2.21	2.17	2.18	2.23	2.30
Qld, WA, SA & NT	1.83	1.86	1.97	2.00	1.98	2.00	2.02	2.07
<b>Australia</b>	<b>1.66</b>	<b>1.65</b>	<b>1.68</b>	<b>1.75</b>	<b>1.73</b>	<b>1.75</b>	<b>1.76</b>	<b>1.81</b>

(a) The separation rates were directly age standardised, with the standard population taken as the estimated total resident Australian population for 30 June 2001 and age-specific rates for a given year derived using ABS population estimates or low series Indigenous population projections for the preceding 30 June (e.g. 30 June 2003 for the 2003–04 year).

(b) People not identified as Indigenous are those identified as non-Indigenous and those for whom Indigenous status was not reported.

(c) Caution is required when interpreting interstate comparisons between the ratios because interstate variations in both population health and health systems can have significant effects that might need to be taken into account.

(d) From 2002–03 the Northern Territory data include separations for Darwin Private Hospital. The rate ratio decreased sharply between 2001–02 and 2002–03 as a result of the fact that ascertainment of Indigenous status did not take place at that hospital.

Source: AIHW National Hospital Morbidity Database.

Included in Tables 10 and 11 are separation rate ratios and overnight separation rate ratios for the aggregate of jurisdictions that had a consistently high rate ratio over the period (Western Australia, South Australia and the Northern Territory) or a consistently high or moderately high rate ratio over the period (Queensland, Western Australia, South Australia and the Northern Territory). These composite rate ratios were consistently high and increasing during the period.

An improvement in identification of Indigenous patients over time is suggested for those jurisdictions for which an increasing rate ratio is noted, and this suggests a need for caution in any time series analysis of separations for Indigenous patients in those jurisdictions. Caution would also be required in time series analysis involving jurisdictions subject to erratic movements in the rate ratios, in particular:

- a large increase in both rate ratios for Queensland between 1997–98 and 1998–99
- a large increase in the separation rate ratio for Western Australia between 2001–02 and 2003–04
- large movements in both rate ratios for South Australia between 1998–99 and 2000–01 and between 2002–03 and 2003–04
- erratic movements in both rate ratios for the Australian Capital Territory.

## **4.2 Separations for which Indigenous status was not reported**

This section provides an account of the non-reporting of Indigenous status in separations data for each jurisdiction between 1996–97 and 2003–04, summarises the overall patient characteristics for separations during 2003–04 for which Indigenous status was not reported, and compares these characteristics with the overall patient characteristics for separations for which status was reported respectively as Indigenous and non-Indigenous.

In interpreting the data, it should be borne in mind that unreported Indigenous status is not accommodated in data systems for some jurisdictions. As described in Sections 3.1 and 3.2, such status is absent from Victorian hospital records as a result of the unavailability of a category for unstated or inadequately described Indigenous status in the patient administration systems used at public hospitals and because the category is not permitted in separation records submitted to the health authority by the private hospitals. An arbitrary assignment of Indigenous status for some cases that would otherwise have Indigenous status recorded as ‘Not stated/inadequately described’ could be occurring as a result of these restrictions. Unreported Indigenous status is absent from Western Australian public hospital records as a result of arrangements whereby separations that have unreported Indigenous status become grouped in patient administration systems with separations for non-Indigenous people. Unreported Indigenous status is also absent from Western Australian private hospital records; the reason for this is unknown. Further, a major hospital in the Australian Capital Territory had, at the time of data collection, a recording system default whereby unidentified Indigenous status was recorded as ‘Neither Aboriginal nor Torres Strait Islander origin’. (This default arrangement has now been removed.)

### **Separations for which Indigenous status was not reported, 2003–04**

Excluding data for Victoria, Western Australia and the Australian Capital Territory hospital just noted, Indigenous status was not reported in 2003–04 for 5.7% of

separations – 12.5% of all private sector separations and 1.5% of all public sector separations (Table 8). Private hospitals contributed 207,418 of the 246,050 separations for which Indigenous status was not reported. These were predominantly from private hospitals in Queensland (153,642 separations), Tasmania, the Australian Capital Territory and the Northern Territory (50,184 separations for these three jurisdictions in aggregate).

The separations in each jurisdiction in 2003–04 that had Indigenous status categorised as Indigenous (i.e. ‘Aboriginal but not Torres Strait Islander origin’, ‘Torres Strait Islander but not Aboriginal origin’ or ‘Both Aboriginal and Torres Strait Islander origin’), non-Indigenous and Not reported are shown in percentage terms in Table 12. For public hospitals the non-reporting of Indigenous status ranged from less than 0.1% of separations in the Northern Territory to 5.9% of separations in Tasmania. For private hospitals it ranged from 0.1% of separations in New South Wales to 24.0% in Queensland, 56.1% in Tasmania and 100% in the Northern Territory.

**Table 12: Hospital separations, by Indigenous status, hospital sector and jurisdiction, 2003–04**

Hospital sector and Indigenous status	Per cent								
	NSW	Vic	Qld	WA	SA	Tas	ACT <sup>(a)</sup>	NT	Australia
<b>Public hospitals</b>									
Indigenous	3.0	0.8	7.5	10.2	3.8	2.2	2.2	64.3	4.8
Non-Indigenous	96.3	99.2	90.8	89.8	93.4	91.9	94.4	35.7	94.2
Not reported	0.7	0.0 <sup>(b)</sup>	1.7	0.0 <sup>(b)</sup>	2.8	5.9	3.4 <sup>(b)</sup>	< 0.1	0.9
<i>Total</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>
<b>Private hospitals</b>									
Indigenous	0.1	0.0	0.6	2.5	0.2	0.2	0.5	0.0	0.5
Non-Indigenous	99.8	100.0	75.4	97.5	98.4	43.7	96.4	0.0	91.6
Not reported	0.1	0.0 <sup>(b)</sup>	24.0	0.0 <sup>(b)</sup>	1.4	56.1	3.1	100.0	7.9
<i>Total</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>
<b>Public and private hospitals</b>									
Indigenous	2.0	0.5	4.3	6.8	2.5	n.p.	n.p.	n.p.	3.2
Non-Indigenous	97.5	99.5	83.5	93.2	95.2	n.p.	n.p.	n.p.	93.2
Not reported	0.5	0.0 <sup>(b)</sup>	12.2	0.0 <sup>(b)</sup>	2.3	n.p.	n.p.	n.p.	3.6
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>n.p.</b>	<b>n.p.</b>	<b>n.p.</b>	<b>100.0</b>

(a) Separation numbers for Indigenous patients in the Australian Capital Territory include a substantial number of same-day separations contributed by a relatively small number of dialysis patients.

(b) As described in Sections 3.1 and 3.2, unreported Indigenous status was not permitted in records for public and private hospitals in Victoria and Western Australia and for a major public hospital in the Australian Capital Territory at the time of data collection.

n.p. Not published for confidentiality reasons.

Source: AIHW National Hospital Morbidity Database.

## Separations for which Indigenous status was not reported, 1996–97 to 2003–04

Changes between 1996–97 and 2003–04 in the non-reporting of Indigenous status are shown in Table 13 for the public and private sectors of each jurisdiction. Excluding isolated exceptions (noted later in this section), and including states for which unreported Indigenous status is not accommodated in data systems, this occurrence varied little at the national level during the period, fluctuating between:

- 0.7% and 1.5% of separations at public hospitals
- 5.2% and 9.1% of separations at private hospitals
- 2.5% and 3.6% of all separations.

**Table 13: Proportion of separations that had Indigenous status not reported, by hospital sector and jurisdiction, 1996–97 to 2003–04**

Hospital sector and jurisdiction	Per cent							
	1996–97	1997–98	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04
<b>Public hospitals</b>								
NSW <sup>(a)</sup>	0.0	0.0	0.0	0.0	0.5	0.5	0.6	0.7
Vic <sup>(b)</sup>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Qld	2.9	6.1	3.6	3.5	2.7	1.7	1.8	1.7
WA <sup>(b)</sup>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SA	1.9	2.4	2.4	2.9	2.6	2.6	2.5	2.8
Tas	0.0	9.7	66.3	6.4	5.9	6.2	6.7	5.9
ACT <sup>(b)</sup>	0.0	0.1	2.0	1.2	2.7	3.5	3.2	3.4
NT	0.0	0.2	2.3	0.2	0.4	0.4	0.3	< 0.1
<i>Australia</i>	<i>0.7</i>	<i>1.5</i>	<i>2.3</i>	<i>1.0</i>	<i>1.0</i>	<i>0.9</i>	<i>0.9</i>	<i>0.9</i>
<b>Private hospitals</b>								
NSW <sup>(a)</sup>	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1
Vic <sup>(b)</sup>	0.0	100.0	1.0	0.0	0.0	0.0	0.0	0.0
Qld	31.8	29.1	28.6	19.9	20.4	21.9	22.2	24.0
WA <sup>(b)</sup>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SA	11.9	6.0	5.4	5.0	3.8	2.6	2.1	1.4
Tas	39.6	40.5	74.8	16.1	61.3	67.0	63.6	56.1
ACT	0.0	0.4	5.8	0.0	1.2	5.8	5.3	3.1
NT	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	100.0	100.0
<i>Australia</i>	<i>9.1</i>	<i>34.5</i>	<i>8.9</i>	<i>5.2</i>	<i>6.9</i>	<i>7.6</i>	<i>7.6</i>	<i>7.9</i>
<b>Public and private hospitals</b>								
NSW <sup>(a)</sup>	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.5
Vic <sup>(b)</sup>	0.0	33.4	0.3	0.0	0.0	0.0	0.0	0.0
Qld	13.3	14.3	12.8	9.9	10.3	11.0	11.2	12.2
WA <sup>(b)</sup>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SA	5.0	3.4	3.3	3.5	3.0	2.6	2.4	2.3
Tas	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
ACT	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
NT	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.p.	n.p.
<b>Australia</b>	<b>3.4</b>	<b>12.0</b>	<b>4.5</b>	<b>2.5</b>	<b>3.2</b>	<b>3.4</b>	<b>3.5</b>	<b>3.6</b>

(a) Between 1996–97 and 1999–00 unreported Indigenous status appears to have been not permitted in records for public and private hospitals in New South Wales.

(b) For most of the period 1996–97 to 2003–04 unreported Indigenous status was not permitted in records for public and private hospitals in Victoria and Western Australia and for a major public hospital in the Australian Capital Territory.

n.a. Not available.

n.p. Not published for confidentiality reasons.

Source: AIHW National Hospital Morbidity Database.

More marked non-reporting of Indigenous status occurred at the national level in 1997–98 and 1998–99:

- 34.5% and 12.0% of separations in data for private hospitals and all hospitals, respectively, in 1997–98, reflecting the total non-reporting of Indigenous status in data for private hospitals in Victoria

- 2.3% and 4.5% of separations in data for public hospitals and all hospitals, respectively, in 1998–99, reflecting one-off increases for public hospitals in Tasmania, the Australian Capital Territory and the Northern Territory.

The absence of separations that had unreported Indigenous status is apparent in Table 13 for various jurisdictions in 1996–97 and in all New South Wales data before 2000–01. It has not been established whether these absences reflect procedures in operation at that time for unreported Indigenous status to receive default coding as ‘Neither Aboriginal nor Torres Strait Islander origin’. If this were the case, the fact that such absences no longer occur could be considered an improvement in data quality for those jurisdictions.

With the exception of the foregoing, the picture for the individual states and territories other than Victoria and Western Australia is as follows:

- New South Wales since 2000–01 – a static level of 0.5–0.7% for public hospitals and about 0.1% for private hospitals and not the total absence of unreported Indigenous status of earlier years, which suggests an improved methodology for collecting Indigenous status data and therefore possibly improved data quality
- Queensland – a steady decrease for public hospitals to under 2% in 2003–04, and a decrease for private hospitals from about 32% in 1996–97 to about 24% in 2003–04, suggestive of improving data quality
- South Australia – a static level of 2–3% for public hospitals and a steady decrease for private hospitals, from about 12% in 1996–97 to 1.4% in 2003–04, suggestive of improving quality of data for private hospitals
- Tasmania – a static level of 6–7% since 1999–00 for public hospitals and erratic levels of between 56% and 67% since 2000–01 for private hospitals, with no apparent improvement over time other than the fact that the total absence of unreported Indigenous status in data for public hospitals ceased after 1996–97
- Australian Capital Territory – a static level of 1–3% for public hospitals and erratic levels of up to 6% for private hospitals, with no apparent improvement over time other than the fact that since 1999–00 there has been no total absence of unreported Indigenous status in data for either public or private hospitals
- Northern Territory – Indigenous status not reported for 100% of separations for Darwin Private Hospital since the introduction of data reporting for that hospital in 2002–03 but improvement in the quality of data for public hospitals, as evidenced by the fact that the total absence of unreported Indigenous status ceased to occur after 1997–98 and the fact that the non-reporting of Indigenous status had decreased to less than 0.1% by 2003–04.

### **Patient characteristics of separations for which Indigenous status was not reported, 2003–04**

The patient characteristics of separations during 2003–04 for which Indigenous status was not reported were examined in order to identify the main demographic, regional and other contributors to the non-reporting of Indigenous status (Tables A1–A12).

It was found that the non-reporting of Indigenous status differed only marginally between male and female patients and with the length of hospital stay. Meaningful differences in non-reporting of Indigenous status occurred with the patient's age, the patient's election status (that is, whether they were a public or private patient), Australian or overseas birthplace, the remoteness of the patient's usual residence, the remoteness of the hospital, the urgency of admission, and groups of principal diagnoses and procedures.

### **Age**

In public hospitals, non-reporting was least among people aged 70 year or more (1.1–1.3%) and children aged 1–14 years (0.9–1.4%); it was greatest for children aged less than 1 year (2.8%). In private hospitals, non-reporting was least among people aged 75 or more (10.6%) and greatest for children aged less than 1 year (14.8%) and children aged 1–14 (13.8–15.0%) (Table A2).

Among children aged less than 1 year (Table A3), non-reporting was greatest for separations for newborns – in particular, separations for newborns for whom admission occurred between one and six days after birth (6.8% for public hospitals and 18.3% for private hospitals). The newborns included in these data are those whose separations included some 'qualified' days – for example, requiring care in an intensive or special care facility.

Non-reporting was also high for separations for newborns for whom all days were 'unqualified' days (Table A4). Putting aside results based on too few separations to be considered reliable, non-reporting for this group was greatest where admission occurred on the day of birth (3.7% for public hospitals and 17.8% for private hospitals).

### **Patient election status**

Non-reporting was greater for public patients than for private patients, being 1.5% compared with 1.2% in public hospitals and 24.5% compared with 12.1% in private hospitals (Table A5).

### **Australian or overseas birthplace**

Non-reporting was greater for Australian-born patients than for overseas-born patients, being 1.3% compared with 0.9% in public hospitals and 11.2% compared with 8.6% in private hospitals (Table A6). The non-reporting of Indigenous status occurred in tandem with the non-reporting of country of birth: 31.6% of public sector separations and 58.8% of private sector separations that had no country of birth reported also had Indigenous status not reported.

### **Remoteness of patient's usual residence**

In public hospitals non-reporting was slightly greater for patients usually resident in regional and remote areas (1.6–1.9%) than for patients resident in major cities or very remote areas (both 1.3%). In private hospitals non-reporting was highly elevated for patients resident in outer regional and very remote areas (30.2% and 35.3% respectively), was somewhat elevated for patients resident in inner regional and

remote areas (16.6% and 18.3% respectively) and relatively low for patients resident in major cities (8.0%) (Table A7).

### **Remoteness of hospital**

Non-reporting was greater at public hospitals in very remote areas (2.8%) than at other public hospitals (1.4–1.6%). Non-reporting was substantially greater at private hospitals in outer regional areas (32.0%) than at other private hospitals, all of which were in major cities and inner regional areas – 8.8–9.9% (Table A8).

### **Urgency of admission**

Non-reporting was greater for patients for whom an urgency status was not assigned than for those for whom an urgency status was assigned, being 1.8% compared with 1.4–1.5% in public hospitals and 24.0% compared with 9.9–11.2% in private hospitals (Table A10). An urgency status is not assigned for most obstetric cases and for planned re-admissions for limited treatment for current conditions such as dialysis and chemotherapy.

### **Principal diagnosis**

Non-reporting differed only marginally across most principal diagnosis groups, but it was relatively elevated for the principal diagnosis of ‘Certain conditions originating in the perinatal period’ (P00–P96) (5.0% in public hospitals and 19.3% in private hospitals), and relatively elevated for ‘Mental and behavioural disorders’ in public hospitals (2.5%) (Table A11).

### **Procedures**

Non-reporting differed only marginally across most procedure groups. In public hospitals it was, however, relatively elevated for ‘Procedures on respiratory system’ (520–569), ‘Gynaecological procedures’ (1240–1299) and ‘Chemotherapeutic and radiation oncology procedures’ (1780–1799), being 2.4%, 2.7% and 2.2% respectively. In private hospitals it was relatively elevated for ‘Procedures on cardiovascular system’ (600–767), ‘Procedures on blood and blood forming organs’ (800–817) and ‘Chemotherapeutic and radiation oncology procedures’ (1780–1799), being 16.6%, 18.4% and 18.5% respectively (Table A12).

### **Summary**

These findings point to a need for specific arrangements directed at ensuring that data collection staff ascertain the Indigenous status of all babies born at the hospital and other patients under the age of 1 year. Such arrangements might need to take into consideration the Indigenous status of both the mother and the father.

## **Comparison of the patient characteristics for separations that had Indigenous status not reported with those for separations reported as Indigenous or non-Indigenous**

The patient characteristics for separations during 2003–04 for which Indigenous status was not reported were compared with those for separations for which Indigenous status was reported as Indigenous or non-Indigenous in order to provide an indication of whether the patients for whom Indigenous status was not reported were more likely to have been Indigenous or non-Indigenous and hence an indication of how these separations should be treated in analysis of the Indigenous status data.

When making this assessment, it was borne in mind that, given the relatively small representation of Indigenous people in the Australian population (2.4% at 30 June 2003), one would expect the patient characteristics of the group of separations that had Indigenous status not reported to be most like those of the non-Indigenous group unless non-reporting was substantially more common among Indigenous patients than among non-Indigenous patients.

The patient characteristics examined were sex, age, patient election status, Australian or overseas birthplace, remoteness of usual residence, hospital remoteness, length of stay, urgency of admission and principal diagnosis and procedure.

Excluded from the comparisons are separations for Victoria, Western Australia and a major hospital in the Australian Capital Territory, where, as noted, unreported Indigenous status was not accommodated in data systems in 2003–04.

### **Sex**

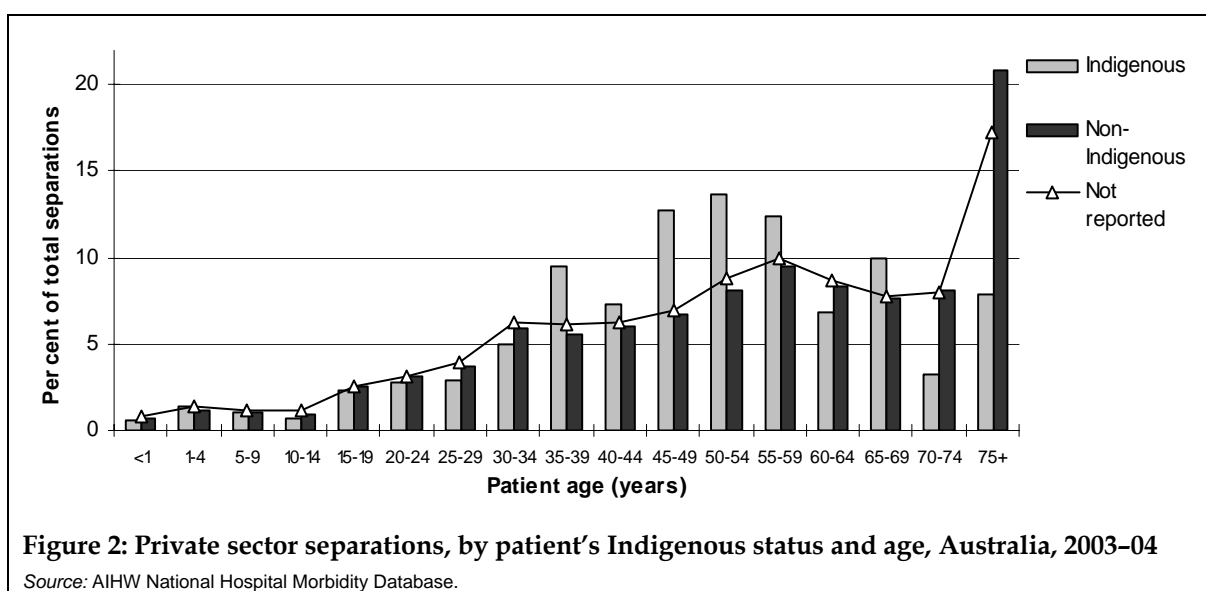
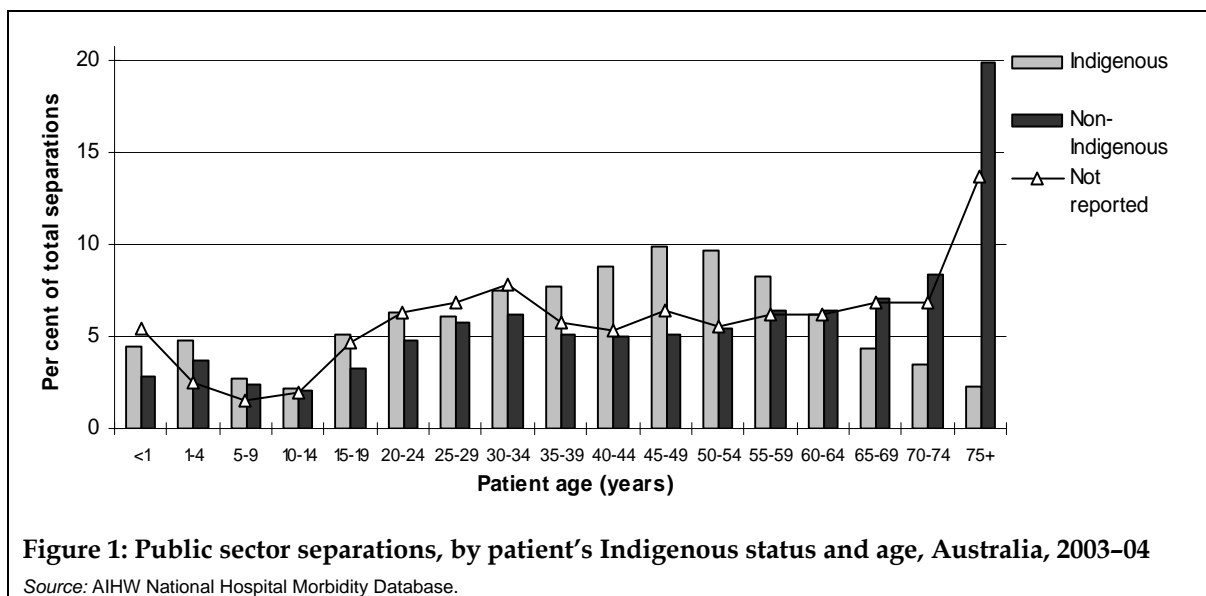
In public hospitals 51% of separations in 2003–04 for which Indigenous status was not reported were females, compared with 52% of separations for non-Indigenous patients and 56% of separations for Indigenous patients (Table A1).

In private hospitals 55% of separations for which Indigenous status was not reported were females, compared with 55% of separations for non-Indigenous patients and 53% of separations for Indigenous patients.

### **Age**

With the exception of public hospital patients aged less than 1 year and aged 15–34 years, the age profiles for separations from both public and private hospitals for which Indigenous status was not reported in 2003–04 were much more like the age profiles for separations for non-Indigenous patients than the age profiles for separations for Indigenous patients (Table A2 and Figures 1 & 2).





### Patient election status

For patient election status, little similarity exists between separations for which Indigenous status was not reported and separations for Indigenous people (Table A5). In public hospitals 12% of separations in 2003-04 for which Indigenous status was not reported were private patients, compared with 15% of separations for non-Indigenous people and of 2% of separations for Indigenous people. In private hospitals 96% of separations for which Indigenous status was not reported were private patients, compared with 99% of separations for non-Indigenous people and 54% of separations for Indigenous people.

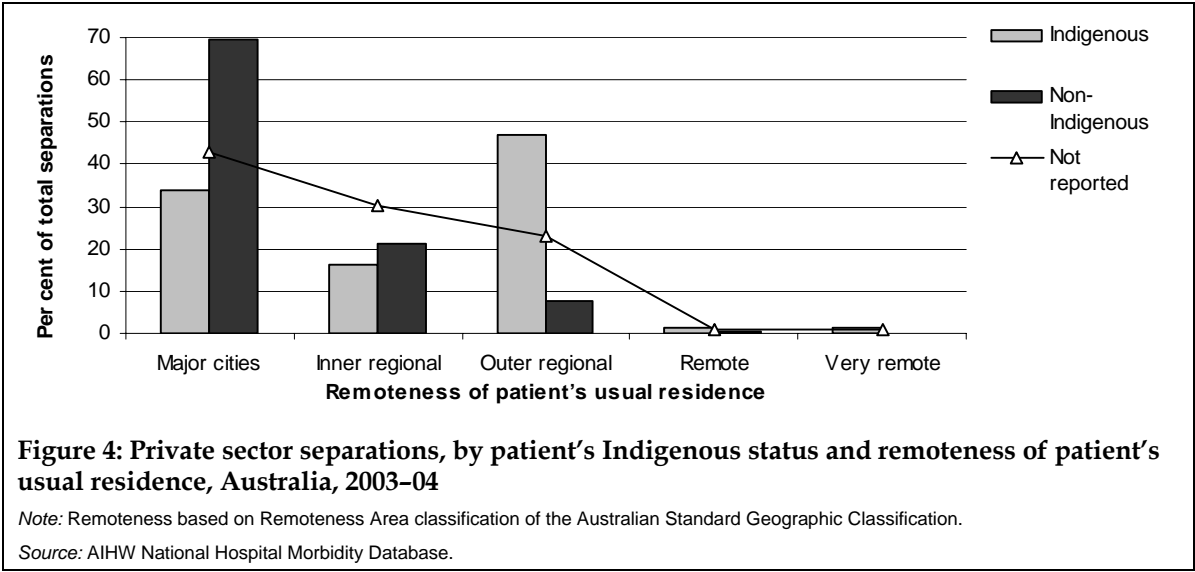
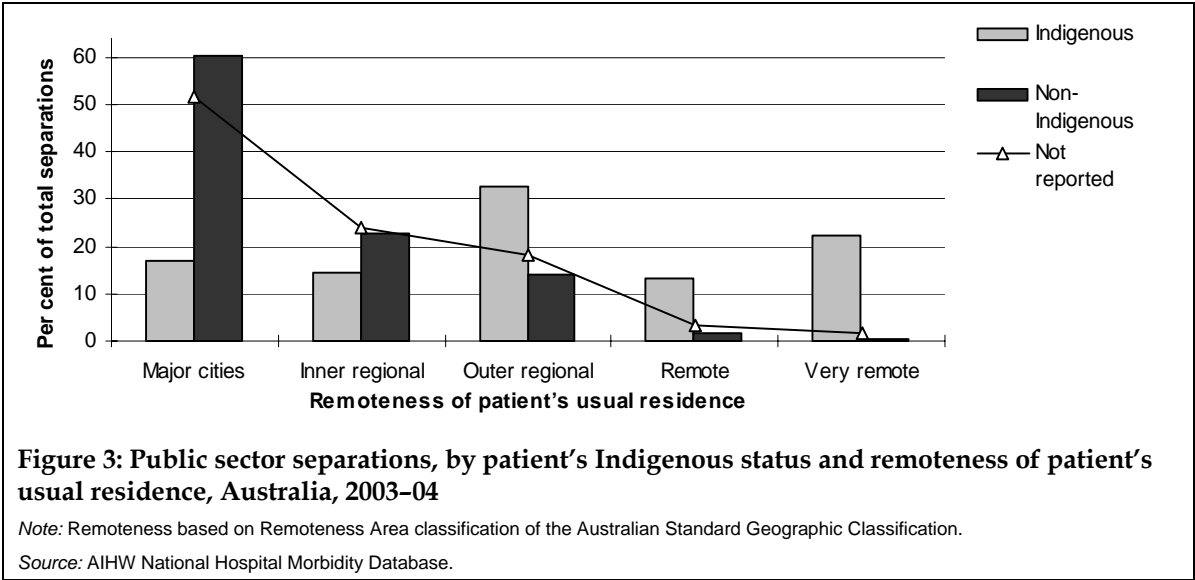
### Australian or overseas birthplace

For birthplace, little similarity exists between separations for which Indigenous status was not reported and separations for Indigenous people (Table A6). In public hospitals 13% of separations in 2003-04 for which Indigenous status was not

reported were born overseas, compared with 24% of separations for non-Indigenous people and 0.3% of separations for Indigenous people. In private hospitals 13% of separations for which Indigenous status was not reported were born overseas, compared with 19% of separations for non-Indigenous people and 0.6% of separations for Indigenous people.

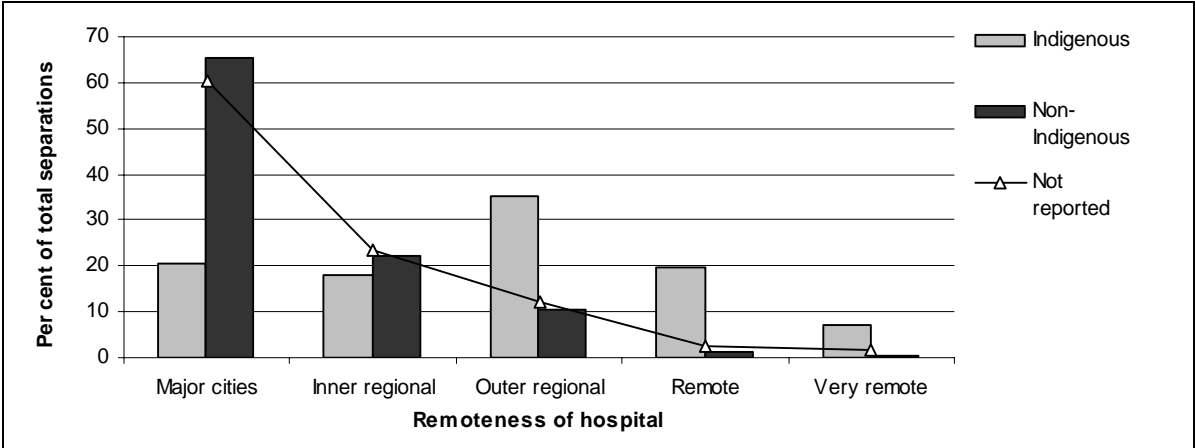
**Remoteness of patient’s usual residence**

Public hospital separations for which Indigenous status was not reported in 2003–04 had a distribution of remoteness of patient’s usual residence substantially more like that for separations for non-Indigenous people than that for separations for Indigenous people. In contrast, private hospital separations for which Indigenous status was not reported had a distribution of remoteness of patient’s usual residence that was not like either of the corresponding distributions of separations for Indigenous and non-Indigenous people (Table A7 and Figures 3 & 4).



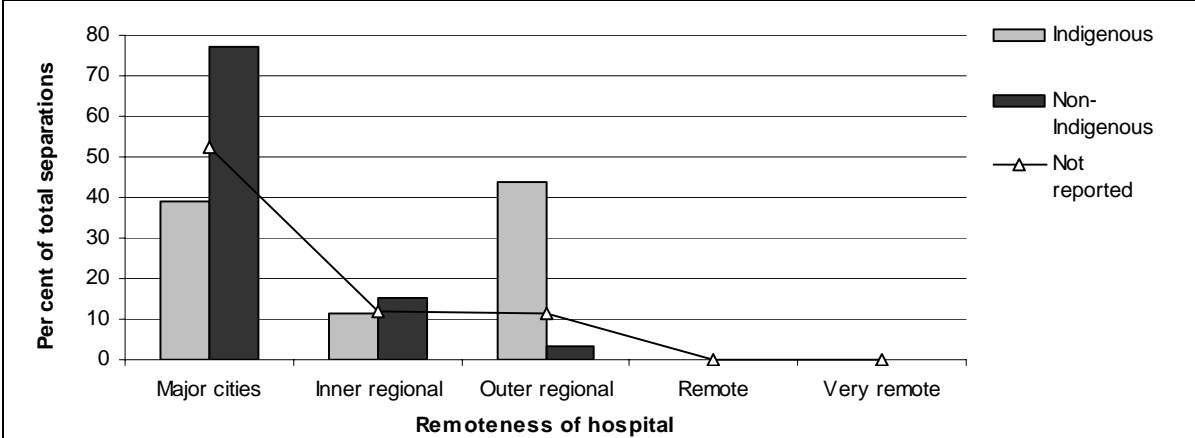
### Remoteness of hospital

Public hospital separations for which Indigenous status was not reported in 2003-04 had a distribution of hospital remoteness substantially more like that of separations for non-Indigenous people than that of separations for Indigenous people. In contrast, private hospital separations for which Indigenous status was not reported had a distribution of hospital remoteness that was not like either of the corresponding distributions of separations for Indigenous and non-Indigenous people (Table A8 and Figures 5 & 6).



**Figure 5: Public sector separations, by patient's Indigenous status and remoteness of hospital, Australia, 2003-04**

Note: Remoteness based on Remoteness Area classification of the Australian Standard Geographical Classification.  
 Source: AIHW National Hospital Morbidity Database.



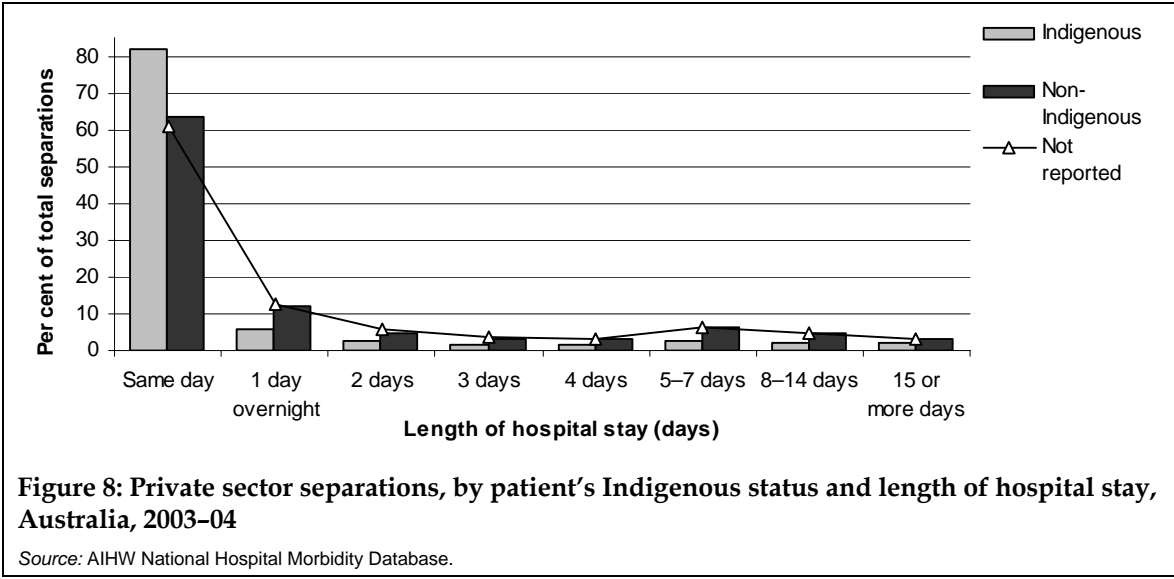
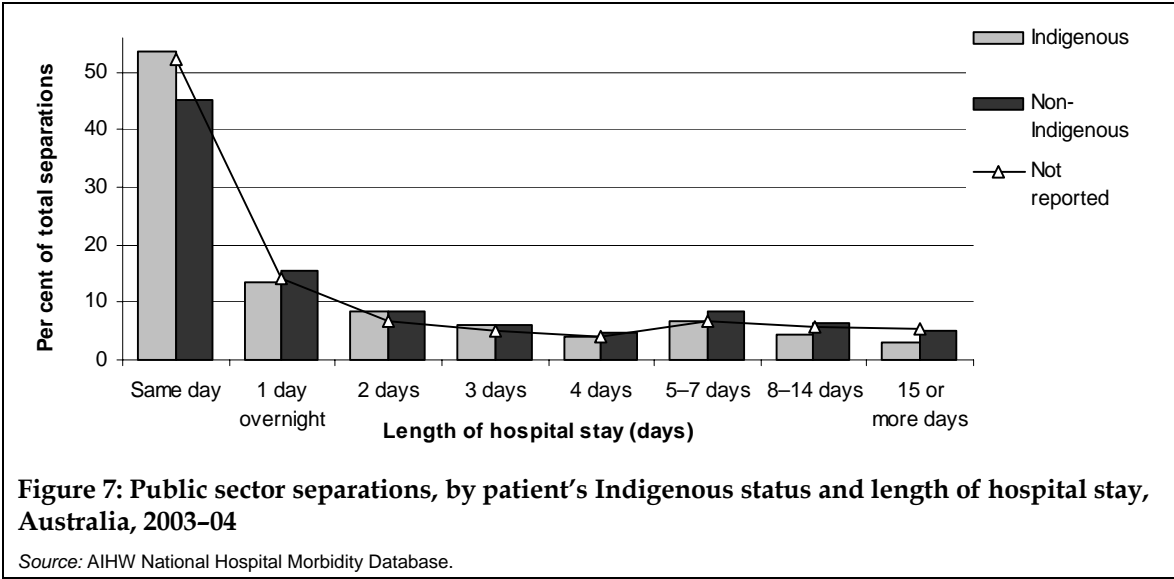
**Figure 6: Private sector separations, by patient's Indigenous status and remoteness of hospital, Australia, 2003-04**

Note: Remoteness based on Remoteness Area classification of the Australian Standard Geographical Classification.  
 Source: AIHW National Hospital Morbidity Database.

### Length of hospital stay

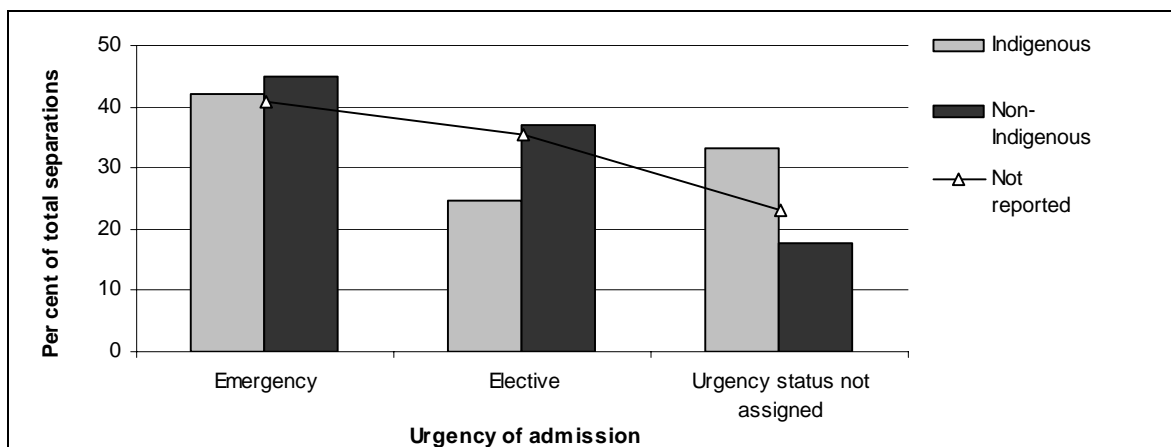
Public hospital separations for which Indigenous status was not reported in 2003-04 had a distribution of length of hospital stay that was not like either of the corresponding distributions of separations for Indigenous and non-Indigenous people (Table A9 and Figure 7).

Private hospital separations for which Indigenous status was not reported had a distribution of length of hospital stay that was more like the corresponding distribution of separations for non-Indigenous people than the distribution of separations for Indigenous people (Table A9 and Figure 8).



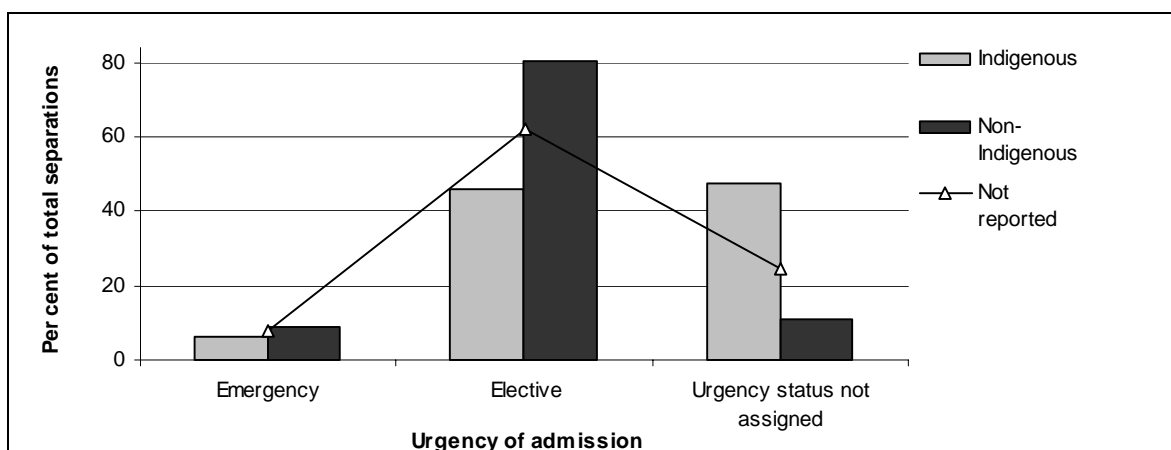
**Urgency of admission**

For both public and private hospitals in 2003-04 the urgency of admission profiles of separations for which Indigenous status was not reported were midway between the corresponding profiles of separations for Indigenous and non-Indigenous people (Table A10 and Figures 9 & 10).



**Figure 9: Public sector separations, by patient's Indigenous status and urgency of admission, Australia, 2003-04**

Source: AIHW National Hospital Morbidity Database.



**Figure 10: Private sector separations, by patient's Indigenous status and urgency of admission, Australia, 2003-04**

Source: AIHW National Hospital Morbidity Database.

### Principal diagnosis and procedure

Separations for which Indigenous status was not reported in 2003-04 had an occurrence of a principal diagnosis of care involving dialysis similar to that observed among separations for non-Indigenous patients and substantially lower than that observed among separations for Indigenous patients. In public hospitals 10% of separations for which Indigenous status was not reported had a principal diagnosis of care involving dialysis, compared with 12% of separations for non-Indigenous patients and 37% of separations for Indigenous patients. In private hospitals 5% of separations for which Indigenous status was not reported had a principal diagnosis of care involving dialysis, compared with 5% of separations for non-Indigenous patients and 47% of separations for Indigenous patients (Table A11).

Similar results are apparent for the procedure of haemodialysis (Table A12).

Little significance should perhaps be attached to these results since the repeat nature of dialysis treatment may present a greater opportunity for precise ascertainment of the Indigenous status of Indigenous patients.

Excluding care involving dialysis, separations from both public and private hospitals for which Indigenous status was not reported had a distribution of principal diagnoses somewhat closer to that observed among separations for non-Indigenous people than to that observed among separations for Indigenous people. Excluding haemodialysis, a similar result is apparent across procedures.

### Summary

At both public and private hospitals, the 'Not stated/inadequately described' category of Indigenous status in hospital separations during 2003–04 tended to have substantially greater similarities with the non-Indigenous category than with the Indigenous category for most of the patient characteristics examined. The similarity was most apparent for sex composition, patient election status and overseas-born representation. There were, however, several exceptions:

- the representation of patients aged less than 1 year and aged 15–34 years in public hospitals – the 'Not stated/inadequately described' category was more like the Indigenous category
- the remoteness of the patient's usual residence and the remoteness of the hospital for private hospital patients – no similarity between the 'Not stated/inadequately described' category and either of the other categories
- the length of stay for public hospital patients – no similarity between the 'Not stated/inadequately described' category and either of the other categories
- the urgency of admission for both public and private hospital patients – no similarity between the 'Not stated/inadequately described' category and either of the other categories.

## 4.3 The Indigenous subcategories

Reporting of the Indigenous subcategories in national hospital separations data was examined with a view to informing the development of the recommendations presented in Chapter 5 in relation to the suitability of using the subcategories in data analysis and reporting.

The Indigenous subcategories are specified in the *National Health Data Dictionary* as 'Aboriginal but not Torres Strait Islander origin', 'Torres Strait Islander but not Aboriginal origin' and 'Both Aboriginal and Torres Strait Islander origin'. Population counts at 30 June 2001 for the subcategories are provided in Table A20 for each state and territory.

The assessment was made up of the following elements:

- an account of the reporting of the subcategories in each jurisdiction in 2003–04

- an account of changes in the reporting of the subcategories in each jurisdiction between 1997–98 and 2003–04
- a comparison of separation rate ratios for each subcategory across jurisdictions in 2003–04
- a comparison of patients' characteristics of separations for each of the subcategories in 2003–04 with those for the category 'Neither Aboriginal nor Torres Strait Islander origin'
- an examination of separation numbers for each subcategory in 2003–04 for which an overseas country of birth was reported.

## Reporting of the subcategories, 2003–04

Table 14 shows the number of separations in 2003–04 for each of the Indigenous subcategories for the public and private sectors of each state and territory.

Nationally, there were 200,746 separations for patients reported as 'Aboriginal but not Torres Strait Islander origin'. They accounted for the overwhelming majority of separations for Indigenous patients. There were 9,748 separations reported as 'Torres Strait Islander but not Aboriginal origin', largely contributed by Queensland (8,375 separations) and New South Wales (833). There were 5,653 separations reported as 'Both Aboriginal and Torres Strait Islander origin'. Much of this subcategory was also contributed by Queensland (2,856 separations) but large contributions also came from New South Wales, Victoria, the Northern Territory and Western Australia.

Nationally, the private sector contributed 5.7% of the 'Aboriginal but not Torres Strait Islander origin' subcategory, 6.7% of the 'Torres Strait Islander but not Aboriginal origin' subcategory, and 17.7% of the 'Both Aboriginal and Torres Strait Islander origin' subcategory. With the exception of Queensland, the private sector contributed less to the 'Aboriginal but not Torres Strait Islander origin' subcategory than to the other two subcategories in all jurisdictions for which information can be published.

After excluding from the counts any same-day admissions that were likely to have represented repeat visits for procedures such as dialysis and chemotherapy (data not shown), the private sector contribution to the 'Both Aboriginal and Torres Strait Islander origin' subcategory remains substantially higher than the private sector contribution to the 'Aboriginal but not Torres Strait Islander origin' subcategory for all jurisdictions for which information can be published. This suggests that in the private sector there is a greater tendency for the 'Both Aboriginal and Torres Strait Islander origin' subcategory, compared with the other Indigenous subcategories, to include misidentified Indigenous or non-Indigenous patients. This question is revisited in the following section.

An alternative explanation is relatively greater under-identification in public hospitals than in private hospitals for patients belonging to this Indigenous subcategory, but this is unlikely in view of the generally poorer practices at private hospitals for recording Indigenous status, as noted in Section 3.2.

**Table 14: Hospital separations, by Indigenous subcategory, hospital sector and jurisdiction, 2003–04**

Indigenous subcategory and hospital sector	NSW	Vic	Qld	WA	SA	Tas	ACT <sup>(a)</sup>	NT	Australia
<b>Number</b>									
<b>Aboriginal but not Torres Strait Islander origin</b>									
Public hospitals	38,026	8,384	43,939	37,033	14,364	1,682	1,476	44,371	189,275
Private hospitals	578	94	2,914	7,234	408	n.p.	n.p.	n.p.	11,471
<i>Public and private hospitals</i>	<i>38,604</i>	<i>8,478</i>	<i>46,853</i>	<i>44,267</i>	<i>14,772</i>	<i>n.p.</i>	<i>n.p.</i>	<i>n.p.</i>	<i>200,746</i>
<b>Torres Strait Islander but not Aboriginal origin</b>									
Public hospitals	762	154	7,873	79	63	47	12	108	9,098
Private hospitals	71	19	502	32	13	n.p.	n.p.	n.p.	650
<i>Public and private hospitals</i>	<i>833</i>	<i>173</i>	<i>8,375</i>	<i>111</i>	<i>76</i>	<i>n.p.</i>	<i>n.p.</i>	<i>n.p.</i>	<i>9,748</i>
<b>Both Aboriginal and Torres Strait Islander origin</b>									
Public hospitals	821	624	2,231	203	58	50	50	616	4,653
Private hospitals	92	119	625	99	11	n.p.	n.p.	n.p.	1,000
<i>Public and private hospitals</i>	<i>913</i>	<i>743</i>	<i>2,856</i>	<i>302</i>	<i>69</i>	<i>n.p.</i>	<i>n.p.</i>	<i>n.p.</i>	<i>5,653</i>
<b>Per cent</b>									
<b>Aboriginal but not Torres Strait Islander origin</b>									
Public hospitals	98.5	98.9	93.8	83.7	97.2	n.p.	n.p.	n.p.	94.3
Private hospitals	1.5	1.1	6.2	16.3	2.8	n.p.	n.p.	n.p.	5.7
<i>Public and private hospitals</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>
<b>Torres Strait Islander but not Aboriginal origin</b>									
Public hospitals	91.5	89.0	94.0	71.2	82.9	n.p.	n.p.	n.p.	93.3
Private hospitals	8.5	11.0	6.0	28.8	17.1	n.p.	n.p.	n.p.	6.7
<i>Public and private hospitals</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>
<b>Both Aboriginal and Torres Strait Islander origin</b>									
Public hospitals	89.9	84.0	78.1	67.2	84.1	n.p.	n.p.	n.p.	82.3
Private hospitals	10.1	16.0	21.9	32.8	15.9	n.p.	n.p.	n.p.	17.7
<i>Public and private hospitals</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>

(a) Separation numbers for Indigenous patients in the Australian Capital Territory include a substantial number of same-day separations contributed by a relatively small number of dialysis patients.

n.p. Not published for confidentiality reasons.

Source: AIHW National Hospital Morbidity Database.

## Reporting of the Indigenous subcategories, 1997–98 to 2003–04

Table 15 shows the total annual separations for each Indigenous subcategory between 1997–98 and 2003–04 for each state and territory. With some exceptions, a fairly smooth time series and an increasing number of separations are apparent for each subcategory. This suggests both consistent interpretation of the Indigenous subcategories and improved ascertainment of Indigenous status for each subcategory in most jurisdictions.

Exceptions to the smooth time series were:

- relatively low counts in 1998–99 for all subcategories in Tasmania and the Australian Capital Territory
- erratic counts for separations in New South Wales reported as ‘Both Aboriginal and Torres Strait Islander origin’, notably a relatively large count in 1997–98
- a relatively low count in 1997–98 for separations in Queensland reported as ‘Both Aboriginal and Torres Strait Islander origin’



- a relatively large count for separations in Tasmania in 1999–00 reported as ‘Torres Strait Islander but not Aboriginal origin’.

**Table 15: Hospital separations, by Indigenous subcategory and jurisdiction, 1997–98 to 2003–04**

<b>Indigenous subcategory and jurisdiction</b>	<b>1997–98</b>	<b>1998–99</b>	<b>1999–00</b>	<b>2000–01</b>	<b>2001–02</b>	<b>2002–03</b>	<b>2003–04</b>
<b>Aboriginal but not Torres Strait Islander origin</b>							
NSW	29,794	29,129	31,958	32,660	33,977	36,588	38,604
Vic	n.a.	n.a.	6,457	7,096	7,615	8,427	8,478
Qld	34,311	36,020	37,794	40,308	44,165	44,747	46,853
WA	n.a.	33,755	34,422	36,208	36,987	40,624	44,267
SA	11,214	10,941	12,269	12,143	12,757	13,150	14,772
Tas <sup>(a)</sup>	n.a.	246	917	1,026	1,443	1,737	1,682
ACT <sup>(a)(b)</sup>	n.a.	42	1,146	1,080	1,258	1,384	1,476
NT <sup>(a)</sup>	31,043	31,210	33,703	34,402	39,117	41,337	44,371
<i>Australia</i>	<i>106,362</i>	<i>141,369</i>	<i>158,669</i>	<i>165,082</i>	<i>177,449</i>	<i>188,152</i>	<i>200,746</i>
<b>Torres Strait Islander but not Aboriginal origin</b>							
NSW	601	643	567	723	710	832	833
Vic	n.a.	n.a.	123	115	215	274	173
Qld	6,909	7,424	7,776	7,978	7,868	7,995	8,375
WA	n.a.	45	82	125	102	91	111
SA	27	33	25	77	63	36	76
Tas <sup>(a)</sup>	n.a.	0	258	69	47	73	47
ACT <sup>(a)</sup>	n.a.	0	16	16	37	8	12
NT <sup>(a)</sup>	127	78	72	100	134	116	108
<i>Australia</i>	<i>7,664</i>	<i>8,223</i>	<i>8,919</i>	<i>9,207</i>	<i>9,181</i>	<i>9,432</i>	<i>9,748</i>
<b>Both Aboriginal and Torres Strait Islander origin</b>							
NSW	1,220	272	148	404	745	945	913
Vic	n.a.	n.a.	382	444	566	777	743
Qld	581	1,985	1,881	1,742	2,502	2,503	2,856
WA	n.a.	425	193	308	279	408	302
SA	29	35	68	71	45	75	69
Tas <sup>(a)</sup>	n.a.	6	30	41	35	38	50
ACT <sup>(a)</sup>	n.a.	0	11	26	66	40	50
NT <sup>(a)</sup>	372	476	548	476	399	461	616
<i>Australia</i>	<i>2,202</i>	<i>3,199</i>	<i>3,278</i>	<i>3,525</i>	<i>4,688</i>	<i>5,283</i>	<i>5,653</i>

(a) For confidentiality reasons, the number of separations for public hospitals only is shown for Tasmania, the Australian Capital Territory and the Northern Territory.

(b) Separation numbers for Indigenous patients in the Australian Capital Territory include a substantial number of same-day separations contributed by a relatively small number of dialysis patients.

n.a. Not available because the jurisdictions in question reported only a single Indigenous category at that time, in line with the former ‘Aboriginality’ data element in the *National Health Data Dictionary*.

Source: AIHW National Hospital Morbidity Database.

## Separation rate ratios for the Indigenous subcategories, 2003–04

The overall quality of the data for each Indigenous subcategory can be broadly gauged by examining the ratio of the separation rate for patients reported to that subcategory to the separation rate for patients not identified as Indigenous (termed the rate ratio). Table 16 shows the rate ratios for each Indigenous subcategory in 2003–04 for each jurisdiction.

As noted in Section 4.1, rate ratios not substantially in excess of 1.0 are suggestive of under-identification of Indigenous patients stemming from non-reporting of Indigenous status and misidentification involving the other Indigenous subcategories or the category 'Neither Aboriginal nor Torres Strait Islander origin'. Caution is, however, required when interpreting interstate comparisons between the ratios because interstate variations in both population health and health systems can have effects that might need to be taken into account. Another reason for caution is the possible inaccuracy of population data for the subcategories 'Torres Strait Islander but not Aboriginal origin' and 'Both Aboriginal and Torres Strait Islander origin' for jurisdictions where the numbers are small.

**Table 16: Ratio<sup>(a)(b)</sup> of the separation rates for people identified as Indigenous and people not identified as Indigenous<sup>(c)</sup>, by Indigenous subcategory and jurisdiction, 2003-04**

<b>Indigenous subcategory</b>	<b>NSW</b>	<b>Vic</b>	<b>Qld</b>	<b>WA</b>	<b>SA</b>	<b>Tas</b>	<b>ACT</b>	<b>NT</b>	<b>Australia</b>
Aboriginal but not Torres Strait Islander origin	1.53	1.41	2.16	3.07	2.86	0.71	4.28 <sup>(d)</sup>	3.72	2.13
Torres Strait Islander but not Aboriginal origin	0.74	0.24	2.14	0.44	0.26	0.17	n.p.	0.50	1.46
Both Aboriginal and Torres Strait Islander origin	1.13	2.18	1.83	0.89	0.39	0.36	n.p.	2.86	1.46
<b>Total of the Indigenous subcategories</b>	<b>1.47</b>	<b>1.32</b>	<b>2.14</b>	<b>2.97</b>	<b>2.60</b>	<b>0.63</b>	<b>4.07</b>	<b>3.66</b>	<b>2.06</b>

(a) The separation rates were directly age standardised, with the estimated total resident Australian population for 30 June 2001 used as the standard population. Due to the unavailability of later population data for Indigenous subcategories, population data for 30 June 2001 were used to calculate the age-specific rates. The rate ratios are therefore not directly comparable with those shown in Tables 9 and 10.

(b) Caution is required when interpreting interstate comparisons between the ratios because interstate variations in both population health and health systems can have significant effects that might need to be taken into account.

(c) People not identified as Indigenous are those identified as non-Indigenous and those for whom Indigenous status was not reported.

(d) Separation numbers for Indigenous patients in the Australian Capital Territory include a substantial number of same-day separations contributed by a relatively small number of dialysis patients.

n.p. Rate ratio not published because it is unreliable for this jurisdiction when derived using direct age standardisation.

Source: AIHW National Hospital Morbidity Database.

### **The subcategory 'Aboriginal but not Torres Strait Islander origin'**

Nationally, the separation rate for people reported as 'Aboriginal but not Torres Strait Islander origin' was 2.13 times the rate for people not reported as Indigenous, which is consistent with the relatively poor health status of the Indigenous population. The relationship varied, however, between individual jurisdictions and would have been influenced both by variations in the extent to which Indigenous people were accurately identified in the separations data and in the data used to construct estimates of resident population and by possible variations in the health status of the Indigenous population between jurisdictions.

The largest rate ratios were reported for Queensland, Western Australia, South Australia, the Australian Capital Territory and the Northern Territory, although, as noted in Section 4.1, it should be borne in mind that the rate ratios for the Australian Capital Territory and the Northern Territory include substantial complements of dialysis patients, for whom better Indigenous identification may be facilitated through repeat visits.

Somewhat smaller rate ratios were reported for New South Wales and Victoria, and a relatively very small rate ratio is apparent for Tasmania (0.71), suggesting substantial under-identification of the subcategory in New South Wales and Victoria and very substantial under-identification in Tasmania.

### **The subcategory 'Torres Strait Islander but not Aboriginal origin'**

Only in Queensland (rate ratio of 2.14) did the separation rate for people reported as 'Torres Strait Islander but not Aboriginal origin' exceed the rate for people not reported as Indigenous. This suggests substantial under-identification of this Indigenous subcategory beyond Queensland, particularly in Victoria, South Australia and Tasmania (rate ratios of 0.24, 0.26 and 0.17 respectively). It is not known how much of this under-identification stemmed from non-reporting of Indigenous status and how much stemmed from misidentification involving other Indigenous subcategories, or the non-Indigenous category.

### **The subcategory 'Both Aboriginal and Torres Strait Islander origin'**

With the exception of Queensland, the rate ratios for the subcategory 'Both Aboriginal and Torres Strait Islander origin' were substantially larger than their counterparts reported for the subcategory 'Torres Strait Islander but not Aboriginal origin', which suggests misclassification into this subcategory. This was most notable in Victoria and the Northern Territory. It could be that this subcategory is used as a residue group for patients of unknown Indigenous status or patients identified as Indigenous and not further specified. Alternatively, the subcategory might be inadvertently selected because of its proximity to the 'Neither Aboriginal nor Torres Strait Islander origin' category on recording forms and data recording screens.

Notwithstanding this suggested misclassification, the national separation rate for the 'Aboriginal but not Torres Strait Islander origin' subcategory was only 1.46 times the rate for people not reported as Indigenous, and the rate ratios for this subcategory were smaller than their counterparts reported for the subcategory 'Aboriginal but not Torres Strait Islander origin' in all jurisdictions other than Victoria. This suggests widespread under-reporting in comparison with the subcategory 'Aboriginal but not Torres Strait Islander origin'.

## **Patient characteristics for the subcategories, 2003–04**

Key characteristics of the patients separating from hospital during 2003–04 were compared between each of the Indigenous subcategories and the category 'Neither Aboriginal nor Torres Strait Islander origin' in order to gauge the extent to which non-Indigenous patients might be reported to the Indigenous subcategories. The comparison covered the patient's sex, age, election status, Australian or overseas birthplace, and the remoteness of the patient's usual residence.

### **Sex**

Of the three Indigenous subcategories, the subcategory 'Torres Strait Islander but not Aboriginal origin' was least unlike the category 'Neither Aboriginal nor Torres Strait

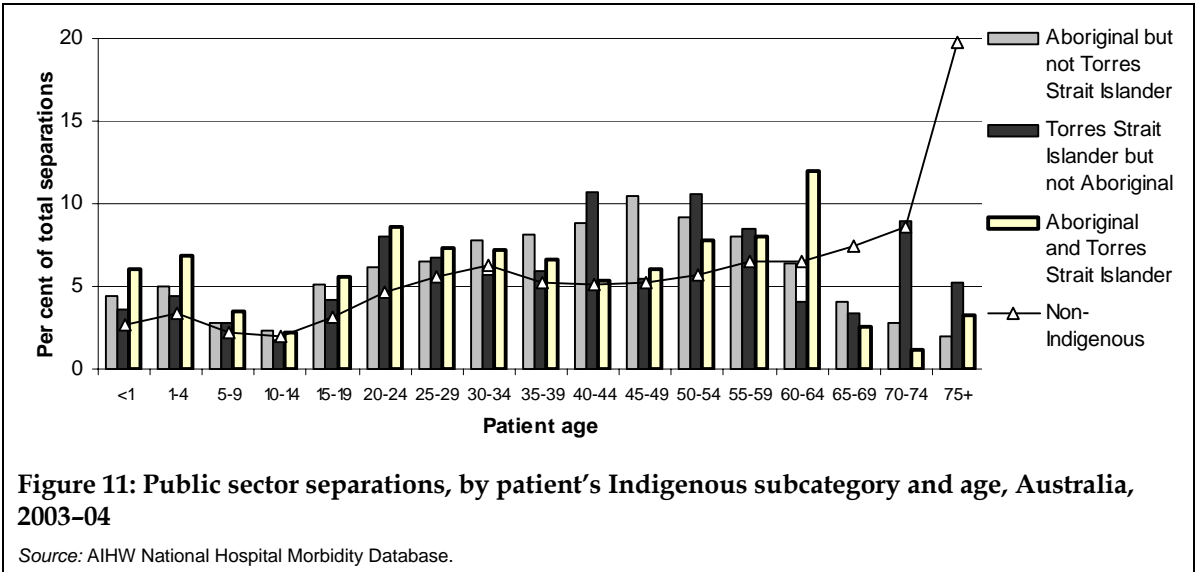
Islander origin' in terms of the sex composition of public hospital separations. Separations of females made up 55% of the subcategory, compared with 52% of the category 'Neither Aboriginal nor Torres Strait Islander origin', 57% of the subcategory 'Aboriginal but not Torres Strait Islander origin', and 59% of the subcategory 'Both Aboriginal and Torres Strait Islander origin' (Table A13).

The subcategory 'Both Aboriginal and Torres Strait Islander origin' was least unlike the category 'Neither Aboriginal nor Torres Strait Islander origin' in terms of the sex composition of private hospital separations. Separations of females made up 51% of the subcategory, compared with 55% of the category 'Neither Aboriginal nor Torres Strait Islander origin', 60% of the subcategory 'Aboriginal but not Torres Strait Islander origin', and 68% of the subcategory 'Torres Strait Islander but not Aboriginal origin'.

**Age**

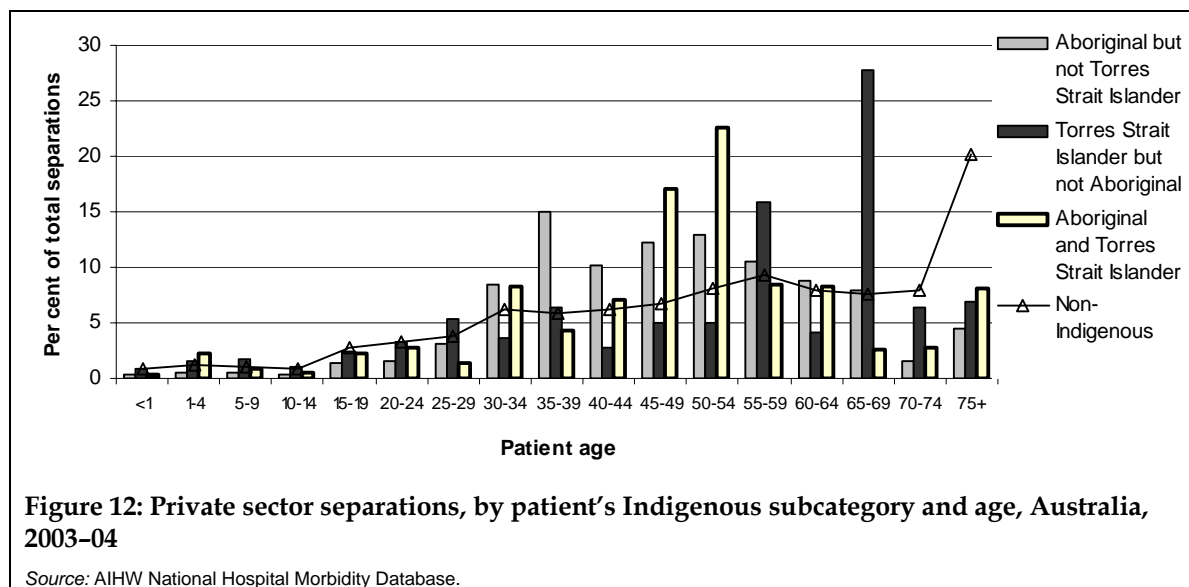
At both public and private hospitals the age profiles of the three Indigenous subcategories differed to some extent but appear to have been equally unlike the age profile of the 'Neither Aboriginal nor Torres Strait Islander origin' category (Table A14 and Figures 11 & 12).

In terms of patients' age broadly grouped as 0-14 years, 15-64 years and 65 years or more (data not shown), the subcategory 'Torres Strait Islander but not Aboriginal origin' had closer similarities to the category 'Neither Aboriginal nor Torres Strait Islander origin' than did the other Indigenous subcategories. In particular, at public hospitals 18% of separations reported as 'Torres Strait Islander but not Aboriginal origin' were for patients aged 65 or more, compared with 36% of separations reported as 'Neither Aboriginal nor Torres Strait Islander origin' and 7-9% of separations reported to the other Indigenous subcategories. At private hospitals 41% of separations reported as 'Torres Strait Islander but not Aboriginal origin' were for patients aged 65 or more, compared with 36% of separations reported as 'Neither Aboriginal nor Torres Strait Islander origin' and 13-14% of separations reported to the other Indigenous subcategories.



**Figure 11: Public sector separations, by patient's Indigenous subcategory and age, Australia, 2003-04**

Source: AIHW National Hospital Morbidity Database.



### Patient election status

Of the Indigenous subcategories, the subcategory 'Both Aboriginal and Torres Strait Islander origin' was least unlike the category 'Neither Aboriginal nor Torres Strait Islander origin' in terms of private patient representation (Table A15).

At public hospitals 6% of separations for this Indigenous subcategory were for private patients, compared with 14% for the category 'Neither Aboriginal nor Torres Strait Islander origin' and 2-3% for the other Indigenous subcategories. At private hospitals 68% of separations for the subcategory were for private patients, compared with 97% for the category 'Neither Aboriginal nor Torres Strait Islander origin', 22% for the subcategory 'Aboriginal but not Torres Strait Islander origin', and 64% for the subcategory 'Torres Strait Islander but not Aboriginal origin'.

### Australian or overseas birthplace

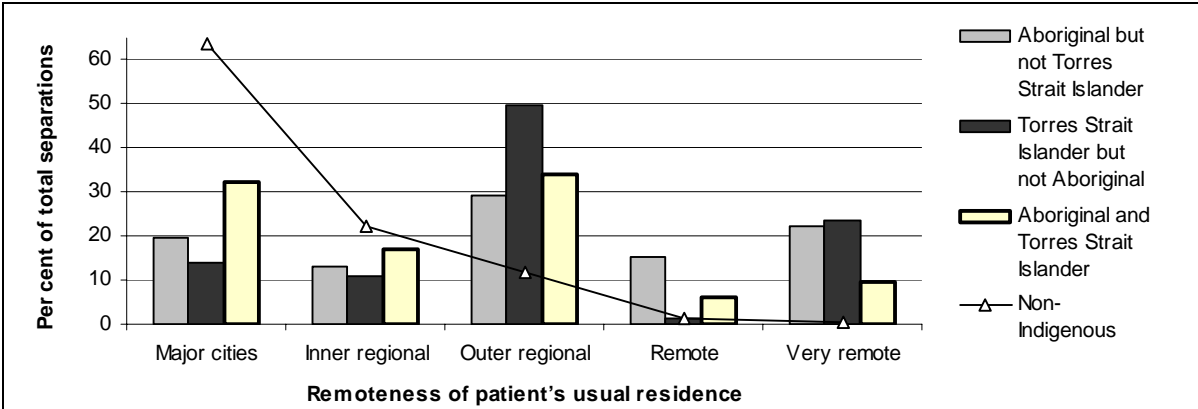
Of the Indigenous subcategories, the subcategory 'Both Aboriginal and Torres Strait Islander origin' was least unlike the category 'Neither Aboriginal nor Torres Strait Islander origin' in terms of the representation of overseas-born patients in public hospital separations. Overseas-born patients contributed 3% of separations for this Indigenous subcategory, compared with 27% of separations for the category 'Neither Aboriginal nor Torres Strait Islander origin' and 0.1-1% of separations for the other Indigenous subcategories (Table A16).

Numbers of overseas-born private hospital separations for the Indigenous subcategories were very small.

### Remoteness of patient's usual residence

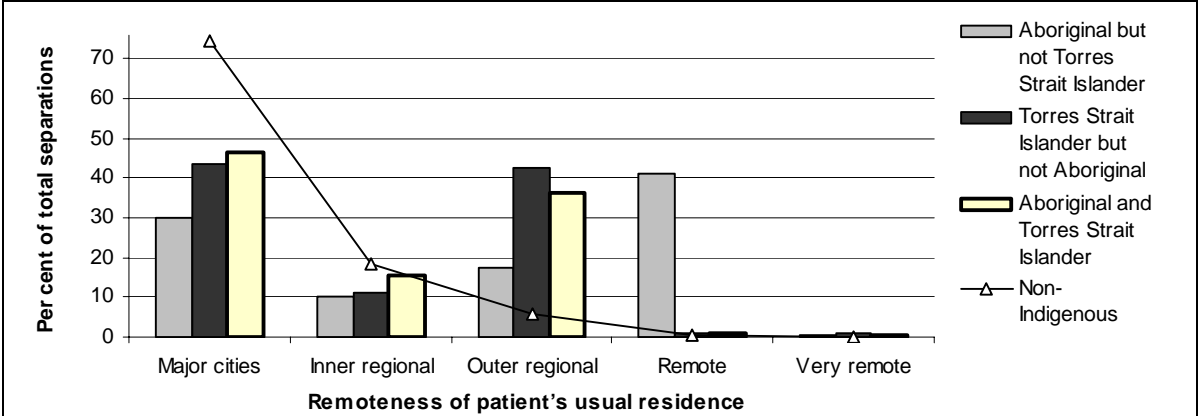
Although none of the Indigenous subcategories showed any marked similarity with the category 'Neither Aboriginal nor Torres Strait Islander origin' in terms of the remoteness of the patient's usual residence, the subcategory 'Both Aboriginal and Torres Strait Islander origin' showed the least difference in relation to the

representation of patients usually resident in major cities, inner regional areas and very remote areas (Table A17 and Figures 13 & 14).



**Figure 13: Public sector separations, by patient's Indigenous subcategory and remoteness of patient's usual residence, Australia, 2003-04**

Note: Remoteness based on Remoteness Area classification of the Australian Standard Geographic Classification.  
 Source: AIHW National Hospital Morbidity Database.



**Figure 14: Private sector separations, by patient's Indigenous subcategory and remoteness of patient's usual residence, Australia, 2003-04**

Note: Remoteness based on Remoteness Area classification of the Australian Standard Geographic Classification.  
 Source: AIHW National Hospital Morbidity Database.

**Summary**

Patients in each of the Indigenous subcategories who separated from hospital during 2003-04 had many more characteristics in common than any of them shared with their counterparts in the category 'Neither Aboriginal nor Torres Strait Islander origin'.

Similarities with the category 'Neither Aboriginal nor Torres Strait Islander origin' (associated with more than very small numbers of separations) were restricted to the subcategories 'Both Aboriginal and Torres Strait Islander origin' and 'Torres Strait Islander but not Aboriginal origin', particularly the former. Separations for this subcategory were least unlike the subcategory 'Neither Aboriginal nor Torres Strait Islander origin' in relation to sex composition at private hospitals, patient election status at public and private hospitals, overseas birthplace at public hospitals, and

major city, inner regional and very remote usual residence at public and private hospitals.

Overall, these similarities suggest somewhat greater levels of misclassification of non-Indigenous patients to this Indigenous subcategory than to the other Indigenous subcategories. This was also suggested – most notably for Victoria and the Northern Territory – by the examination of separation rate ratios (as just described).

## **Separations for Indigenous people for whom an overseas country of birth was reported**

Nationally, Indigenous status was reported as Indigenous and birthplace was reported as overseas for 476 separations during 2003–04. The country of birth and Indigenous subcategory of these separations were examined to provide insights into the possible reporting of non-Indigenous patients in each of the Indigenous subcategories, in particular the possible use of the Indigenous subcategories to identify non-Australian indigenous people (Tables A18 and A19).

These separations occurred predominantly in New South Wales (63%), Queensland (22%) and Western Australia (8%). About 86% (407) were from the public sector and the remainder from the private sector.

### **Country of birth groups**

Seventy-six separations that were reported to the Indigenous subcategories ‘Torres Strait Islander but not Aboriginal origin’ and ‘Both Aboriginal and Torres Strait Islander origin’ had a country of birth of Papua New Guinea. In view of Papua New Guinea’s proximity to Torres Strait, the reporting as Indigenous of these patients may have been correct in many instances.

Excluding these cases, the remaining 400 separations that were reported as Indigenous and born overseas belonged to the following country groups:

- *Papua New Guinea* – About 3% of the separations (13) were reported to the ‘Aboriginal but not Torres Strait Islander origin’ subcategory and had Papua New Guinea as their country of birth.
- *New Zealand* – About 21% of the separations (83) had New Zealand as their country of birth. These cases perhaps reflect the misidentification of patients of Maori origin. They occurred in all three Indigenous subcategories – ‘Aboriginal but not Torres Strait Islander origin’ (39), ‘Torres Strait Islander but not Aboriginal origin’ (22) and ‘Both Aboriginal and Torres Strait Islander origin’ (22).
- *Micronesia, Polynesia and other Oceania* – About 12% of the separations (46) had a country of birth in Micronesia, Polynesia and other Oceania. These cases perhaps reflect the misidentification of indigenous Pacific Islanders. The majority of these separations (33) were reported to the subcategory ‘Torres Strait Islander but not Aboriginal origin’.

- *Other countries* – About 65% of the separations (258) had a country of birth other than those just discussed. They were predominantly reported to the Indigenous subcategories ‘Aboriginal but not Torres Strait Islander origin’ (121 separations) and ‘Both Aboriginal and Torres Strait Islander origin’ (123). The group was made up of 138 separations with a country of birth in Europe, 61 separations with a country of birth in Asia, 40 separations with a country of birth in Africa or the Middle East, and 19 separations with a country of birth in the Americas.

### **The Indigenous subcategories**

The 476 separations that were reported as Indigenous and born overseas were reported to the Indigenous subcategories as follows:

- *Aboriginal but not Torres Strait Islander origin* – Some 176 of the separations were reported to this subcategory, mainly from New South Wales (94 separations, 53%), Queensland (28 separations, 16%) and Western Australia (33 separations, 19%). The subcategory included about half of the separations for patients reported as Indigenous and born in New Zealand and about half of the separations for patients reported as Indigenous and born in the ‘Other countries’ grouping. These inclusions nevertheless represented less than 0.1% of total separations reported to this subcategory.
- *Torres Strait Islander but not Aboriginal origin* – Some 138 of the separations were reported to this subcategory, mainly from New South Wales (54 separations, 39%) and Queensland (69 separations, 50%). Excluding the 69 separations that had a country of birth of Papua New Guinea, separations with an overseas country of birth represented 0.7% of all separations reported to this subcategory. They included about one-quarter of separations for patients reported as Indigenous and born in New Zealand (0.2% of separations) and the majority of separations for patients reported as Indigenous and born in Micronesia, Polynesia and other Oceania (0.3%).
- *Both Aboriginal and Torres Strait Islander origin* – Some 162 of the separations were reported to this subcategory, mainly from New South Wales (152 separations, 94%) and Queensland (8 separations, 5%). Excluding the 7 separations that had a country of birth of Papua New Guinea, separations with an overseas country of birth represented 2.7% of separations for this subcategory. They included about one-quarter of the separations for patients reported as Indigenous and born in New Zealand (0.4% of separations), about one-quarter of the patients reported as Indigenous and born in Micronesia, Polynesia and other Oceania (0.2%) and about half of the separations for patients reported as Indigenous and born in the ‘Other countries’ grouping (2.2%).



## 5 Data analysis guidelines

The information presented in Chapters 2, 3 and 4 shows that the quality of Indigenous status information in hospital separations data varies among jurisdictions, between the public and private sectors, and by remoteness area. This presents significant challenges for quantifying the volume and characteristics of hospital admissions for Indigenous people, for which a number of analytical approaches could be used. This chapter presents a set of guidelines to guide the data analyst in dealing with the data quality constraints that exist at this time. This set is rounded out with some guidelines about the use of age standardisation and population data in the analysis of separations data for Indigenous people.

Responses in questionnaires the AIHW sent to state and territory health authorities indicate that few guidelines have been developed for analysis of Indigenous status information in hospital separations data, and no agency has guidelines for how the category 'Not stated/inadequately described' is to be used in analysis and reporting. A set of broad guidelines for analysis of Indigenous status information in hospital separations data is used by Queensland Health. These state that the subcategory 'Torres Strait Islander but not Aboriginal origin' is reported separately in many analyses of Queensland separations data, often by means of a geographic categorisation of separations rather than through the use of the Indigenous status subcategory; the guidelines also state that a correction factor (20%) is sometimes applied to state-wide counts of separations for Indigenous people but not applied at the regional level. The Victorian Department of Human Services reported that, in view of the small counts for the Indigenous subcategories 'Torres Strait Islander but not Aboriginal origin' and 'Both Aboriginal and Torres Strait Islander origin', Victorian counts of separations for Indigenous people are always reported in aggregate as 'Aboriginal and/or Torres Strait Islander origin'.

The guidelines that follow are intended to provide sure grounds for a broad range of analytical purposes, and their application will facilitate comparison of analyses of hospitalisation for Indigenous patients by different analysts and at different times.

For particular analytical purposes, however, there might be defensible reasons for taking a different approach – for example, the use of data for jurisdictions other than those recommended in Guideline 5 (i.e. Queensland, Western Australia, South Australia and the Northern Territory) – provided the analyst understands and explains the extent to which that approach is valid for the purpose in question.

The guidelines have been primarily developed for users of national hospital separations data, but they would also be generally applicable for analysis of data that are not national in coverage.

Primarily directed towards the use of Indigenous status information for analytical purposes, the guidelines are not intended to preclude routine reporting of all separations classified by Indigenous status. Such reporting has an important role in enabling users to ascertain the overall volume of separations and those reported by

each jurisdiction and in providing a mechanism for monitoring differences and changes in Indigenous identification data quality. Accordingly, the AIHW will continue its routine reporting of Indigenous status information in *Australian Hospital Statistics* for all jurisdictions, for all Indigenous subcategories, and for both the public and private sectors.

## **5.1 Summary of the guidelines**

### **Use of factors to adjust for under-identification of separations for Indigenous patients**

1. In the absence of an up-to-date and robust set of factors based on a uniform methodology for all jurisdictions, factors should not be used to adjust for under-identification in the analysis of Indigenous status information in hospital separations data.
2. Use of under-identification factors as currently available is, however, acceptable for analyses for which adjustment is a necessary component – for example, in the estimation of health expenditures for Indigenous people.

### **Treatment of separations for which Indigenous status is unreported**

3. The ‘Not stated/inadequately described’ separations should be amalgamated with the separations for non-Indigenous people in all analyses of Indigenous status information in hospital separations data.
4. Any reporting of separations for which Indigenous status is ‘Not stated/inadequately described’ should be accompanied by a warning that this category is not accommodated in the data systems of certain jurisdictions.

### **Use of state and territory data**

5. When using Indigenous status information for analytical purposes, the data for only Queensland, Western Australia, South Australia and the Northern Territory should be used, individually or in aggregate.
6. Analyses based on data for Queensland, Western Australia, South Australia and the Northern Territory in aggregate should be accompanied by caveats about limitations imposed by jurisdictional differences in data quality and about the data not necessarily being representative of the jurisdictions excluded.
7. Caution should be exercised in time series analysis of data for Queensland, Western Australia, South Australia and the Northern Territory (individually or in aggregate) and findings should include a caveat about the possible contribution to changes in hospitalisation rates for Indigenous people of changes in ascertainment of Indigenous status for Indigenous patients.

## **Use of private hospital data**

8. In the case of Indigenous status information in relation to public and private hospitals, data should be analysed for the combined public and private sectors or the public sector alone. Data for the private sector alone should not be used.

## **Use of data for the Indigenous subcategories**

9. Use of data reported for the 'Aboriginal but not Torres Strait Islander origin' subcategory is recommended for Queensland, Western Australia, South Australia and the Northern Territory, individually or in aggregate.
10. Use of data reported for the 'Torres Strait Islander but not Aboriginal origin' subcategory is recommended for Queensland and (with caution) for Queensland, Western Australia, South Australia and the Northern Territory in aggregate.
11. Separate use of data reported for the 'Both Aboriginal and Torres Strait Islander origin' subcategory is not recommended.
12. Use of the combined subcategories 'Torres Strait Islander but not Aboriginal origin' and 'Both Aboriginal and Torres Strait Islander origin' is recommended for Queensland and (with caution) for Queensland, Western Australia, South Australia and the Northern Territory in aggregate.
13. Use of the combined subcategories 'Aboriginal but not Torres Strait Islander origin' and 'Both Aboriginal and Torres Strait Islander origin' is recommended for Queensland, Western Australia, South Australia and the Northern Territory, individually or in aggregate.

## **Regional analysis of separations data**

14. Analysis of separations for Indigenous people should generally not be undertaken by remoteness area of either the patient's usual residence or the hospital's location.

## **Use of age standardisation and population data**

15. Indirect age standardisation is recommended for comparing the separation rate for a single Indigenous population of interest with the rate for a single not-reported-as-Indigenous comparison group.
16. For comparing separation rates for Indigenous and not-reported-as-Indigenous populations across multiple jurisdictions, time periods or other groupings, direct age standardisation should be used whenever populations are large enough to provide reliable results.
17. When deriving age-standardised Indigenous separation rates, age groups should be amalgamated where greater than an age determined by analysis of the data in question, as necessary, to ensure that all age groups have sufficient numbers for reliable results.

18. When deriving separation rates for Indigenous populations, the official Australian Bureau of Statistics population estimates or projections should be used without adjustment for possible under-identification in those data.
19. Reporting of Indigenous separation rates based on the Australian Bureau of Statistics population projections should indicate whether the high or low projection series was used. The low series is recommended.

## **5.2 Use of factors to adjust for under-identification of separations for Indigenous patients**

This guideline concerns the proposition to adjust overall counts of separations for Indigenous people by applying under-identification factors. Full elaboration of this arrangement might see a corresponding set of factors applied to separations for non-Indigenous people (reflecting the corresponding over-identification of that group).

The factors would account for the net understatement or overstatement in separations for Indigenous and non-Indigenous people stemming from various types of errors in the reporting of Indigenous status – that is, patients being recorded to the category ‘Not stated/inadequately described’, Indigenous patients being recorded to the category ‘Neither Aboriginal nor Torres Strait Islander origin’ or in an incorrect Indigenous subcategory, and non-Indigenous patients being recorded in one of the Indigenous subcategories.

Data users would apply such adjustment as a step in data analysis. It is not proposed that state and territory health authorities would make adjustments to separations records in advance of those records being provided to organisations such as the AIHW or to any other recipient of unanalysed data.

### **Findings**

A need for under-identification factors to be applied to Indigenous separation numbers is suggested by examination of jurisdictions’ policies for ascertainment of Indigenous status, the findings from analysis of national hospital morbidity data, and jurisdictions’ assessments of their Indigenous status data quality.

#### **Jurisdictions’ processes for ascertaining Indigenous status**

A ‘Not stated/inadequately described’ response to Indigenous status is not accommodated in data systems in Victoria and Western Australia. Such a response is permitted elsewhere but, with the exception of Tasmania and the Northern Territory, there is no common practice for follow-up of these patients, and it is unknown to what extent the policy is adhered to in Tasmania. There are two implications for Indigenous identification:

- In Victoria and Western Australia some Indigenous patients will be misclassified as non-Indigenous.

- The lack of follow-up in New South Wales, Queensland, South Australia, the Australian Capital Territory and possibly Tasmania could mean that Indigenous patients are under-identified.

### **The occurrence of separations for which Indigenous status is not reported**

Analysis of national hospital separations data revealed that most instances of non-reporting of Indigenous status during 2003–04 and earlier years were contributed by Queensland, Tasmania and the Northern Territory, predominantly from the private sectors of these jurisdictions. Overall, the non-reporting of Indigenous status has been as follows since 1996–97:

- New South Wales – about 0.5–0.7% of separations at public hospitals and about 0.1% of separations at private hospitals
- Victoria – unreported Indigenous status not accommodated in data systems
- Queensland – a steady decrease for public hospitals, to under 2% in 2003–04, and a decrease for private hospitals, to about 24% in 2003–04
- Western Australia – unreported Indigenous status not accommodated in data systems
- South Australia – about 2–3% for public hospitals and a steady decrease for private hospitals, to 1.4% in 2003–04
- Tasmania – about 6–7% since 1999–00 for public hospitals and erratic levels of between 56% and 67% since 2000–01 for private hospitals
- Australian Capital Territory – about 1–3% for public hospitals and erratic levels of up to 6% for private hospitals
- Northern Territory – 100% for private hospitals and a steady decrease, to less than 0.1%, for public hospitals.

### **Analysis of separation rate ratios in national hospital separations data**

Separation rate ratios give a more complete picture of the quality of Indigenous status data, although caution is required when interpreting interstate comparisons between the ratios because interstate variations in both population health and health systems can have significant effects that might need to be taken into account.

The rate ratios were relatively high from 1996–97 to 2003–04 for Western Australia, South Australia, the Australian Capital Territory and the Northern Territory – increasingly so for the Northern Territory. They were moderately high and increasing for Queensland. They were relatively low for New South Wales and Victoria but were increasing for Victoria. They were very low but possibly increasing for Tasmania.

The overnight separation rate ratios (which exclude dialysis patients, for whom better Indigenous identification may be expected) were relatively high during the period for Western Australia, South Australia and the Northern Territory – increasingly so for the Northern Territory. They were moderately high for Queensland and the Australian Capital Territory – increasingly so for Queensland.

They were relatively low and not increasing for New South Wales and Victoria, and very low but possibly increasing for Tasmania.

Separation rate ratios and overnight separation rate ratios for Western Australia, South Australia and the Northern Territory in aggregate and for Queensland, Western Australia, South Australia and the Northern Territory in aggregate were both consistently high and increasing during the period.

### **Jurisdictions' assessments of Indigenous identification in their separations data**

Jurisdictions' assessments of Indigenous identification in their separations data for 2003–04 (reported in Section 2.2) can be summarised as follows:

- reliable for the Northern Territory public sector but underestimated for the Northern Territory private sector
- acceptable for both the public sector and the private sector in Western Australia
- acceptable for the public sector in South Australia but not acceptable for the private sector
- underestimated for New South Wales, Victoria and Queensland (although Victoria considers that its data quality has steadily increased and anticipates a substantial improvement following implementation of the Improving Care for Aboriginal Patients goals, noted in Section 3.1)
- substantially underestimated for the Australian Capital Territory and Tasmania.

### **Under-identification factors used by the AIHW**

Based on a range of information, including data quality assessments sought from health authorities, the AIHW used factors to adjust for under-identification of separations for Indigenous patients for use in its report on health expenditure for Indigenous people for 2001–02 (AIHW 2005b). The factors were New South Wales, 30%; Victoria, 25%; Queensland, 20%; Western Australia, 6%; and the Australian Capital Territory, 30%. (Adjustment was deemed unnecessary for the South Australia and Northern Territory data, and no factor was provided for the Tasmania data.)

## **Discussion**

The need for adjustment factors that provide more accurate separation numbers and separation rates for Indigenous people is indicated by the findings just summarised, which suggest that separation numbers and separation rates for Indigenous people are substantially underestimated in a number of jurisdictions. Use of adjustment factors relies, however, on the availability of factors that are sufficiently accurate to give better estimates than those provided by the unadjusted data.

If the shortfall in separations for Indigenous people stemmed solely or largely from reporting Indigenous patients to the 'Not stated/inadequately described' category of Indigenous status, it might be appropriate to derive truer separation numbers and rates for Indigenous and non-Indigenous people by apportioning the count of the 'Not stated/inadequately described' category between the Indigenous and non-

Indigenous counts by some means, such as the relative proportions of reported separations for Indigenous and non-Indigenous people, if that means was assessed to be reliable. The findings of a number of data quality assessments based on patient interviews (summarised in Section 2.1) suggest, however, that a numerically larger contribution to the shortfall probably stems from misclassification of Indigenous people as non-Indigenous.

Because the relative sizes of the two contributions are not known, it would also not be possible to adjust separation numbers for Indigenous patients by a method that apportioned to the Indigenous category some of the count of the 'Not stated/inadequately described' category and some of the count of the non-Indigenous category.

Simple adjustment of the count of separations for Indigenous people would thus be required for the time being. At the national level the only set of such adjustment factors currently available is the set used by the AIHW for analysing hospital expenditure for Indigenous people (described in Section 2.2). There are a number of concerns about use of these factors:

- The factors have been developed solely for reporting hospital expenditure, a significant consideration being consistency with adjustments that had been applied in previous expenditure reports. The suitability of the factors for purposes beyond this expenditure reporting is untested.
- No factor was provided for Tasmania.
- Through necessity, there were substantial differences in the inputs used to determine the factors pertaining to the different jurisdictions. It was not possible to derive a set of factors based on a uniform method for all jurisdictions.
- Whereas the derivation of the factors included consideration of all available qualitative assessments and quantitative evidence, there were substantial differences between jurisdictions in the age of this information, its robustness and the reliability with which it could be extrapolated to represent the overall picture for a jurisdiction.

There are two important general considerations in relation to the use of adjustment factors:

- Limitations on the use of adjustment factors need to be acknowledged. Whatever their method of derivation, the factors would reflect the average level of under-identification of Indigenous patients across a given group of separations. The current factors were derived, for example, on a jurisdiction-wide basis. Use of the factors might therefore be problematic in analyses directed at demographic, regional or clinical subgroups of separations for Indigenous people.
- Use of adjustment factors would impose unwieldiness on some standard calculations. Derivation of a directly age standardised national separation rate based on adjusted jurisdictional counts would, for example, require derivation of an adjusted separation count for each age group by summation of the adjusted counts for that age group for each jurisdiction. Similarly, certain multi-jurisdiction analyses would require application of adjustment weights to

individual separations. Such adjustment would be unwieldy and only possible where the data analyst had access to unit record data.

## **Guidelines**

### **Guideline 1**

**In the absence of an up-to-date and robust set of factors based on a uniform methodology for all jurisdictions, factors should not be used to adjust for under-identification in the analysis of Indigenous status information in hospital separations data.**

The foregoing makes it clear that these conditions are not satisfied at present.

If suitable adjustment factors were available, their application could be done in parallel with arrangements to amalgamate separations for which Indigenous status was not reported with separations for non-Indigenous people (Guideline 3). Any under-identification adjustment would require an explanation in accompanying documentation.

Application of adjustment factors is recommended only within the limits of sophistication of the available factors. Adjustment is not, for example, generally recommended for analyses involving demographic or clinical breakdowns unless the adjustment factors were available by age, sex, region, principal diagnosis etc.

### **Guideline 2**

**Use of under-identification factors as currently available is, however, acceptable for analyses for which adjustment is a necessary component – for example, in the estimation of health expenditures for Indigenous people.**

The methodology the AIHW uses for estimating health expenditures for Indigenous people is based, for example, on the apportionment of total health expenditure between the Indigenous and non-Indigenous populations. This necessitates apportionment of total separations between the two groups which in turn necessitates use of adjustment factors.

## **5.3 Treatment of separations for which Indigenous status is unreported**

This guideline concerns the treatment of ‘Not stated/inadequately described’ separations in the analysis and reporting of Indigenous status information in separations data.

It is desirable that a consistent treatment of these separations be established for analysis purposes – for example, the derivation of separation rates for Indigenous and non-Indigenous people. A consistent approach is less crucial for basic reporting of separations counts, and it would be expected that the reporting of ‘Not stated/inadequately described’ separations would be retained in some contexts, such as the AIHW’s reporting of Indigenous status data in *Australian Hospital Statistics*.



There are five options for treatment of the 'Not stated/inadequately described' separations:

1. Amalgamate them with counts of separations for non-Indigenous people.
2. Exclude them from the analysis.
3. Distribute them between the counts of separations reported for Indigenous people and non-Indigenous people in accord with the representation of Indigenous and non-Indigenous people in the population in question.
4. Distribute them between the counts of separations reported for Indigenous and non-Indigenous people in accord with the relative sizes of those counts.
5. Include them in counts of separations for Indigenous people.

## **Findings**

### **The occurrence of separations for which Indigenous status is not reported**

See Section 5.2.

### **The composition of the 'Not stated/inadequately described' category**

Excluding Victoria and Western Australia and a major hospital in the Australian Capital Territory, where unreported Indigenous status was not accommodated in data systems at that time, Indigenous status was unreported in 2003–04 for 12.5% of private sector separations and 1.5% of public sector separations. Nationally, 207,418 of the 246,050 separations for which Indigenous status was not reported were contributed by the private sector. Taken together with an assumption that Indigenous people are not often hospitalised in the private sector, this fact suggests that separations for which Indigenous status is not reported are substantially more likely to pertain to non-Indigenous patients than to Indigenous patients.

Analysis of selected patient characteristics in all hospital separations for 2003–04 also indicates that in both the public and private sectors the 'Not stated/inadequately described' category of Indigenous status had substantially greater similarities with the non-Indigenous category than with the Indigenous category across the patient characteristics that were examined.

These findings are supported by the results of the 1998 ATSIHWIU study described in Section 2.1. Although the results should be interpreted with some caution since the study was intended as a restricted pilot test of the patient interview methodology, it was found that, whereas separations for Indigenous people make a greater relative contribution to the 'Not stated/inadequately described' category, the predominant contribution is nevertheless made by separations for non-Indigenous people. Overall, 95 of 110 patients for whom Indigenous status was not recorded at admission were later identified as non-Indigenous (86%) and 13 were identified as Indigenous (12%).

## Evaluation of options

Table 17 shows separation numbers and separation rates for Indigenous and non-Indigenous people in 2003–04 for each of the five options for treatment of ‘Not stated/inadequately described’ separations. These data are for Australia as a whole – not for solely Queensland, Western Australia, South Australia and the Northern Territory, as recommended in Guideline 5.

**Table 17: Separations, separation rates and rate ratios derived under various treatments of separations for which Indigenous status was not reported, Australia, 2003–04**

Separations count, separation rate or separation rate ratio	Type of treatment of separations for which Indigenous status was not reported				
	Include with non-Indigenous (Option 1)	Exclude altogether (Option 2)	Distribute using population counts (Option 3)	Distribute using separations counts (Option 4)	Include with Indigenous (Option 5)
Separations for Indigenous patients	216,147	216,147	219,912	224,369	462,197
Separations for non-Indigenous patients	6,625,078	6,379,028	6,621,313	6,616,856	6,379,028
Crude separation rate for Indigenous patients	454.7	454.7	462.6	471.9	972.2
Crude separation rate for non-Indigenous patients	341.5	328.9	341.4	341.1	328.9
Age-standardised <sup>(a)</sup> separation rate for Indigenous patients	721.7	721.7	733.9	750.1	2,115.6
Age-standardised <sup>(a)</sup> separation rate for non-Indigenous patients	334.7	322.3	334.5	334.3	322.3
Indigenous to non-Indigenous separation rate ratio <sup>(b)</sup>	2.16	2.24	2.19	2.24	6.56

(a) The separation rates were directly age standardised, with the standard population taken as the estimated total resident Australian population for 30 June 2001 and the age-specific rates derived using ABS population estimates and low-series Indigenous population projections for 30 June 2003.

(b) The separation rate ratio is the age-standardised separation rate for Indigenous people divided by the age-standardised separation rate for non-Indigenous people.

### Option 1: Amalgamate the separations with counts of separations for non-Indigenous people

Under Option 1, separations for which Indigenous status was not reported would be amalgamated with counts of separations for non-Indigenous people in a new category termed ‘Not reported as Indigenous’. This option is supported by findings about the composition of the ‘Not stated/inadequately described’ category from the analysis of national hospital separations data and the 1998 ATSIHWIU study.

A distinct advantage of Option 1 is that it is the only one of the five options that results in the data from all jurisdictions being treated in a fairly consistent manner. As noted in Section 3.1, unreported Indigenous status effectively defaults to ‘Neither Aboriginal nor Torres Strait Islander origin’ at public hospitals in Western Australia. Similarly, where hospital admissions staff make an arbitrary assignment of Indigenous status (as perhaps sometimes occurs when the recording of a ‘Not stated/inadequately described’ response is not accommodated in the electronic patient administration system, as is the case at public hospitals in Victoria) this assignment is perhaps more likely to be to the category ‘Neither Aboriginal nor

Torres Strait Islander origin' than to an Indigenous subcategory. This could be particularly the case in Victoria, where Indigenous people account for a relatively small proportion of the population.

Separation numbers and separation rates derived for Indigenous people under this approach would be identical to those derived under Option 2 (Table 17). Slightly larger separation numbers and separation rates would be derived for the non-Indigenous category than under Option 2, and the non-Indigenous category would also include a number of separations for Indigenous people. The overall impact on both the size and characteristics of the non-Indigenous category would, however, be negligible. Other than resulting in a slight reduction in the Indigenous to non-Indigenous separation rate ratio, there would be little impact on the principal role of the category as a base for comparison with separations for Indigenous people.

### **Option 2: Exclude the separations from the analysis**

Under Option 2, separations for which Indigenous status was not reported would be excluded altogether from the analysis.

As noted, this option would produce separation numbers and separation rates for Indigenous people that are identical to those derived under Option 1 and it would produce an Indigenous to non-Indigenous separation rate ratio only marginally larger than that derived under Option 1. Unlike Option 1, however, Option 2 would effectively result in the data for Victoria and Western Australia being treated in a manner different from the data for the other jurisdictions.

### **Option 3: Distribute the separations between the Indigenous and non-Indigenous counts in accord with population**

Under Option 3, separations for which Indigenous status was not reported would be distributed between the counts of separations reported for Indigenous and non-Indigenous people for a given jurisdiction in proportion to the representation of Indigenous and non-Indigenous people in the population of that jurisdiction. Results for a group of jurisdictions in aggregate would be derived by summation of the adjusted counts for the individual jurisdictions. Results for an individual Indigenous subcategory would require a distribution of the 'Not stated/inadequately described' separations that took into account the representation of that Indigenous subcategory in the population in question.

This option would result in relatively small differences in the separation rate for Indigenous people and the Indigenous to non-Indigenous separation rate ratio compared with those derived under exclusion of the 'Not stated/inadequately described' separations or amalgamation of them with the separations for non-Indigenous people (Table 17).

There are four concerns with this option:

- The option incorporates the assumption that the representation of Indigenous people in the 'Not stated/inadequately described' category is likely to approximate that in the population in question. There is no evidence for this assumption. Whereas both the 1998 ATSIHWIU study and analysis of the patient

characteristics of national hospital separations data support the proposition that the majority of cases in the 'Not stated/inadequately described' category are separations for non-Indigenous people, the 1998 ATSIHWIU study found that the category is nevertheless likely to contain a greater representation of separations for Indigenous people than the representation of Indigenous people in the population.

- Application of this method is not entirely straightforward. In order to permit derivation of directly age standardised separation rates, a separate distribution of 'Not stated/inadequately described' separations would need to be done for each of the five-year age groups (with each distribution applied in proportion to the representation of Indigenous and non-Indigenous people in that age group of the population).
- For analytical purposes beyond the examination of overall separation numbers and rates (e.g. analysis relating to diagnosis groups), it would be necessary to allocate the individual 'Not stated/inadequately described' separations between the Indigenous and non-Indigenous categories. This would only be possible where the data analyst had access to unit record data. Also, in the absence of a method for reliably determining which of the 'Not stated/inadequately described' separations most likely pertained to the Indigenous and non-Indigenous categories, the prospect exists of data analyses producing different results depending on which of the separations are assigned to the Indigenous category and which are assigned to the non-Indigenous category.
- Unlike Option 1, this option would effectively result in the data for Victoria and Western Australia being treated in a manner different from the data for the other jurisdictions.

#### **Option 4: Distribute the separations between the Indigenous and non-Indigenous counts on the basis of the relative sizes of those counts**

Under Option 4, separations for which Indigenous status was not reported would be distributed between the counts of separations reported for Indigenous and non-Indigenous people for each jurisdiction on the basis of the relative sizes of those counts. Results for a group of jurisdictions in aggregate would be derived by summation of the adjusted counts for the individual jurisdictions. Results for an individual Indigenous subcategory would require a distribution of the 'Not stated/inadequately described' separations that took into account the representation of that Indigenous subcategory in the separations reported for Indigenous people.

As with Option 3, this option would result in relatively small differences in the separation rate for Indigenous people and the Indigenous to non-Indigenous separation rate ratio compared with those derived under either the exclusion of the 'Not stated/inadequately described' separations or the amalgamation of them with the separations for non-Indigenous people (Table 17).

This option presents concerns similar to those described for Option 3:

- The option incorporates the assumption that the representation of Indigenous patients in the 'Not stated/inadequately described' category is likely to

approximate the representation of Indigenous patients in total separations. There is no evidence for this assumption.

- Application of this method is not entirely straightforward. There would need to be individual distributions for each age group, applied in proportion to the representation of reported separations for Indigenous and non-Indigenous people in that age group.
- The prospect exists of data analysis producing different results depending on which 'Not stated/inadequately described' separations are assigned to the Indigenous category and which are assigned to the non-Indigenous category.
- Unlike Option 1, this option would effectively result in the data for Victoria and Western Australia being treated in a manner different from the data for the other jurisdictions.

### **Option 5: Include the separations in counts of separations for Indigenous people**

Under Option 5, separations for which Indigenous status was not reported would be included in counts of separations for Indigenous people or, where required, distributed in some way among the counts reported for each of the individual Indigenous subcategories.

There are substantial grounds militating against adoption of this option:

- The available evidence suggests that most of the 'Not stated/inadequately described' separations pertain to non-Indigenous patients.
- This treatment of the 'Not stated/inadequately described' separations causes separation numbers and separation rates for Indigenous people and the Indigenous to non-Indigenous separation rate ratio to be substantially different from those derived under any of the alternative treatments (Table 17).
- No method exists for accurately distributing the 'Not stated/inadequately described' separations among the individual Indigenous subcategories should such a distribution be required.
- Unlike Option 1, this option would effectively result in the data for Victoria and Western Australia being treated in a manner different from the data for the other jurisdictions.

## **Guidelines**

### **Guideline 3**

**The 'Not stated/inadequately described' separations should be amalgamated with the separations for non-Indigenous people in all analyses of Indigenous status information in hospital separations data.**

The new category made up of these amalgamated separations would be termed 'Not reported as Indigenous' or, if space considerations require it, 'Not Indigenous' or 'Other'.

Such a treatment of the data would need to be explained in accompanying documentation. It would generally be necessary for this reporting to include an account of the overall representation of 'Not stated/inadequately described' separations in the composite category, but reporting on the contribution of 'Not stated/inadequately described' separations from each jurisdiction is also likely to be needed in some contexts.

#### **Guideline 4**

**Any reporting of separations for which Indigenous status is 'Not stated/inadequately described' should be accompanied by a warning that this category is not accommodated in the data systems of certain jurisdictions.**

For 2003–04 data this warning would state, for example, that:

- (a) 'Not stated/inadequately described' separations are amalgamated with separations for non-Indigenous people in Western Australia and at a major hospital in the Australian Capital Territory.
- (b) 'Not stated/inadequately described' separations are not accommodated in the reporting arrangements adopted in Victoria, leading to uncertainty about the quality of classification for separations that would otherwise be reported as 'Not stated/inadequately described'.

## **5.4 Use of state and territory data**

Whereas a great deal of evidence exists to suggest a poorer health status for the Indigenous population, the volume and characteristics of hospital use by this population cannot be precisely established at a national level because of poor identification of Indigenous patients in the hospital separations data for some jurisdictions. One approach to deal with this circumstance is to analyse the data for solely the jurisdictions assessed to have a reasonable level of identification of Indigenous patients in order to form a reasonably precise quantification of hospital use across the largest achievable section of the Indigenous population.

Interpretation of such an analysis as representative of the national picture should, however, be discouraged: the hospitalisation experience of the 60% of the Indigenous population covered by, for example, by Queensland, Western Australia, South Australia and the Northern Territory should not be assumed to be representative of the hospitalisation experience of the remainder.

Three options are assessed for the analysis of Indigenous status information in state and territory hospital separations data, given current data quality:

1. Use the data from all jurisdictions.
2. Use data for solely those jurisdictions where the quality of the data has been reported as acceptable – namely, Western Australia, South Australia and the Northern Territory.
3. Use data for Queensland, Western Australia, South Australia and the Northern Territory only.

This question is primarily concerned with data analysis, and it is envisaged that data on Indigenous status for all jurisdictions would continue to be shown for contexts of monitoring data quality and of providing information on total numbers of separations for Indigenous patients reported for each jurisdiction (including reporting by the AIHW in *Australian Hospital Statistics*).

## **Findings**

### **Jurisdictions' processes for ascertaining Indigenous status**

See Section 5.2.

### **Assessments of jurisdictions' data and summary of under-identification factors used by the AIHW**

See Section 5.2.

### **Analysis of national hospital separations data**

See Section 5.2.

### **Time series considerations from the analysis of national hospital separations data**

The analysis of national hospital separations data suggests that identification of Indigenous patients has been improving over time for a number of jurisdictions, which suggests a need for caution in any time series analysis of separations for Indigenous patients for those jurisdictions. The following changes between 1996–97 and 2003–04 are noteworthy:

- substantial decreases in the non-reporting of Indigenous status for public and private hospitals in Queensland, for private hospitals in South Australia, and for public hospitals in the Northern Territory
- significant increases in separation rate ratios for Victoria and Queensland, for public hospitals in the Northern Territory, for Queensland, Western Australia, South Australia and the Northern Territory in aggregate, and for Western Australia, South Australia and the Northern Territory in aggregate
- significant increases in overnight separation rate ratios for Queensland, for public hospitals in the Northern Territory, and for Queensland, Western Australia, South Australia and the Northern Territory in aggregate.

For various jurisdictions, the need for caution is reinforced by the occurrence of isolated large movements in separation rate ratios (see Section 4.1).

## **Evaluation of options**

### **Option 1: Use the data from all jurisdictions**

Under Option 1, data for all jurisdictions would be used, either individually or in aggregate, when analysing information about Indigenous status in separations data.

A concern with using data for all jurisdictions in aggregate is that this approach assumes that under-identification is randomly distributed or negligible in its effects on the focus of the analysis, and this is not the case. Under-identification is higher in jurisdictions that have a greater proportion of their Indigenous population resident in urban areas (New South Wales, Victoria, Tasmania and the Australian Capital Territory) (Table A21). It is also relatively high in Queensland, which has a larger proportion of people of Torres Strait Islander but not Aboriginal origin and of both Aboriginal and Torres Strait Islander origin (Table A20).

### **Option 2: Use solely the data for Western Australia, South Australia and the Northern Territory**

When analysing Indigenous status information under Option 2, data would be used, either individually or in aggregate, for solely those jurisdictions for which the quality of the data is reported as acceptable (currently Western Australia, South Australia and the Northern Territory). Adding other jurisdictions as the quality of their data reached a level of acceptability would perhaps serve as an incentive for improved Indigenous identification.

A concern with this approach is that the use of data for these three jurisdictions in aggregate does not reflect the diversity of social and economic circumstances within the Indigenous and non-Indigenous populations. These jurisdictions account for only 18% of the population of Australia and only 19% of national hospital separations. Similarly, they account for only 32% of the Indigenous population of Australia and only 48% of national hospital separations reported as being for Indigenous people (Tables 8 and A20). Only jurisdictions containing substantial proportions of the Indigenous population resident in less urbanised and more remote locations are included (Table A21).

Another concern is the exclusion of Queensland, which contributes a majority of the 'Torres Strait Islander but not Aboriginal origin' and 'Both Aboriginal and Torres Strait Islander origin' population groups and a majority of the separations for these groups.

This type of approach would have its greatest relevance in analyses specifically requiring a high degree of precision in Indigenous identification, but the limitations would represent serious shortcomings in many other analyses of national data.

### **Option 3: Use solely the data for Queensland, Western Australia, South Australia and the Northern Territory**

Under Option 3, data for Queensland are added to the data for the three jurisdictions specified in Option 2, notwithstanding 22% non-reporting of Indigenous status in separations at Queensland private hospitals in 2003–04 and an estimated 20% overall under-identification of Indigenous patients in the state for 2001–02.

Inclusion of Queensland would be in recognition of the relatively high Indigenous population in that state. It would also be in recognition of the need to monitor hospitalisations for Torres Strait Islander people and of the predominant contribution of Queensland to the 'Torres Strait Islander but not Aboriginal origin' and 'Both



Aboriginal and Torres Strait Islander origin' population groups (59% in 2001) and to the hospital separations for these groups (73% in 2003–04).

In aggregate, these four jurisdictions better reflect the diversity of social and economic circumstances in the Indigenous and non-Indigenous populations than the three jurisdictions of Option 2. They account for 38% of the population of Australia and 39% of national hospital separations. Similarly, they account for 60% of the Indigenous population of Australia and 75% of national hospital separations reported as being for Indigenous people.

Inclusion of Queensland data would mean that jurisdictions with under-identification factors of 20% or less in the AIHW's expenditure study for 2001–02 would be included, but those with higher under-identification factors (including Victoria at 25%) would not be included.

## Guidelines

### Guideline 5

**When using Indigenous status information for analytical purposes, the data for only Queensland, Western Australia, South Australia and the Northern Territory should be used, individually or in aggregate.**

This guideline is intended to reflect the quality of Indigenous status information in the hospital separations data for each jurisdiction, as assessed at the time of publication of this report, but with the intention that over time it would be modified to include any jurisdiction that had attained a reasonable level of identification of Indigenous patients in its data.

Use of data for the Northern Territory is specified in the guideline, but, in view of the need to preserve the confidentiality of data for Darwin Private Hospital, the guideline should be interpreted to mean the use of data solely for Northern Territory public hospitals.

In applying this guideline, the data analyst should bear in mind that the purpose for using data for Queensland, Western Australia, South Australia and the Northern Territory in aggregate is to form a reasonably precise quantification of hospital use for a majority of the Indigenous population. The purpose should not be to attempt to represent the national picture: the hospitalisation experience of the 60% of the Indigenous population covered by Queensland, Western Australia, South Australia and the Northern Territory cannot be assumed to be representative of the hospitalisation experience of the remainder.

For particular analytical purposes, there may be defensible reasons for including data for jurisdictions other than the recommended ones, provided the analyst understands and explains the extent to which the other data are usable for the particular purpose.

As noted, the guidelines put forward here are directed at the use of Indigenous status information for analytical purposes, and it is not intended to preclude routine reporting of separations classified by Indigenous status for all jurisdictions. Such

reporting has an important role in enabling users to ascertain the overall volume of separations and those accounted for by particular jurisdictions and in providing a mechanism for monitoring differences and changes in the quality of Indigenous identification data. The AIHW will continue its routine reporting of Indigenous status information in *Australian Hospital Statistics* for all jurisdictions.

#### **Guideline 6**

**Analyses based on data for Queensland, Western Australia, South Australia and the Northern Territory in aggregate should be accompanied by caveats about limitations imposed by jurisdictional differences in data quality and about the data not necessarily being representative of the jurisdictions excluded.**

These caveats should specifically warn as follows:

- Interpretation of results should take into account the relative quality of the data from the jurisdictions included in the analysis (currently a degree of Indigenous under-identification in Western Australian data and relatively marked Indigenous under-identification in Queensland data).
- Analysis and reporting of this restricted set of data are intended to provide a reasonably precise quantification of hospital use for a majority of the Indigenous population. They do not necessarily provide an accurate representation of the national picture because the hospitalisation experience of the 60% of the Indigenous population covered by the analysis cannot be assumed to be representative of the hospitalisation experience of the remainder.

In addition, all tables and charts based on aggregated data for the four jurisdictions should include a footnote such as 'Data are for Queensland, South Australia, Western Australia and the Northern Territory combined'.

Data analysts might also find it beneficial to accompany their findings with contextual remarks giving the total number of separations for Indigenous people reported throughout Australia in the year(s) in question and the proportion of the national separations for Indigenous people accounted for by the four jurisdictions included in the analysis (e.g. 75% of 216,147 total separations in 2003–04) and the proportion of the total Indigenous population covered by them (60% at 30 June 2003).

#### **Guideline 7**

**Caution should be exercised in time series analysis of data for Queensland, Western Australia, South Australia and the Northern Territory (individually or in aggregate), and findings should include a caveat about the possible contribution to changes in hospitalisation rates for Indigenous people of changes in ascertainment of Indigenous status for Indigenous patients.**

The available evidence suggests that identification of Indigenous patients has been improving over time for Queensland, Western Australia and South Australia and for public hospitals in the Northern Territory, so caution should be used in any time series analysis of separations for Indigenous patients in these jurisdictions, and caveats should be included to state that any increase in hospitalisation rates for Indigenous patients might be the result of improved identification.

## 5.5 Use of private hospital data

This section deals with the question of whether hospital separations data should be used for the private sector alone or used solely for the combined public and private sectors or the public sector alone.

### Findings

#### Admission procedures at private hospitals

The admission procedures summarised in Section 3.2 indicate only partial use of the standard Indigenous status question and response categories established by the Australian Bureau of Statistics and only partial recording of Indigenous status in keeping with the classification set out in the *National Health Data Dictionary*. No policies were reported for the follow-up of patients whose Indigenous status is not reported at admission. Indigenous hospital liaison officers are not employed to assist in obtaining accurate Indigenous identification. Few processes and policies are in operation to encourage or require private hospitals to record Indigenous status in a standard manner.

#### Analysis of national hospital separations data

The relatively poor arrangements for ascertaining the Indigenous status of patients at private hospitals were reflected in the analysis of national hospital separations data.

This showed that the private sector contributes about 84% of all separations for which Indigenous status is not reported (207,418 of 246,050 separations in 2003–04). Excluding Victoria and Western Australia and a major hospital in the Australian Capital Territory, where unreported Indigenous status was not accommodated in data systems at that time, Indigenous status was not reported in 2003–04 for 12.5% of private sector separations. Indigenous status was not reported for 24.0%, 56.1% and 100% of separations from private hospitals in Queensland, Tasmania and the Northern Territory respectively.

### Discussion

The case against separate use of data for the private sector centres on the relatively poor arrangements for ascertaining the Indigenous status of patients at private hospitals, as reflected in the analysis of national hospital separations data.

Indigenous people also apparently make relatively little use of private hospitals, although there is a need to properly quantify the extent of this use. Nationally, only 6% of separations for patients reported as Indigenous came from the private sector in 2003–04 (13,121 of 216,147 separations), although the poor arrangements noted in Section 3.2 for obtaining information about Indigenous status at private hospitals suggest that this figure should be treated with considerable caution. Much lower levels of private hospital insurance among Indigenous people than among non-

Indigenous people is indicated by sample survey data (ABS 1995), which also suggests relatively low use of private hospitals by Indigenous people.

## **Guideline**

### **Guideline 8**

**In the case of Indigenous status information in relation to public and private hospitals, data should be analysed for the combined public and private sectors or the public sector alone. Data for the private sector alone should not be used.**

Use of data for the public sector alone is considered reasonable because the public sector is the main contributor to the quality of Indigenous status data for each jurisdiction.

Use of data for the combined sectors is also considered reasonable. Given that the private sector contribution to separations for Indigenous people is apparently relatively small, under-identification in the private sector would be expected to have a relatively limited effect on the analysis of separations for Indigenous people based on data for the combined sectors.

## **5.6 Use of data for the Indigenous subcategories**

This guideline concerns use of the Indigenous subcategories (and combinations of them) in the analysis and reporting of information on Indigenous status in hospital separations data. As recommended in the *National Health Data Dictionary*, the subcategories are 'Aboriginal but not Torres Strait Islander origin', 'Torres Strait Islander but not Aboriginal origin', and 'Both Aboriginal and Torres Strait Islander origin'.

### **Findings and discussion**

In 2003–04 there were 200,746 separations for patients reported as 'Aboriginal but not Torres Strait Islander origin'. They accounted for the overwhelming majority of separations for Indigenous patients. There were 9,748 separations reported as 'Torres Strait Islander but not Aboriginal origin', largely contributed by Queensland and New South Wales. There were 5,653 separations reported as 'Both Aboriginal and Torres Strait Islander origin', again mainly in Queensland but with a wider geographic distribution than for the subcategory 'Torres Strait Islander but not Aboriginal origin'.

An examination of counts of annual separations between 1997–98 and 2003–04 indicated a fairly smooth time series and an increasing number of separations for each subcategory in most jurisdictions. This suggests both consistent interpretation of the Indigenous subcategories and improved ascertainment of Indigenous status for each subcategory in most jurisdictions.

Given that most separations for Indigenous patients are for people of Aboriginal but not Torres Strait Islander origin, the apparent quality of Indigenous identification for this subcategory has a large influence on the quality of Indigenous status data overall. Although interpretation of interstate differences in separation rate ratios is complicated by the possible presence of interstate variations in population health and health systems, the differences seen in these ratios strongly suggest there is substantial under-identification of the subcategory in data for New South Wales and Victoria and very substantial under-identification in data for Tasmania.

The examination of separation rate ratios also suggests the substantial under-identification of the subcategory 'Torres Strait Islander but not Aboriginal origin' in all jurisdictions other than Queensland. Separation numbers for this subcategory in Queensland and New South Wales also appear to include relatively small numbers of misidentified New Zealanders and other people born in the Pacific region.

The rate ratios also suggest the under-identification of the subcategory 'Both Aboriginal and Torres Strait Islander origin' in most jurisdictions, notwithstanding that some non-Indigenous patients are apparently recorded in this subcategory in some jurisdictions (most notably in Victoria and the Northern Territory) and at private hospitals generally. This phenomenon includes the apparent misclassification of some overseas-born patients in New South Wales and to a much smaller extent Queensland. Separations with an overseas country of birth other than Papua New Guinea represented 2.7% of total separations for the subcategory.

For the subcategories 'Torres Strait Islander but not Aboriginal origin' and 'Both Aboriginal and Torres Strait Islander origin' there are possible questions about the reliability of separation rates for jurisdictions where population numbers are small; this is because of concerns about the reliability of population estimates for these subcategories in those jurisdictions.

## **Guidelines**

### **Guideline 9**

**Use of data reported for the 'Aboriginal but not Torres Strait Islander origin' subcategory is recommended for Queensland, Western Australia, South Australia and the Northern Territory, individually or in aggregate.**

There are no compelling arguments against using data reported for the 'Aboriginal but not Torres Strait Islander origin' subcategory. The subcategory represents a large proportion of separations for Indigenous people in each jurisdiction, and the available evidence suggests consistent interpretation and improving ascertainment over time for the subcategory in most jurisdictions.

In keeping with the guidelines in Section 5.4, use of this subcategory would be restricted to data for Queensland, Western Australia, South Australia and the Northern Territory, individually or in aggregate. Use of data for the Northern Territory is specified in the guideline but, in view of the need to preserve the

confidentiality of data for Darwin Private Hospital, the guideline should be interpreted to mean use of data solely for Northern Territory public hospitals. Caveats about under-identification of Indigenous patients would need to be included.

#### **Guideline 10**

**Use of data reported for the ‘Torres Strait Islander but not Aboriginal origin’ subcategory is recommended for Queensland and (with caution) for Queensland, Western Australia, South Australia and the Northern Territory in aggregate.**

Separate monitoring of hospitalisations for the Torres Strait Islander population group is desirable, particularly in Queensland, which contributes about 63% of the population of those identifying as of Torres Strait Islander but not Aboriginal origin and about 52% of those identifying as of both Aboriginal and Torres Strait Islander origin.

In view of the apparently substantial under-identification of this subcategory outside Queensland, use of the subcategory is not recommended for data for individual jurisdictions other than Queensland. Cautious use of data for Queensland, Western Australia, South Australia and the Northern Territory in aggregate is recommended.

As noted, use of data for the Northern Territory should be interpreted to mean use of data solely for Northern Territory public hospitals.

#### **Guideline 11**

**Separate use of data reported for the ‘Both Aboriginal and Torres Strait Islander origin’ subcategory is not recommended.**

Separate use of the subcategory ‘Both Aboriginal and Torres Strait Islander origin’ is not recommended in view of its apparently substantial under-enumeration, except in Victoria (which is not recommended for inclusion in the analysis of national separations data) and the Northern Territory, and suggestions that the subcategory includes separations for misclassified non-Indigenous people.

#### **Guideline 12**

**Use of the combined subcategories ‘Torres Strait Islander but not Aboriginal origin’ and ‘Both Aboriginal and Torres Strait Islander origin’ is recommended for Queensland and (with caution) for Queensland, Western Australia, South Australia and the Northern Territory in aggregate.**

Combined use of the subcategories ‘Torres Strait Islander but not Aboriginal origin’ and ‘Both Aboriginal and Torres Strait Islander origin’ might be appropriate for analysis of hospital separations for people identifying as being of Torres Strait Islander origin (without specifying whether they also identify as being of Aboriginal origin), and this is recommended for Queensland and, with caution, for Queensland, Western Australia, South Australia and the Northern Territory in aggregate (as is the case for the subcategory ‘Torres Strait Islander but not Aboriginal origin’ alone).

As noted, use of data for the Northern Territory should be interpreted to mean the use of data solely for Northern Territory public hospitals.

### **Guideline 13**

**Use of the combined subcategories 'Aboriginal but not Torres Strait Islander origin' and 'Both Aboriginal and Torres Strait Islander origin' is recommended for Queensland, Western Australia, South Australia and the Northern Territory, individually or in aggregate.**

Combined use of the subcategories 'Aboriginal but not Torres Strait Islander origin' and 'Both Aboriginal and Torres Strait Islander origin' can apply to people identifying as being of Aboriginal origin (without specifying whether they also identify as being of Torres Strait Islander origin). The apparent quality problems for the latter subcategory would have a relatively small impact when the two subcategories are combined. Combined use of the subcategories is recommended for Queensland, Western Australia, South Australia and the Northern Territory, individually or in aggregate (as is the case for the subcategory 'Aboriginal but not Torres Strait Islander origin' alone).

As noted, use of data for the Northern Territory should be interpreted to mean the use of data solely for Northern Territory public hospitals.

## **5.7 Regional analysis of hospital separations data**

This guideline concerns the regional analysis of separations data for Indigenous people. A typical example would be analysis based on the Remoteness Area classification of the Australian Standard Geographic Classification.

### **Findings**

As described in Chapter 2, assessments of the quality of Indigenous identification conducted via data linkage in New South Wales and via patient interviews in the 1998 ATSIHWIU study and in Western Australia in 2000 all found that Indigenous identification is better at hospitals with relatively higher proportions of Indigenous people in the hospital catchment area. Such hospitals tend to be predominantly located in rural and remote areas. This implies the variation in the rate of Indigenous identification of hospital patients with the location of the patient's hospital and, in consequence of that, variation in the rate of Indigenous identification with the location of the patient's usual residence.

Such variation is supported by findings from the analysis of national hospital separations data for 2003–04, which found differences in the rate of non-reporting of Indigenous status across remoteness area groupings of both the patient's hospital location and the patient's usual residence.

Non-reporting was greater at public hospitals in very remote areas than at other public hospitals. It was substantially greater at private hospitals in outer regional areas than at other private hospitals (in major cities and inner regional areas).

In public hospitals, non-reporting was greater for patients usually resident in regional or remote areas than for patients resident in major cities or very remote

areas. In private hospitals, non-reporting was very elevated for patients resident in outer regional or very remote areas, somewhat elevated for patients resident in inner regional or remote areas, and relatively low for patients resident in major cities.

## **Guideline**

### **Guideline 14**

**Analysis of separations for Indigenous people should generally not be undertaken by remoteness area of either the patient's usual residence or the hospital's location.**

In circumstances of probable variation in the rate of Indigenous identification of hospital patients with the location of the patient's usual residence and the patient's hospital, one could not be sure that an apparent variation in a condition of interest for Indigenous hospital patients across remoteness area of either the patient's usual residence or the patient's hospital location is not simply an artefact of that regional variation in the rate of Indigenous identification.

Analysis by remoteness area may, however, be acceptable in some limited circumstances:

- There were persuasive reasons to undertake the analysis, such as evidence of a relationship between remoteness area and the subset of separations of interest based on a known relationship for the population as a whole or for non-Indigenous people, or evidence of a relationship based on a known relationship between remoteness area and the condition of interest for Indigenous people demonstrated with other data (e.g. mortality or population survey data).
- The relationship between remoteness area and the subset of separations of interest would still exist if under-identification factors were applied that were specific to individual remoteness areas. Because such under-identification factors do not currently exist, the analysis would need to include application of assumed under-identification estimates and/or sensitivity testing with a range of under-identification estimates to demonstrate that the relationship was not just an artefact of varying levels of Indigenous identification by remoteness area.
- Appropriate caveat information was included.

## **5.8 Use of age standardisation and population data**

These guidelines concern the use of age-standardisation methods and population data in the derivation of hospital separation rates for Indigenous people. They cover:

- the choice between direct and indirect age standardisation
- the age categories to be used in age standardisation
- appropriate use of official population data for Indigenous people
- the choice between the low-series and high-series Australian Bureau of Statistics population projections for Indigenous people.



## **Discussion: age-standardisation methods**

### **The choice between direct and indirect age standardisation**

One question concerns the choice between direct age standardisation and indirect age standardisation, and an important consideration in this choice is that a consistent approach be adopted in like types of data analysis.

The two methods achieve different weightings of separations data, but neither can be preferred over the other in all circumstances. Data quality and the type of analysis to be conducted should guide selection of the most appropriate method. The direct method gives higher weighting to separations for older Indigenous people.

The direct method is the one most commonly adopted in comparisons between study groups. In the Australian context, the standard population is the estimated Australian population at June 2001, and the directly age standardised rate derived for a population of interest in a given jurisdiction at a particular time period can be related not only to the directly age standardised rate derived for a comparison group in the same jurisdiction at the same time period – as, for example, a ratio of the separation rates for patients reported as Indigenous and those not reported as Indigenous – but it can also be related to directly age standardised rates derived for the populations of other jurisdictions and other time periods.

Valid application of the indirect method applies to a more limited range of contexts. Because the standard population generally adopted with this method is the population of the comparison group (or, sometimes, the pooled populations of all groups being compared), the indirectly age standardised rate derived for a group of interest can be related only to the indirectly age standardised rate derived for that comparison group (or to the rates derived for other members of the pooled comparison group). It cannot be validly related to indirectly age standardised rates derived using different comparison groups (e.g. for an equivalent population in a different jurisdiction or at a different time period).

Within its restricted range of use, the indirect method has the advantage of enabling direct comparisons between the observed numbers of events for a population of interest and the numbers expected under the age-specific rates of the comparison group. It also provides more reliable results than the direct method (within its restricted range of use) when rates are to be calculated for populations subject to fluctuations in age-specific rates (e.g. because of small population sizes), and it can be used in certain circumstances in which a directly age standardised rate cannot be calculated (e.g. where the total number of events is known for the population of interest but the age-specific rates are not known).

Indirect age standardisation is therefore recommended for comparison of the separation rate for a single Indigenous population of interest with the separation rate for a single not-reported-as-Indigenous comparison group.

For comparison of separation rates for Indigenous and not-reported-as-Indigenous populations across multiple jurisdictions, time periods or other groupings, direct age standardisation is recommended whenever populations are sufficiently large to provide reliable results.

Age standardisation is considered here for those analyses of Indigenous data recommended in the guidelines of Sections 5.3, 5.4 and 5.5 – that is, data be analysed solely for Queensland, Western Australia, South Australia and the Northern Territory, there be no analysis of data from the private sector alone, there be no use of the subcategory ‘Both Aboriginal and Torres Strait Islander origin’ alone, and there be no use of the subcategory ‘Torres Strait Islander but not Aboriginal origin’ (or of the combined subcategories ‘Torres Strait Islander but not Aboriginal origin’ and ‘Both Aboriginal and Torres Strait Islander origin’) other than for data from Queensland and for data from Queensland, Western Australia, South Australia and the Northern Territory in aggregate. Given those exclusions, direct age standardisation should provide reliable age-standardised separation rates for broad groupings of separations for Indigenous and non-Indigenous people at a jurisdiction level – for example, overnight separations for patients reported in all Indigenous subcategories, by jurisdiction. In particular, direct age standardisation should provide reliable results for basic time series of separation rates and rate ratios for patients reported as Indigenous and those not reported as Indigenous.

### **The appropriate age categories for the Indigenous population**

When deriving age-standardised Indigenous separation rates via the direct method (or via the indirect method with the standard population taken as another Indigenous population), it is necessary to ensure that the individual age groups included in the calculations have sufficient numbers to provide reliable results. In view of the relatively young age distribution of the Indigenous population, in order to achieve adequate reliability it might be necessary to amalgamate a number of the oldest age groups – for example, as a 65+ age group.

The age above which the age groups should be amalgamated will depend on the age structure of the Indigenous population in question and would need to be determined by prior examination of those data.

## **Guidelines: age-standardisation methods**

### **Guideline 15**

**Indirect age standardisation is recommended for comparing the separation rate for a single Indigenous population of interest with the rate for a single not-reported-as-Indigenous comparison group.**

### **Guideline 16**

**For comparing separation rates for Indigenous and not-reported-as-Indigenous populations across multiple jurisdictions, time periods or other groupings, direct age standardisation should be used whenever populations are large enough to provide reliable results.**

### **Guideline 17**

**When deriving age-standardised Indigenous separation rates, age groups should be amalgamated where greater than an age determined by analysis of the data in**

**question, as necessary, to ensure that all age groups have sufficient numbers for reliable results.**

## **Discussion: use of population data**

Based on population census counts, the Australian Bureau of Statistics publishes estimates of the Indigenous population for each census year and for each intercensal year. It also generates projections of the Indigenous population for years beyond the year of the latest census.

Advice is issued with the published estimates and projections to warn of possible under-enumeration in the figures stemming from difficulty in ascertaining Indigenous status for Indigenous people at population censuses and in official birth, death and migration records (although the figures incorporate an apportionment between the Indigenous and non-Indigenous categories of the census count of people whose Indigenous status was not reported).

In the interests of supporting comparability between analyses, it is desirable that the Australian Bureau of Statistics estimates and projections are used without additional under-identification adjustment when used in the derivation of Indigenous separation rates.

The Australian Bureau of Statistics generates two series of projections of the Indigenous population – the high and low series – based on a single set of assumptions about fertility, mortality and migration and differing assumptions about future unexplained growth in the census counts. Reporting of separation rates for Indigenous people based on the projections should advise whether the high series or the low series was used.

In the interest of supporting the comparability of Indigenous separation rates derived at different times and places, it is desirable that use of the Australian Bureau of Statistics projections be standardised to either the low series or the high series. The low series is currently used for the derivation of Indigenous rates by both the AIHW and the Australian Bureau of Statistics, and it is recommended as the standard.

## **Guidelines: use of population data**

### **Guideline 18**

**When deriving separation rates for Indigenous populations, the official Australian Bureau of Statistics population estimates or projections should be used without adjustment for possible under-identification in those data.**

### **Guideline 19**

**Reporting of Indigenous separation rates based on the Australian Bureau of Statistics population projections should indicate whether the high or low projection series was used. The low series is recommended.**

## 6 Recommendations for improving Indigenous identification in hospital separations data

Following are recommendations relating to the policies and processes needed to improve the quality of Indigenous identification in hospital separations data. These recommendations reflect the material presented in Chapters 2, 3 and 4. Actions considered to be of high priority are flagged, and a target date of December 2006 is suggested for them.

### Data collection processes

1. [High priority] Procedures should be established in all hospitals to ensure ascertainment of Indigenous status for every patient at every admission. In particular:
  - (a) [High priority] It should be standard practice to attempt to obtain the information from the companions of an admitting patient who is unable to provide Indigenous status information personally.
  - (b) [High priority] Non-responses should be followed up, and mechanisms should exist to distinguish between patients who have been followed up and for whom a response was not elicited and patients for whom follow-up is pending.
  - (c) [High priority] It should be standard practice for there to be bedside follow-up with patients by ward clerks whenever the information could not be obtained at admission – for example, emergency and after-hours admissions.
  - (d) [High priority] In order to allow for people changing their Indigenous identification, it should be a requirement that Indigenous status be sought at all repeat admissions – for example, through the use of patient administration systems that record Indigenous status on an episode-level basis – rather than being automatically refreshed from pre-existing records.
  - (e) Procedures and training should be developed and introduced to ensure that reliance on pre-existing records occurs solely as a last resort.
  - (f) For multiple, planned admissions for same-day care – for example, for dialysis – it is acceptable to have a protocol that allows for Indigenous status not to be sought for every admission but to be sought at the first admission and periodically at subsequent admissions.
2. [High priority] Indigenous status information should be ascertained for patients being admitted at all public and private hospitals, using the standard Indigenous identification question formulated by the Australian Bureau of Statistics, as set out in the *National Health Data Dictionary*. In particular:

- (a) [High priority] The question should be asked regardless of data collectors' perceptions based on appearance or other factors.
  - (b) In Tasmania the standard Indigenous identification question formulated by the Australian Bureau of Statistics should continue to be used rather than modified Indigenous identification arrangements, as suggested by some parties.
3. [High priority] The data recording systems of all hospitals and health authorities should classify Indigenous status using the standard in the *National Health Data Dictionary*. In particular:
- (a) [High priority] With the exception of forms for patients to complete, a 'Not stated/inadequately described' category should always be provided.
  - (b) [High priority] Responses of 'Not stated/inadequately described' should be permitted in separations records hospitals forward to health authorities.
  - (c) [High priority] Data recording systems should not include arrangements whereby the category 'Not stated/inadequately described' (or no category selected at all) defaults either manually or automatically to the 'Neither Aboriginal nor Torres Strait Islander origin' category.
  - (d) If deemed necessary for local purposes, non-response subcategories be provided to enable the collection of information on the type of non-response – for example, 'Patient refused to answer' and 'Question unable to be asked'.
4. Procedures and training should be introduced to ensure that data collection staff ascertain the Indigenous status of all babies born at the hospital and other patients aged less than 1 year. These arrangements should take into consideration the Indigenous status of both the mother and the father, as necessary.
5. A protocol should be established to specifically exclude non-Australian indigenous patients from identification as Aboriginal or Torres Strait Islander.

### **Training of data collection staff**

- 6. [High priority] Comprehensive training in data collection and data quality should be provided to all staff involved in the collection of patient information at all public and private hospitals. It should be provided on an as-needs basis to all new staff and as periodic refresher training to established staff.
- 7. [High priority] The training should include the asking about and recording of Indigenous status, and it should accord with the standard package developed by the Australian Bureau of Statistics. It should be directed towards a specific set of outcomes for hospital staff, among them the following:
  - development of strong values for accurate collection of data about hospital patients and for follow-up of missing patient information
  - understanding the importance of accurate Indigenous statistics

- acquisition of strong interview techniques, including an ability to ask, in an appropriate manner, the standard Indigenous identification question
  - reduced apprehension about appearing foolish in asking the Indigenous status question
  - ability to clearly explain to clients why the data are being collected and to explain that the data will remain confidential
  - an appreciation of how the Indigenous status question can be considered sensitive by some people and development of confidence in being able to deal with that as it arises.
8. [High priority] The training efforts of both public and private hospitals should be supported by provision of:
- a centrally organised scheme for the training of those training staff that are attached to individual hospitals or to individual area health services
  - a regularly updated policy and procedures manual that provides information about how and why Indigenous status and other personal data are collected
  - a question and answer guide to assist staff in fielding queries and dealing with objections to the Indigenous status question.
9. At all hospitals the adequacy of training should be periodically assessed by means of direct evaluation of training outcomes and audits of Indigenous identification.
10. Training of data collection staff should be augmented by their direct participation in the conduct and evaluation of hospital-based data quality audits and acquisition of knowledge about the consequences of data collection practices.

## **Organisational policies and practices**

11. [High priority] Health authorities should give consideration to the carrying out of a thorough review of state-wide procedures for the collection, recording and verification of Indigenous status information as the basis for planning action to improve Indigenous status data quality.
12. Mechanisms should be established to increase hospital administrators' commitment to improved Indigenous status data quality. In particular:
- (a) Service agreements with public hospitals should incorporate specific requirements dealing with patient data quality.
  - (b) Specific attention should be given to encouraging and supporting the administrators of private hospitals to improve arrangements for the collection of patient information. Sources of funding for this might need to be identified.
13. Hospital administrators should be encouraged to accompany improved data collection practices with sound managerial arrangements. In particular:

- (a) There should be a clear delegation of responsibility and accountability for the collection of Indigenous status information.
  - (b) The employment of Indigenous hospital liaison officers should be considered for all hospitals at risk of substantial under-identification of Indigenous patients as a means of improving identification through greater knowledge of the local Indigenous community and facilitation of greater cross-cultural understanding between Indigenous people and hospital staff.
14. Consideration should be given to instituting a scheme for public recognition of best practice in ascertaining the Indigenous status of hospital patients.
  15. An assessment should be made of the potential role of public education in relation to asking about the Indigenous status of hospital patients – for example, by means of in-hospital videos and brochures.

### **Data monitoring and audit**

16. [High priority] Each jurisdiction should introduce arrangements for regular monitoring of Indigenous status information in separation records, as a basis for providing continuing feedback on data quality at the hospital level and evaluating changes in data quality stemming from the adoption of new data collection practices. In particular:
  - (a) This could be done using simple data analysis focused on rate ratios, proportions of separations for which Indigenous status was not reported, and (where possible) record linkage within hospital separations data sets.
  - (b) Where a jurisdiction is able to link hospital separations data to other data (such as cancer registry data or deaths data) for which Indigenous ascertainment is considered reasonable, this should be done as a basis for continuing monitoring of the quality of Indigenous identification in separations data.
17. An audit of Indigenous identification using patient interviews or another robust methodology should be periodically conducted for public and private hospitals on a nationally coordinated basis, in order to assess data quality and generate comparable and up-to-date under-identification factors. In particular:
  - (a) Consideration should be given to using a methodology based on patient interviews. In the interest of a nationally consistent approach, it is recommended that any uptake of this methodology be based on the methods set out in *Assessing the Quality of Identification of Aboriginal and Torres Strait Islander People in Hospital Data* (ATSIHWIU 1999).
  - (b) These audits should be conducted with a sample of a size that is sufficient to provide a reliable measure of data quality for each jurisdiction, as a minimum.
  - (c) The possibility of conducting such audits in association with other audit tasks (such as checking for Department of Veterans' Affairs eligibility or other information about compensable status) should be investigated.

# Appendix A: Detailed tables



**Table A1: Separations<sup>(a)</sup>, by patient's Indigenous status, patient's sex and hospital sector, Australia<sup>(b)</sup>, 2003–04**

Hospital sector and patient's sex	Separations				Per cent				Per cent not reported
	Indigenous	Non- Indigenous	Not reported	Total	Indigenous	Non- Indigenous	Not reported	Total	
<b>Public sector</b>									
Male	67,924	1,149,005	18,854	1,235,783	43.8	47.9	49.0	47.6	1.5
Female	87,264	1,251,537	19,625	1,358,426	56.2	52.1	51.0	52.4	1.4
<b>Total<sup>(c)</sup></b>	<b>155,189</b>	<b>2,400,546</b>	<b>38,508</b>	<b>2,594,243</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>1.5</b>
<b>Private sector</b>									
Male	2,601	661,412	93,454	757,467	47.1	45.4	45.1	45.4	12.3
Female	2,923	795,354	113,951	912,228	52.9	54.6	54.9	54.6	12.5
<b>Total<sup>(c)</sup></b>	<b>5,524</b>	<b>1,456,767</b>	<b>207,418</b>	<b>1,669,709</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>12.4</b>

(a) Separations for which the care type was reported as 'Newborn' with no qualified days and records for 'Hospital boarders' and 'Posthumous organ procurement' have been excluded.

(b) Separations for Victoria, Western Australia and one public hospital in the Australian Capital Territory have been excluded because unreported Indigenous status was not accommodated in data systems for these separations.

(c) Includes separations for which patient's sex was not reported.

Source: AIHW National Hospital Morbidity Database.

Table A2: Separations<sup>(a)</sup>, by patient's Indigenous status, patient's age group and hospital sector, Australia<sup>(b)</sup>, 2003–04

Hospital sector and patient's age group	Separations				Per cent				Per cent not reported
	Indigenous	Non- Indigenous	Not reported	Total	Indigenous	Non- Indigenous	Not reported	Total	
<b>Public sector</b>									
Under 1	6,866	67,283	2,110	76,259	4.4	2.8	5.5	2.9	2.8
1–4	7,476	87,694	956	96,126	4.8	3.7	2.5	3.7	1.0
5–9	4,271	57,844	579	62,694	2.8	2.4	1.5	2.4	0.9
10–14	3,439	50,081	735	54,255	2.2	2.1	1.9	2.1	1.4
15–19	7,949	79,503	1,807	89,259	5.1	3.3	4.7	3.4	2.0
20–24	9,769	115,712	2,415	127,896	6.3	4.8	6.3	4.9	1.9
25–29	9,436	138,320	2,647	150,403	6.1	5.8	6.9	5.8	1.8
30–34	11,652	149,207	3,038	163,897	7.5	6.2	7.9	6.3	1.9
35–39	12,070	122,936	2,221	137,227	7.8	5.1	5.8	5.3	1.6
40–44	13,688	120,632	2,056	136,376	8.8	5.0	5.3	5.3	1.5
45–49	15,441	122,307	2,455	140,203	9.9	5.1	6.4	5.4	1.8
50–54	14,967	131,078	2,139	148,184	9.6	5.5	5.6	5.7	1.4
55–59	12,911	153,164	2,394	168,469	8.3	6.4	6.2	6.5	1.4
60–64	9,600	153,132	2,408	165,140	6.2	6.4	6.3	6.4	1.5
65–69	6,713	170,908	2,625	180,246	4.3	7.1	6.8	6.9	1.5
70–74	5,385	201,139	2,625	209,149	3.5	8.4	6.8	8.1	1.3
75 and over	3,556	479,605	5,298	488,459	2.3	20.0	13.8	18.8	1.1
<b>Total<sup>(c)</sup></b>	<b>155,189</b>	<b>2,400,546</b>	<b>38,508</b>	<b>2,594,243</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>1.5</b>

(continued)

Table A2 (continued): Separations<sup>(a)</sup>, by patient's Indigenous status, patient's age group and hospital sector, Australia<sup>(b)</sup>, 2003-04

Hospital sector and patient's age group	Separations				Per cent				Per cent not reported
	Indigenous	Non-Indigenous	Not reported	Total	Indigenous	Non-Indigenous	Not reported	Total	
<b>Private sector</b>									
Under 1	29	10,077	1,756	11,862	0.5	0.7	0.8	0.7	14.8
1-4	79	17,429	2,811	20,319	1.4	1.2	1.4	1.2	13.8
5-9	60	14,930	2,514	17,504	1.1	1.0	1.2	1.0	14.4
10-14	37	13,190	2,338	15,565	0.7	0.9	1.1	0.9	15.0
15-19	125	36,779	5,222	42,126	2.3	2.5	2.5	2.5	12.4
20-24	153	46,336	6,536	53,025	2.8	3.2	3.2	3.2	12.3
25-29	162	54,587	8,069	62,818	2.9	3.7	3.9	3.8	12.8
30-34	278	85,339	12,874	98,491	5.0	5.9	6.2	5.9	13.1
35-39	523	81,125	12,709	94,357	9.5	5.6	6.1	5.7	13.5
40-44	401	87,730	12,947	101,078	7.3	6.0	6.2	6.1	12.8
45-49	702	97,025	14,388	112,115	12.7	6.7	6.9	6.7	12.8
50-54	757	118,541	18,176	137,474	13.7	8.1	8.8	8.2	13.2
55-59	685	138,336	20,563	159,584	12.4	9.5	9.9	9.6	12.9
60-64	376	120,875	17,952	139,203	6.8	8.3	8.7	8.3	12.9
65-69	548	112,115	16,110	128,773	9.9	7.7	7.8	7.7	12.5
70-74	176	118,692	16,553	135,421	3.2	8.1	8.0	8.1	12.2
75 and over	433	303,660	35,900	339,993	7.8	20.8	17.3	20.4	10.6
<b>Total<sup>(c)</sup></b>	<b>5,524</b>	<b>1,456,767</b>	<b>207,418</b>	<b>1,669,709</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>12.4</b>

(a) Separations for which the care type was reported as 'Newborn' with no qualified days and records for 'Hospital boarders' and 'Posthumous organ procurement' have been excluded.

(b) Separations for Victoria, Western Australia and one public hospital in the Australian Capital Territory have been excluded because unreported Indigenous status was not accommodated in data systems for these separations.

(c) Includes separations for which age was not reported.

Source: AIHW National Hospital Morbidity Database.

**Table A3: Separations<sup>(a)</sup> for patients aged less than 1 year at admission, by patient's Indigenous status, patient's age at admission and hospital sector, Australia<sup>(b)</sup>, 2003–04**

Hospital sector and patient's age at admission	Separations				Per cent				Per cent not reported
	Indigenous	Non-Indigenous	Not reported	Total	Indigenous	Non-Indigenous	Not reported	Total	
<b>Public sector</b>									
0 days	1,733	22,739	986	25,458	25.2	33.8	46.7	33.4	3.9
1–6 days	234	3,842	296	4,372	3.4	5.7	14.0	5.7	6.8
7–14 days	211	2,629	102	2,942	3.1	3.9	4.8	3.9	3.5
15–364 days	4,688	38,073	726	43,487	68.3	56.6	34.4	57.0	1.7
<i>Total<sup>(c)</sup></i>	<i>6,866</i>	<i>67,283</i>	<i>2,110</i>	<i>76,259</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>2.8</i>
<b>Private sector</b>									
0 days	4	4,446	810	5,260	13.8	44.1	46.1	44.3	15.4
1–6 days	1	413	93	507	3.4	4.1	5.3	4.3	18.3
7–14 days	1	675	75	751	3.4	6.7	4.3	6.3	10.0
15–364 days	23	4,544	778	5,345	79.3	45.1	44.3	45.1	14.6
<i>Total<sup>(c)</sup></i>	<i>29</i>	<i>10,078</i>	<i>1,756</i>	<i>11,863</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>14.8</i>
<b>Public and private sectors</b>									
0 days	1,737	27,185	1,796	30,718	25.2	35.1	46.5	34.9	5.8
1–6 days	235	4,255	389	4,879	3.4	5.5	10.1	5.5	8.0
7–14 days	212	3,304	177	3,693	3.1	4.3	4.6	4.2	4.8
15–364 days	4,711	42,617	1,504	48,832	68.3	55.1	38.9	55.4	3.1
<b>Total<sup>(c)</sup></b>	<b>6,895</b>	<b>77,361</b>	<b>3,866</b>	<b>88,122</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>4.4</b>

(a) Separations for which the care type was reported as 'Newborn' with no qualified days and records for 'Hospital boarders' and 'Posthumous organ procurement' have been excluded.

(b) Separations for Victoria, Western Australia and one public hospital in the Australian Capital Territory have been excluded because unreported Indigenous status was not accommodated in data systems for these separations.

(c) Includes separations for which age in days was not reported.

Source: AIHW National Hospital Morbidity Database.

**Table A4: Separations for newborn patients that had unqualified days only<sup>(a)</sup>, by patient's Indigenous status, patient's age at admission and hospital sector, Australia<sup>(b)</sup>, 2003–04**

Hospital sector and patient's age at admission	Separations				Per cent				Per cent not reported
	Indigenous	Non-Indigenous	Not reported	Total	Indigenous	Non-Indigenous	Not reported	Total	
<b>Public sector</b>									
0 days	5,085	85,564	3,494	94,143	95.9	97.5	97.6	97.5	3.7
1–6 days	201	1,963	72	2,236	3.8	2.2	2.0	2.3	3.2
7–9 days	17	186	13	216	0.3	0.2	0.4	0.2	6.0
<i>Total<sup>(c)</sup></i>	<i>5,303</i>	<i>87,713</i>	<i>3,579</i>	<i>96,595</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>3.7</i>
<b>Private sector</b>									
0 days	52	29,857	6,475	36,384	100.0	96.7	98.9	97.1	17.8
1–6 days	0	874	55	929	0.0	2.8	0.8	2.5	5.9
7–9 days	0	159	16	175	0.0	0.5	0.2	0.5	9.1
<i>Total<sup>(c)</sup></i>	<i>52</i>	<i>30,890</i>	<i>6,546</i>	<i>37,488</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>17.5</i>
<b>Public and private sectors</b>									
0 days	5,137	115,421	9,969	130,527	95.9	97.3	98.5	97.3	7.6
1–6 days	201	2,837	127	3,165	3.8	2.4	1.3	2.4	4.0
7–9 days	17	345	29	391	0.3	0.3	0.3	0.3	7.4
<b>Total<sup>(c)</sup></b>	<b>5,355</b>	<b>118,603</b>	<b>10,125</b>	<b>134,083</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>7.6</b>

(a) Separations for which the care type was reported as 'Newborn' with unqualified days only. Separations for which all days are unqualified apply only to patients aged 9 days or less at admission.

(b) Separations for Victoria, Western Australia and one public hospital in the Australian Capital Territory have been excluded because unreported Indigenous status was not accommodated in data systems for these separations.

(c) Includes separations for which age in days was not reported.

Source: AIHW National Hospital Morbidity Database.

**Table A5: Separations<sup>(a)</sup>, by patient's Indigenous status, patient election status and hospital sector, Australia<sup>(b)</sup>, 2003–04**

Hospital sector and patient election status	Separations				Per cent				Per cent not reported
	Indigenous	Non-Indigenous	Not reported	Total	Indigenous	Non-Indigenous	Not reported	Total	
<b>Public sector</b>									
Public patient	151,715	2,028,506	33,745	2,213,966	97.8	84.5	87.6	85.3	1.5
Private patient	3,471	371,613	4,646	379,730	2.2	15.5	12.1	14.6	1.2
<b>Total<sup>(c)</sup></b>	<b>155,189</b>	<b>2,400,546</b>	<b>38,508</b>	<b>2,594,243</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>1.0</b>	<b>1.5</b>
<b>Private sector</b>									
Public patient	2,534	19,025	6,984	28,543	45.9	1.3	3.4	1.7	24.5
Private patient	2,990	1,437,732	199,160	1,639,882	54.1	98.7	96.0	98.2	12.1
<b>Total<sup>(c)</sup></b>	<b>5,524</b>	<b>1,456,767</b>	<b>207,418</b>	<b>1,669,709</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>12.4</b>

(a) Separations for which the care type was reported as 'Newborn' with no qualified days and records for 'Hospital boarders' and 'Posthumous organ procurement' have been excluded.

(b) Separations for Victoria, Western Australia and one public hospital in the Australian Capital Territory have been excluded because unreported Indigenous status was not accommodated in data systems for these separations.

(c) Includes separations for which patient election status was not reported.

Source: AIHW National Hospital Morbidity Database.

**Table A6: Separations<sup>(a)</sup>, by patient's Indigenous status, patient's overseas or Australian birthplace and hospital sector, Australia<sup>(b)</sup>, 2003–04**

Hospital sector and patient's overseas or Australian birthplace	Separations				Per cent				Per cent not reported
	Indigenous	Non-Indigenous	Not reported	Total	Indigenous	Non-Indigenous	Not reported	Total	
<b>Public sector</b>									
Australia	154,669	1,806,790	25,788	1,987,247	99.7	75.3	67.0	76.6	1.3
Overseas	388	577,115	4,966	582,469	0.3	24.0	12.9	22.5	0.9
Not reported <sup>(c)</sup>	132	16,641	7,754	24,527	0.1	0.7	20.1	0.9	31.6
<b>Total</b>	<b>155,189</b>	<b>2,400,546</b>	<b>38,508</b>	<b>2,594,243</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>1.5</b>
<b>Private sector</b>									
Australia	5,363	1,154,351	146,664	1,306,378	97.1	79.2	70.7	78.2	11.2
Overseas	35	278,258	26,035	304,328	0.6	19.1	12.6	18.2	8.6
Not reported <sup>(c)</sup>	126	24,158	34,719	59,003	2.3	1.7	16.7	3.5	58.8
<b>Total</b>	<b>5,524</b>	<b>1,456,767</b>	<b>207,418</b>	<b>1,669,709</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>12.4</b>

(a) Separations for which the care type was reported as 'Newborn' with no qualified days and records for 'Hospital boarders' and 'Posthumous organ procurement' have been excluded.

(b) Separations for Victoria, Western Australia and one public hospital in the Australian Capital Territory have been excluded because unreported Indigenous status was not accommodated in data systems for these separations.

(c) Includes separations for which birthplace was not elsewhere classified.

Source: AIHW National Hospital Morbidity Database.

Table A7: Separations<sup>(a)</sup>, by patient's Indigenous status, remoteness of patient's usual residence<sup>(b)</sup> and hospital sector, Australia<sup>(c)</sup>, 2003–04

Hospital sector and remoteness area of patient's usual residence	Separations				Per cent				Per cent not reported
	Indigenous	Non-Indigenous	Not reported	Total	Indigenous	Non-Indigenous	Not reported	Total	
<b>Public sector</b>									
Major cities	26,151	1,447,254	19,929	1,493,334	16.9	60.3	51.8	57.6	1.3
Inner regional	22,586	547,411	9,283	579,280	14.6	22.8	24.1	22.3	1.6
Outer regional	50,310	336,254	7,000	393,564	32.4	14.0	18.2	15.2	1.8
Remote	20,228	41,294	1,213	62,735	13.0	1.7	3.1	2.4	1.9
Very remote	34,862	14,317	632	49,811	22.5	0.6	1.6	1.9	1.3
<b>Total<sup>(d)</sup></b>	<b>155,189</b>	<b>2,400,546</b>	<b>38,508</b>	<b>2,594,243</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>1.5</b>
<b>Private sector</b>									
Major cities	1,866	1,012,760	88,720	1,103,346	33.8	69.5	42.8	66.1	8.0
Inner regional	901	311,746	62,432	375,079	16.3	21.4	30.1	22.5	16.6
Outer regional	2,595	108,677	48,167	159,439	47.0	7.5	23.2	9.5	30.2
Remote	72	8,992	2,025	11,089	1.3	0.6	1.0	0.7	18.3
Very remote	83	2,517	1,418	4,018	1.5	0.2	0.7	0.2	35.3
<b>Total<sup>(d)</sup></b>	<b>5,524</b>	<b>1,456,767</b>	<b>207,418</b>	<b>1,669,709</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>12.4</b>

(a) Separations for which the care type was reported as 'Newborn' with no qualified days and records for 'Hospital boarders' and 'Posthumous organ procurement' have been excluded.

(b) Based on the remoteness classification of the Australian Standard Geographic Classification (Australian Bureau of Statistics).

(c) Separations for Victoria, Western Australia and one public hospital in the Australian Capital Territory have been excluded because unreported Indigenous status was not accommodated in data systems for these separations.

(d) Includes separations for which the remoteness area of the patient's residence was not reported.

Source: AIHW National Hospital Morbidity Database.



**Table A8: Separations<sup>(a)</sup>, by patient's Indigenous status, hospital remoteness<sup>(b)</sup> and hospital sector, Australia<sup>(c)</sup>, 2003–04**

Hospital sector and remoteness area of hospital	Separations				Per cent				Per cent not reported
	Indigenous	Non-Indigenous	Not reported	Total	Indigenous	Non-Indigenous	Not reported	Total	
<b>Public sector</b>									
Major cities	31,583	1,571,682	23,287	1,626,552	20.4	65.5	60.5	62.7	1.4
Inner regional	28,014	535,819	8,997	572,830	18.1	22.3	23.4	22.1	1.6
Outer regional	54,488	253,762	4,672	312,922	35.1	10.6	12.1	12.1	1.5
Remote	30,279	29,024	946	60,249	19.5	1.2	2.5	2.3	1.6
Very remote	10,825	10,259	606	21,690	7.0	0.4	1.6	0.8	2.8
Not reported	0	0	0	0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>155,189</b>	<b>2,400,546</b>	<b>38,508</b>	<b>2,594,243</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>1.5</b>
<b>Private sector</b>									
Major cities	2,151	1,123,384	109,058	1,234,593	38.9	77.1	52.6	73.9	8.8
Inner regional	633	225,396	24,833	250,862	11.5	15.5	12.0	15.0	9.9
Outer regional	2,430	47,185	23,343	72,958	44.0	3.2	11.3	4.4	32.0
Remote	0	0	0	0	0.0	0.0	0.0	0.0	0.0
Very remote	0	0	0	0	0.0	0.0	0.0	0.0	0.0
Not reported <sup>(d)</sup>	310	60,802	50,184	111,296	5.6	4.2	24.2	6.7	45.1
<b>Total</b>	<b>5,524</b>	<b>1,456,767</b>	<b>207,418</b>	<b>1,669,709</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>12.4</b>

(a) Separations for which the care type was reported as 'Newborn' with no qualified days and records for 'Hospital boarders' and 'Posthumous organ procurement' have been excluded.

(b) Based on the remoteness classification of the Australian Standard Geographic Classification (Australian Bureau of Statistics).

(c) Separations for Victoria, Western Australia and one public hospital in the Australian Capital Territory have been excluded because unreported Indigenous status was not accommodated in data systems for these separations.

(d) Remoteness area is not reported for private hospitals in Tasmania. For confidentiality reasons, data for all private hospitals in the Northern Territory and the Australian Capital Territory are also shown in this category.

Source: AIHW National Hospital Morbidity Database.

Table A9: Separations<sup>(a)</sup>, by patient's Indigenous status, length of hospital stay and hospital sector, Australia<sup>(b)</sup>, 2003–04

Hospital sector and length of hospital stay	Indigenous	Non-Indigenous	Not reported	Total	Indigenous	Non-Indigenous	Not reported	Total	Per cent not reported
	Separations				Per cent				
<b>Public sector</b>									
Same day	83,473	1,089,074	20,120	1,192,667	53.8	45.4	52.2	46.0	1.7
1 day overnight	20,778	370,733	5,418	396,929	13.4	15.4	14.1	15.3	1.4
2 days	13,141	201,473	2,643	217,257	8.5	8.4	6.9	8.4	1.2
3 days	9,481	149,112	1,924	160,517	6.1	6.2	5.0	6.2	1.2
4 days	6,501	114,434	1,535	122,470	4.2	4.8	4.0	4.7	1.3
5–7 days	10,605	201,785	2,595	214,985	6.8	8.4	6.7	8.3	1.2
8–14 days	6,700	154,202	2,145	163,047	4.3	6.4	5.6	6.3	1.3
15 or more days	4,510	119,733	2,128	126,371	2.9	5.0	5.5	4.9	1.7
<b>Total</b>	<b>155,189</b>	<b>2,400,546</b>	<b>38,508</b>	<b>2,594,243</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>1.5</b>
<b>Private sector</b>									
Same day	4,516	922,136	125,809	1,052,461	81.8	63.3	60.7	63.0	12.0
1 day overnight	314	172,848	25,942	199,104	5.7	11.9	12.5	11.9	13.0
2 days	144	71,752	11,882	83,778	2.6	4.9	5.7	5.0	14.2
3 days	89	46,748	8,072	54,909	1.6	3.2	3.9	3.3	14.7
4 days	85	45,529	6,985	52,599	1.5	3.1	3.4	3.2	13.3
5–7 days	143	87,927	12,961	101,031	2.6	6.0	6.2	6.1	12.8
8–14 days	108	67,024	9,766	76,898	2.0	4.6	4.7	4.6	12.7
15 or more days	125	42,803	6,001	48,929	2.3	2.9	2.9	2.9	12.3
<b>Total</b>	<b>5,524</b>	<b>1,456,767</b>	<b>207,418</b>	<b>1,669,709</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>12.4</b>

(a) Separations for which the care type was reported as 'Newborn' with no qualified days and records for 'Hospital boarders' and 'Posthumous organ procurement' have been excluded.

(b) Separations for Victoria, Western Australia and one public hospital in the Australian Capital Territory have been excluded because unreported Indigenous status was not accommodated in data systems for these separations.

Source: AIHW National Hospital Morbidity Database.

Table A10: Separations<sup>(a)</sup>, by patient's Indigenous status, urgency of admission and hospital sector, Australia<sup>(b)</sup>, 2003–04

Hospital sector and urgency of admission	Separations				Per cent				Per cent not reported
	Indigenous	Non-Indigenous	Not reported	Total	Indigenous	Non-Indigenous	Not reported	Total	
<b>Public sector</b>									
Urgency status assigned—emergency	65,325	1,081,666	15,760	1,162,751	42.1	45.1	40.9	44.8	1.4
Urgency status assigned—elective	38,328	891,754	13,709	943,791	24.7	37.1	35.6	36.4	1.5
Urgency status not assigned	51,530	427,019	8,883	487,432	33.2	17.8	23.1	18.8	1.8
Not reported	6	107	156	269	0.0	0.0	0.4	0.0	58.0
<b>Total</b>	<b>155,189</b>	<b>2,400,546</b>	<b>38,508</b>	<b>2,594,243</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>1.5</b>
<b>Private sector</b>									
Urgency status assigned—emergency	359	128,419	16,244	145,022	6.5	8.8	7.8	8.7	11.2
Urgency status assigned—elective	2,535	1,169,222	128,696	1,300,453	45.9	80.3	62.0	77.9	9.9
Urgency status not assigned	2,630	159,093	51,130	212,853	47.6	10.9	24.7	12.7	24.0
Not reported	0	33	11,348	11,381	0.0	0.0	5.5	0.7	99.7
<b>Total</b>	<b>5,524</b>	<b>1,456,767</b>	<b>207,418</b>	<b>1,669,709</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>12.4</b>

(a) Separations for which the care type was reported as 'Newborn' with no qualified days and records for 'Hospital boarders' and 'Posthumous organ procurement' have been excluded.

(b) Separations for Victoria, Western Australia and one public hospital in the Australian Capital Territory have been excluded because unreported Indigenous status was not accommodated in data systems for these separations.

Source: AIHW National Hospital Morbidity Database.

**Table A11: Separations<sup>(a)</sup>, by patient's Indigenous status, principal diagnosis and hospital sector, Australia<sup>(b)</sup>, 2003–04**

Hospital sector and principal diagnosis	Indigenous	Non-Indigenous	Not reported	Total	Indigenous	Non-Indigenous	Not reported	Total	Per cent not reported
	Separations				Per cent				
<b>Public sector</b>									
A00–B99 Certain infectious and parasitic diseases	3,812	50,113	669	54,594	2.5	2.1	1.7	2.1	1.2
C00–D48 Neoplasms	2,262	147,882	2,048	152,192	1.5	6.2	5.3	5.9	1.3
D50–D89 Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	764	31,974	375	33,113	0.5	1.3	1.0	1.3	1.1
E00–E90 Endocrine, nutritional and metabolic diseases	3,254	42,140	739	46,133	2.1	1.8	1.9	1.8	1.6
F00–F99 Mental and behavioural disorders	6,844	103,600	2,799	113,243	4.4	4.3	7.3	4.4	2.5
G00–G99 Diseases of the nervous system	2,216	49,789	610	52,615	1.4	2.1	1.6	2.0	1.2
H00–H59 Diseases of the eye and adnexa	864	34,647	586	36,097	0.6	1.4	1.5	1.4	1.6
H60–H95 Diseases of the ear and mastoid process	1,159	16,250	337	17,746	0.7	0.7	0.9	0.7	1.9
I00–I99 Diseases of the circulatory system	5,362	184,591	2,530	192,483	3.5	7.7	6.6	7.4	1.3
J00–J99 Diseases of the respiratory system	11,797	152,203	1,857	165,857	7.6	6.3	4.8	6.4	1.1
K00–K93 Diseases of the digestive system	8,469	215,348	2,907	226,724	5.5	9.0	7.5	8.7	1.3
L00–L99 Diseases of the skin and subcutaneous tissue	3,804	46,485	753	51,042	2.5	1.9	2.0	2.0	1.5
M00–M99 Diseases of the musculoskeletal system and connective tissue	2,674	84,845	1,214	88,733	1.7	3.5	3.2	3.4	1.4
N00–N99 Diseases of the genitourinary system	4,417	117,984	1,817	124,218	2.8	4.9	4.7	4.8	1.5
O00–O99 Pregnancy, childbirth and the puerperium	12,612	185,649	3,163	201,424	8.1	7.7	8.2	7.8	1.6
P00–P96 Certain conditions originating in the perinatal period	1,831	21,263	1,209	24,303	1.2	0.9	3.1	0.9	5.0
Q00–Q99 Congenital malformations, deformations and chromosomal abnormalities	619	13,162	245	14,026	0.4	0.5	0.6	0.5	1.7
R00–R99 Symptoms, signs and abnormal clinical and laboratory findings, n.e.c.	7,082	166,328	2,407	175,817	4.6	6.9	6.3	6.8	1.4
S00–T98 Injury, poisoning and certain other consequences of external causes	12,422	223,186	3,859	239,467	8.0	9.3	10.0	9.2	1.6
Z00–Z99 Factors influencing health status and contact with health services	62,730	511,350	8,365	582,445	40.4	21.3	21.7	22.5	1.4
<i>Care involving dialysis</i>	57,085	296,654	3,798	357,537	36.8	12.4	9.9	13.8	1.1
<i>Other factors influencing health status and contact with health services</i>	5,645	214,696	4,567	224,908	3.6	8.9	11.9	8.7	2.0
Not reported	195	1,757	19	1,971	0.1	0.1	0.0	0.1	1.0
<i>Total (excluding care involving dialysis)</i>	98,104	2,103,892	34,710	2,236,706	63.2	87.6	90.1	86.2	1.6
<b>Total (including care involving dialysis)</b>	<b>155,189</b>	<b>2,400,546</b>	<b>38,508</b>	<b>2,594,243</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>1.5</b>

(continued)

Table A11 (continued): Separations<sup>(a)</sup>, by patient's Indigenous status, principal diagnosis and hospital sector, Australia<sup>(b)</sup>, 2003–04

Hospital sector and principal diagnosis		Indigenous	Non-Indigenous	Not reported	Total	Indigenous	Non-Indigenous	Not reported	Total	Per cent not reported
		Separations				Per cent				
<b>Private sector</b>										
A00–B99	Certain infectious and parasitic diseases	25	7,718	1,419	9,162	0.5	0.5	0.7	0.5	15.5
C00–D48	Neoplasms	251	139,352	23,936	163,539	4.5	9.6	11.5	9.8	14.6
D50–D89	Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	18	11,962	2,177	14,157	0.3	0.8	1.0	0.8	15.4
E00–E90	Endocrine, nutritional and metabolic diseases	65	18,619	2,670	21,354	1.2	1.3	1.3	1.3	12.5
F00–F99	Mental and behavioural disorders	233	62,654	2,688	65,575	4.2	4.3	1.3	3.9	4.1
G00–G99	Diseases of the nervous system	61	36,396	4,709	41,166	1.1	2.5	2.3	2.5	11.4
H00–H59	Diseases of the eye and adnexa	204	84,268	7,132	91,604	3.7	5.8	3.4	5.5	7.8
H60–H95	Diseases of the ear and mastoid process	51	13,582	2,078	15,711	0.9	0.9	1.0	0.9	13.2
I00–I99	Diseases of the circulatory system	166	83,433	14,459	98,058	3.0	5.7	7.0	5.9	14.7
J00–J99	Diseases of the respiratory system	113	43,642	7,280	51,035	2.0	3.0	3.5	3.1	14.3
K00–K93	Diseases of the digestive system	366	235,297	29,422	265,085	6.6	16.2	14.2	15.9	11.1
L00–L99	Diseases of the skin and subcutaneous tissue	43	23,101	3,171	26,315	0.8	1.6	1.5	1.6	12.1
M00–M99	Diseases of the musculoskeletal system and connective tissue	248	119,416	14,994	134,658	4.5	8.2	7.2	8.1	11.1
N00–N99	Diseases of the genitourinary system	128	87,326	13,223	100,677	2.3	6.0	6.4	6.0	13.1
O00–O99	Pregnancy, childbirth and the puerperium	347	72,993	10,321	83,661	6.3	5.0	5.0	5.0	12.3
P00–P96	Certain conditions originating in the perinatal period	5	3,846	920	4,771	0.1	0.3	0.4	0.3	19.3
Q00–Q99	Congenital malformations, deformations and chromosomal abnormalities	14	6,000	898	6,912	0.3	0.4	0.4	0.4	13.0
R00–R99	Symptoms, signs and abnormal clinical and laboratory findings, n.e.c.	125	67,807	9,323	77,255	2.3	4.7	4.5	4.6	12.1
S00–T98	Injury, poisoning and certain other consequences of external causes	131	45,692	7,206	53,029	2.4	3.1	3.5	3.2	13.6
Z00–Z99	Factors influencing health status and contact with health services	2,928	293,611	49,386	345,925	53.0	20.2	23.8	20.7	14.3
	<i>Care involving dialysis</i>	2,622	68,212	9,675	80,509	47.5	4.7	4.7	4.8	12.0
	<i>Other factors influencing health status and contact with health services</i>	306	225,399	39,711	265,416	5.5	15.5	19.1	15.9	15.0
	Not reported	2	52	6	60	0.0	0.0	0.0	0.0	10.0
	<i>Total (excluding care involving dialysis)</i>	2,902	1,388,555	197,743	1,589,200	52.5	95.3	95.3	95.2	12.4
	<b>Total (including care involving dialysis)</b>	<b>5,524</b>	<b>1,456,767</b>	<b>207,418</b>	<b>1,669,709</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>12.4</b>

(a) Separations for which the care type was reported as 'Newborn' with no qualified days and records for 'Hospital boarders' and 'Posthumous organ procurement' have been excluded.

(b) Separations for Victoria, Western Australia and one public hospital in the Australian Capital Territory have been excluded because unreported Indigenous status was not accommodated in data systems for these separations.

n.e.c. Not elsewhere classified.

Source: AIHW National Hospital Morbidity Database.

Table A12: Procedure statistics<sup>(a)</sup>, by patient's Indigenous status and hospital sector, Australia<sup>(b)</sup>, 2003-04

Hospital sector and procedure chapter		Indigenous	Non-Indigenous	Not reported	Total	Indigenous	Non-Indigenous	Not reported	Total	Per cent not reported
		Separations				Per cent				
<b>Public sector</b>										
1-86	Procedures on nervous system	1,194	37,449	522	39,165	0.8	1.6	1.4	1.5	1.3
110-129	Procedures on endocrine system	85	3,493	37	3,615	0.1	0.1	0.1	0.1	1.0
160-256	Procedures on eye and adnexa	1,032	37,738	663	39,433	0.7	1.6	1.7	1.5	1.7
300-333	Procedures on ear and mastoid process	1,080	13,510	302	14,892	0.7	0.6	0.8	0.6	2.0
370-422	Procedures on nose, mouth and pharynx	979	25,427	469	26,875	0.6	1.1	1.2	1.0	1.7
450-490	Dental services	1,277	14,949	238	16,464	0.8	0.6	0.6	0.6	1.4
520-569	Procedures on respiratory system	2,007	45,615	1,175	48,797	1.3	1.9	3.1	1.9	2.4
600-767	Procedures on cardiovascular system	3,264	93,010	1,860	98,134	2.1	3.9	4.8	3.8	1.9
800-817	Procedures on blood and blood-forming organs	297	15,280	219	15,796	0.2	0.6	0.6	0.6	1.4
850-1011	Procedures on digestive system	5,250	221,387	2,897	229,534	3.4	9.2	7.5	8.8	1.3
1040-1128	Procedures on urinary system	59,647	359,569	4,485	423,701	38.4	15.0	11.6	16.3	1.1
1060	<i>Haemodialysis</i>	58,158	299,425	3,801	361,384	37.5	12.5	9.9	13.9	1.1
	<i>Other than haemodialysis in procedure block 1040-1128</i>	1,489	60,144	684	62,317	1.0	2.5	1.8	2.4	1.1
1160-1203	Procedures on male genital organs	538	19,398	256	20,192	0.3	0.8	0.7	0.8	1.3
1240-1299	Gynaecological procedures	3,472	83,021	2,426	88,919	2.2	3.5	6.3	3.4	2.7
1330-1347	Obstetric procedures	5,022	98,310	1,234	104,566	3.2	4.1	3.2	4.0	1.2
1360-1579	Procedures on musculoskeletal system	4,802	124,088	1,516	130,406	3.1	5.2	3.9	5.0	1.2
1600-1718	Dermatological and plastic procedures	4,773	100,956	1,807	107,536	3.1	4.2	4.7	4.1	1.7
1740-1759	Procedures on breast	251	10,104	134	10,489	0.2	0.4	0.3	0.4	1.3
1780-1799	Chemotherapeutic and radiation oncology procedures	1,047	63,091	1,423	65,561	0.7	2.6	3.7	2.5	2.2
1820-1916	Non-invasive, cognitive and interventions, n.e.c.	28,503	856,492	13,095	898,090	18.4	35.7	34.0	34.6	1.5
1940-2016	Imaging services	6,090	214,921	2,733	223,744	3.9	9.0	7.1	8.6	1.2
	<i>Total (excluding haemodialysis)</i>	47,751	1,416,757	23,211	1,487,719	30.8	59.0	60.3	57.3	1.6
	<b>Total (including haemodialysis)</b>	<b>155,189</b>	<b>2,400,546</b>	<b>38,508</b>	<b>2,594,243</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>1.5</b>

(continued)

Table A12 (continued): Procedure statistics<sup>(a)</sup>, by patient's Indigenous status and hospital sector, Australia<sup>(b)</sup>, 2003-04

Hospital sector and procedure chapter		Separations				Per cent				Per cent not reported
		Indigenous	Non-Indigenous	Not reported	Total	Indigenous	Non-Indigenous	Not reported	Total	
<b>Private sector</b>										
1-86	Procedures on nervous system	104	38,849	4,901	43,854	1.9	2.7	2.4	2.6	11.2
110-129	Procedures on endocrine system	4	3,382	439	3,825	0.1	0.2	0.2	0.2	11.5
160-256	Procedures on eye and adnexa	214	89,131	7,571	96,916	3.9	6.1	3.7	5.8	7.8
300-333	Procedures on ear and mastoid process	58	14,947	2,200	17,205	1.0	1.0	1.1	1.0	12.8
370-422	Procedures on nose, mouth and pharynx	86	34,707	4,907	39,700	1.6	2.4	2.4	2.4	12.4
450-490	Dental services	88	44,324	6,461	50,873	1.6	3.0	3.1	3.0	12.7
520-569	Procedures on respiratory system	27	15,116	2,744	17,887	0.5	1.0	1.3	1.1	15.3
600-767	Procedures on cardiovascular system	142	62,593	12,506	75,241	2.6	4.3	6.0	4.5	16.6
800-817	Procedures on blood and blood-forming organs	21	10,283	2,330	12,634	0.4	0.7	1.1	0.8	18.4
850-1011	Procedures on digestive system	407	319,647	38,093	358,147	7.4	21.9	18.4	21.4	10.6
1040-1128	Procedures on urinary system	2,697	127,967	17,616	148,280	48.8	8.8	8.5	8.9	11.9
1060	<i>Haemodialysis</i>	2,627	68,916	9,863	81,406	47.6	4.7	4.8	4.9	12.1
	<i>Other than haemodialysis in procedure block 1040-1128</i>	70	59,051	7,753	66,874	1.3	4.1	3.7	4.0	11.6
1160-1203	Procedures on male genital organs	45	29,112	3,902	33,059	0.8	2.0	1.9	2.0	11.8
1240-1299	Gynaecological procedures	376	97,612	14,203	112,191	6.8	6.7	6.8	6.7	12.7
1330-1347	Obstetric procedures	67	39,515	6,050	45,632	1.2	2.7	2.9	2.7	13.3
1360-1579	Procedures on musculoskeletal system	287	134,104	17,325	151,716	5.2	9.2	8.4	9.1	11.4
1600-1718	Dermatological and plastic procedures	214	93,309	12,912	106,435	3.9	6.4	6.2	6.4	12.1
1740-1759	Procedures on breast	31	15,879	3,098	19,008	0.6	1.1	1.5	1.1	16.3
1780-1799	Chemotherapeutic and radiation oncology procedures	95	78,854	17,905	96,854	1.7	5.4	8.6	5.8	18.5
1820-1916	Non-invasive, cognitive and interventions, n.e.c.	2,034	1,013,715	146,301	1,162,050	36.8	69.6	70.5	69.6	12.6
1940-2016	Imaging services	117	59,684	9,491	69,292	2.1	4.1	4.6	4.1	13.7
	<i>Total<sup>(c)</sup> (excluding haemodialysis)</i>	2,607	1,285,301	179,568	1,467,476	47.2	88.2	86.6	87.9	12.2
	<b>Total<sup>(c)</sup> (including haemodialysis)</b>	<b>5,524</b>	<b>1,456,767</b>	<b>207,418</b>	<b>1,669,709</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>12.4</b>

(a) Separations for which the care type was reported as 'Newborn' with no qualified days and records for 'Hospital boarders' and 'Posthumous organ procurement' have been excluded.

(b) Separations for Victoria, Western Australia and one public hospital in the Australian Capital Territory have been excluded because unreported Indigenous status was not accommodated in data systems for these separations.

(c) Because more than one procedure can be reported for each separation, the totals are not the sums of the rows of the table.

n.e.c. Not elsewhere classified.

Source: AIHW National Hospital Morbidity Database.

Table A13: Separations<sup>(a)</sup>, by patient's Indigenous subcategory, patient's sex and hospital sector, Australia, 2003–04

Hospital sector and patient's sex	Aboriginal but not Torres Strait Islander origin	Torres Strait but not Aboriginal origin	Aboriginal and Torres Strait Islander origin	Total Indigenous	Neither Aboriginal nor Torres Strait Islander origin	Aboriginal but not Torres Strait Islander origin	Torres Strait but not Aboriginal origin	Aboriginal and Torres Strait Islander origin	Total Indigenous	Neither Aboriginal nor Torres Strait Islander origin
	Separations					Per cent				
<b>Public sector</b>										
Male	81,811	4,144	1,923	87,878	1,905,664	43.2	45.5	41.3	43.3	48.1
Female	107,463	4,954	2,730	115,147	2,053,188	56.8	54.5	58.7	56.7	51.9
<b>Total<sup>(b)</sup></b>	<b>189,275</b>	<b>9,098</b>	<b>4,653</b>	<b>203,026</b>	<b>3,958,859</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Private sector</b>										
Male	4,552	207	486	5,245	1,083,520	39.7	31.8	48.6	40.0	44.8
Female	6,919	443	514	7,876	1,336,622	60.3	68.2	51.4	60.0	55.2
<b>Total<sup>(b)</sup></b>	<b>11,471</b>	<b>650</b>	<b>1,000</b>	<b>13,121</b>	<b>2,420,169</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

(a) Separations for which the care type was reported as 'Newborn' with no qualified days and records for 'Hospital boarders' and 'Posthumous organ procurement' have been excluded.

(b) Includes separations for which sex was not reported.

Source: AIHW National Hospital Morbidity Database.



Table A14: Separations<sup>(a)</sup>, by patient's Indigenous subcategory, patient's age group and hospital sector, Australia, 2003-04

Hospital sector and patient's age group	Aboriginal but not Torres Strait Islander origin	Torres Strait Islander but not Aboriginal origin	Aboriginal and Torres Strait Islander origin	<i>Total Indigenous</i>	Neither Aboriginal nor Torres Strait Islander origin	Aboriginal but not Torres Strait Islander origin	Torres Strait Islander but not Aboriginal origin	Aboriginal and Torres Strait Islander origin	<i>Total Indigenous</i>	Neither Aboriginal nor Torres Strait Islander origin
	Separations					Per cent				
<b>Public sector</b>										
Under 1	8,401	326	281	9,008	107,981	4.4	3.6	6.0	4.4	2.7
1-4	9,361	401	320	10,082	132,203	4.9	4.4	6.9	5.0	3.3
5-9	5,278	256	161	5,695	88,552	2.8	2.8	3.5	2.8	2.2
10-14	4,352	154	101	4,607	76,601	2.3	1.7	2.2	2.3	1.9
15-19	9,689	376	260	10,325	123,033	5.1	4.1	5.6	5.1	3.1
20-24	11,635	727	399	12,761	182,379	6.1	8.0	8.6	6.3	4.6
25-29	12,219	611	342	13,172	221,785	6.5	6.7	7.4	6.5	5.6
30-34	14,781	517	333	15,631	247,285	7.8	5.7	7.2	7.7	6.2
35-39	15,493	544	306	16,343	206,711	8.2	6.0	6.6	8.0	5.2
40-44	16,706	976	250	17,932	201,466	8.8	10.7	5.4	8.8	5.1
45-49	19,870	500	284	20,654	208,116	10.5	5.5	6.1	10.2	5.3
50-54	17,403	961	360	18,724	226,555	9.2	10.6	7.7	9.2	5.7
55-59	15,119	776	375	16,270	258,865	8.0	8.5	8.1	8.0	6.5
60-64	12,137	374	558	13,069	259,613	6.4	4.1	12.0	6.4	6.6
65-69	7,750	311	121	8,182	293,632	4.1	3.4	2.6	4.0	7.4
70-74	5,250	815	53	6,118	339,916	2.8	9.0	1.1	3.0	8.6
75 and over	3,831	473	149	4,453	784,165	2.0	5.2	3.2	2.2	19.8
<b>Total<sup>(b)</sup></b>	<b>189,275</b>	<b>9,098</b>	<b>4,653</b>	<b>203,026</b>	<b>3,958,859</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

(continued)

Table A14 (continued): Separations<sup>(a)</sup>, by patient's Indigenous subcategory, patient's age group and hospital sector, Australia, 2003-04

Hospital sector and patient's age group	Aboriginal but not Torres Strait Islander origin	Torres Strait Islander but not Aboriginal origin	Aboriginal and Torres Strait Islander origin	<i>Total Indigenous</i>	Neither Aboriginal nor Torres Strait Islander origin	Aboriginal but not Torres Strait Islander origin	Torres Strait Islander but not Aboriginal origin	Aboriginal and Torres Strait Islander origin	<i>Total Indigenous</i>	Neither Aboriginal nor Torres Strait Islander origin
	Separations					Per cent				
<b>Private sector</b>										
Under 1	38	6	4	48	22,027	0.3	0.9	0.4	0.4	0.9
1-4	65	10	23	98	27,621	0.6	1.5	2.3	0.7	1.1
5-9	54	11	9	74	23,728	0.5	1.7	0.9	0.6	1.0
10-14	41	7	6	54	22,165	0.4	1.1	0.6	0.4	0.9
15-19	168	16	22	206	65,083	1.5	2.5	2.2	1.6	2.7
20-24	172	21	28	221	81,005	1.5	3.2	2.8	1.7	3.3
25-29	360	35	14	409	93,195	3.1	5.4	1.4	3.1	3.9
30-34	966	24	83	1,073	149,501	8.4	3.7	8.3	8.2	6.2
35-39	1,730	41	43	1,814	143,084	15.1	6.3	4.3	13.8	5.9
40-44	1,174	18	71	1,263	149,652	10.2	2.8	7.1	9.6	6.2
45-49	1,399	33	171	1,603	164,473	12.2	5.1	17.1	12.2	6.8
50-54	1,488	32	226	1,746	197,747	13.0	4.9	22.6	13.3	8.2
55-59	1,199	103	84	1,386	225,641	10.5	15.8	8.4	10.6	9.3
60-64	1,013	27	82	1,122	193,351	8.8	4.2	8.2	8.6	8.0
65-69	906	180	26	1,112	183,936	7.9	27.7	2.6	8.5	7.6
70-74	183	41	27	251	191,727	1.6	6.3	2.7	1.9	7.9
75 and over	515	45	81	641	486,232	4.5	6.9	8.1	4.9	20.1
<b>Total<sup>(b)</sup></b>	<b>11,471</b>	<b>650</b>	<b>1,000</b>	<b>13,121</b>	<b>2,420,169</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

(a) Separations for which the care type was reported as 'Newborn' with no qualified days and records for 'Hospital boarders' and 'Posthumous organ procurement' have been excluded.

(b) Includes separations for which age was not reported.

Source: AIHW National Hospital Morbidity Database.

Table A15: Separations<sup>(a)</sup>, by patient's Indigenous subcategory, patient election status and hospital sector, Australia 2003-04

Hospital sector and patient election status	Aboriginal but not Torres Strait Islander origin	Torres Strait Islander but not Aboriginal origin	Aboriginal and Torres Strait Islander origin	<i>Total Indigenous</i>	Neither Aboriginal nor Torres Strait Islander origin	Aboriginal but not Torres Strait Islander origin	Torres Strait Islander but not Aboriginal origin	Aboriginal and Torres Strait Islander origin	<i>Total Indigenous</i>	Neither Aboriginal nor Torres Strait Islander origin
	Separations					Per cent				
<b>Public sector</b>										
Public patient	185,504	8,849	4,396	198,749	3,413,780	98.0	97.3	94.5	97.9	86.2
Private patient	3,768	248	257	4,273	540,845	2.0	2.7	5.5	2.1	13.7
<b>Total<sup>(b)</sup></b>	<b>189,275</b>	<b>9,098</b>	<b>4,653</b>	<b>203,026</b>	<b>3,958,859</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Private sector</b>										
Public patient	8,946	235	321	9,502	70,479	78.0	36.2	32.1	72.4	2.9
Private patient	2,525	415	679	3,619	2,348,335	22.0	63.8	67.9	27.6	97.0
<b>Total<sup>(b)</sup></b>	<b>11,471</b>	<b>650</b>	<b>1,000</b>	<b>13,121</b>	<b>2,420,169</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

(a) Separations for which the care type was reported as 'Newborn' with no qualified days and records for 'Hospital boarders' and 'Posthumous organ procurement' have been excluded.

(b) Includes separations for which patient election status was not reported.

Source: AIHW National Hospital Morbidity Database.

Table A16: Separations<sup>(a)</sup>, by patient's Indigenous subcategory, patient's Australian or overseas birthplace and hospital sector, Australia, 2003-04

Hospital sector and patient's overseas or Australian birthplace	Aboriginal but not Torres Strait Islander origin	Torres Strait but not Aboriginal origin	Aboriginal and Torres Strait Islander origin	Total Indigenous	Neither Aboriginal nor Torres Strait Islander origin	Aboriginal but not Torres Strait Islander origin	Torres Strait but not Aboriginal origin	Aboriginal and Torres Strait Islander origin	Total Indigenous	Neither Aboriginal nor Torres Strait Islander origin
	Separations					Per cent				
<b>Public sector</b>										
Australia	189,032	8,958	4,489	202,479	2,842,656	99.9	98.5	96.5	99.7	71.8
Overseas	132	119	156	407	1,071,036	0.1	1.3	3.4	0.2	27.1
Not reported <sup>(b)</sup>	111	21	8	140	45,167	0.1	0.2	0.2	0.1	1.1
<b>Total</b>	<b>189,275</b>	<b>9,098</b>	<b>4,653</b>	<b>203,026</b>	<b>3,958,859</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Private sector</b>										
Australia	11,327	622	976	12,925	1,849,481	98.7	95.7	97.6	98.5	76.4
Overseas	44	19	6	69	519,723	0.4	2.9	0.6	0.5	21.5
Not reported <sup>(b)</sup>	100	9	18	127	50,965	0.9	1.4	1.8	1.0	2.1
<b>Total</b>	<b>11,471</b>	<b>650</b>	<b>1,000</b>	<b>13,121</b>	<b>2,420,169</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

(a) Separations for which the care type was reported as 'Newborn' with no qualified days and records for 'Hospital boarders' and 'Posthumous organ procurement' have been excluded.

(b) Includes separations for which birthplace was not elsewhere classified.

Source: AIHW National Hospital Morbidity Database.

Table A17: Separations<sup>(a)</sup>, by patient's Indigenous subcategory, remoteness of patient's usual residence<sup>(b)</sup> and hospital sector, Australia, 2003-04

Hospital sector and remoteness area of patient's usual residence	Aboriginal but not Torres Strait Islander origin	Torres Strait Islander but not Aboriginal origin	Aboriginal and Torres Strait Islander origin	Total Indigenous	Neither Aboriginal nor Torres Strait Islander origin	Aboriginal but not Torres Strait Islander origin	Torres Strait Islander but not Aboriginal origin	Aboriginal and Torres Strait Islander origin	Total Indigenous	Neither Aboriginal nor Torres Strait Islander origin
	Separations					Per cent				
<b>Public sector</b>										
Major cities	37,416	1,283	1,494	40,193	2,519,719	19.8	14.1	32.1	19.8	63.6
Inner regional	24,735	988	792	26,515	872,301	13.1	10.9	17.0	13.1	22.0
Outer regional	55,326	4,524	1,585	61,435	468,305	29.2	49.7	34.1	30.3	11.8
Remote	28,797	137	294	29,228	59,707	15.2	1.5	6.3	14.4	1.5
Very remote	41,786	2,143	442	44,371	19,563	22.1	23.6	9.5	21.9	0.5
<b>Total<sup>(c)</sup></b>	<b>189,275</b>	<b>9,098</b>	<b>4,653</b>	<b>203,026</b>	<b>3,958,859</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Private sector</b>										
Major cities	3,439	284	465	4,188	1,801,055	30.0	43.7	46.5	31.9	74.4
Inner regional	1,182	73	156	1,411	447,924	10.3	11.2	15.6	10.8	18.5
Outer regional	2,022	278	362	2,662	139,522	17.6	42.8	36.2	20.3	5.8
Remote	4,738	7	12	4,757	14,776	41.3	1.1	1.2	36.3	0.6
Very remote	80	6	5	91	4,011	0.7	0.9	0.5	0.7	0.2
<b>Total<sup>(c)</sup></b>	<b>11,471</b>	<b>650</b>	<b>1,000</b>	<b>13,121</b>	<b>2,420,169</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

(a) Separations for which the care type was reported as 'Newborn' with no qualified days and records for 'Hospital boarders' and 'Posthumous organ procurement' have been excluded.

(b) Based on the remoteness classification of the Australian Standard Geographic Classification (Australian Bureau of Statistics).

(c) Includes separations for which the remoteness area of the patient's usual residence was not reported.

Source: AIHW National Hospital Morbidity Database.

Table A18: Separations<sup>(a)</sup>, by patient's Indigenous subcategory, patient's birthplace country group and hospital sector, Australia, 2003-04

Hospital sector and patient's birthplace country group	Aboriginal but not Torres Strait Islander origin	Torres Strait Islander but not Aboriginal origin	Aboriginal and Torres Strait Islander origin	Total Indigenous	Neither Aboriginal nor Torres Strait Islander origin	Aboriginal but not Torres Strait Islander origin	Torres Strait Islander but not Aboriginal origin	Aboriginal and Torres Strait Islander origin	Total Indigenous	Neither Aboriginal nor Torres Strait Islander origin
	Separations					Per cent				
<b>Public sector</b>										
Australia	189,032	8,958	4,489	202,479	2,842,656	99.9%	98.5%	96.5%	99.7%	71.8%
Papua New Guinea	12	58	5	75	37	0.0%	0.6%	0.1%	0.0%	0.0%
New Zealand	36	22	22	80	68,466	0.0%	0.2%	0.5%	0.0%	1.7%
Micronesia, Polynesia, other Melanesia & other Oceania	3	31	9	43	29,095	0.0%	0.3%	0.2%	0.0%	0.7%
Other countries										
UK & Ireland	32	1	30	63	276,836	0.0%	0.0%	0.6%	0.0%	7.0%
Europe	20	4	24	48	391,114	0.0%	0.0%	0.5%	0.0%	9.9%
Africa & Middle East	7	0	22	29	99,663	0.0%	0.0%	0.5%	0.0%	2.5%
Asia	12	3	38	53	169,702	0.0%	0.0%	0.8%	0.0%	4.3%
Americas	10	0	6	16	31,787	0.0%	0.0%	0.1%	0.0%	0.8%
Total other countries	81	8	120	209	969,102	0.0%	0.1%	2.6%	0.1%	24.5%
Total <sup>(b)</sup>	189,275	9,098	4,653	203,026	3,958,859	100.0%	100.0%	100.0%	100.0%	100.0%
<b>Public and private sectors</b>										
Australia	200,359	9,580	5,465	215,404	4,692,137	99.8%	98.3%	96.7%	99.7%	73.6%
Papua New Guinea	13	69	7	89	2,631	0.0%	0.7%	0.1%	0.0%	0.0%
New Zealand	39	22	22	83	100,601	0.0%	0.2%	0.4%	0.0%	1.6%
Micronesia, Polynesia, other Melanesia & other Oceania	3	33	10	46	35,801	0.0%	0.3%	0.2%	0.0%	0.6%
Other countries										
UK & Ireland	49	1	31	81	444,777	0.0%	0.0%	0.5%	0.0%	7.0%
Europe	28	4	25	57	558,871	0.0%	0.0%	0.4%	0.0%	8.8%
Africa & Middle East	11	6	23	40	140,108	0.0%	0.1%	0.4%	0.0%	2.2%
Asia	20	3	38	61	251,804	0.0%	0.0%	0.7%	0.0%	3.9%
Americas	13	0	6	19	51,830	0.0%	0.0%	0.1%	0.0%	0.8%
Total other countries	121	14	123	258	1,447,390	0.1%	0.1%	2.2%	0.1%	22.7%
<b>Total<sup>(b)</sup></b>	<b>200,746</b>	<b>9,748</b>	<b>5,653</b>	<b>216,147</b>	<b>6,379,028</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

(a) Separations for which the care type was reported as 'Newborn' with no qualified days and records for 'Hospital boarders' and 'Posthumous organ procurement' have been excluded.

(b) Includes separations for which the patient's area of usual residence was not reported.

Source: AIHW National Hospital Morbidity Database.

**Table A19: Separations<sup>(a)</sup> for Indigenous people for whom an overseas birthplace was reported, by Indigenous subcategory and hospital sector, states and territories, 2003–04**

Hospital sector and patient's Indigenous subcategory	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
<b>Public hospitals</b>									
Aboriginal but not Torres Strait Islander origin	94	4	21	5	1	4	1	2	132
Torres Strait Islander but not Aboriginal origin	48	6	57	4	1	0	1	2	119
Aboriginal and Torres Strait Islander origin	151	0	5	0	0	0	0	0	156
<i>Total Indigenous</i>	<i>293</i>	<i>10</i>	<i>83</i>	<i>9</i>	<i>2</i>	<i>4</i>	<i>2</i>	<i>4</i>	<i>407</i>
<b>Private hospitals</b>									
Aboriginal but not Torres Strait Islander origin	0	3	7	28	0	n.p.	n.p.	n.p.	44
Torres Strait Islander but not Aboriginal origin	6	1	12	0	0	n.p.	n.p.	n.p.	19
Aboriginal and Torres Strait Islander origin	1	1	3	1	0	n.p.	n.p.	n.p.	6
<i>Total Indigenous</i>	<i>7</i>	<i>5</i>	<i>22</i>	<i>29</i>	<i>0</i>	<i>n.p.</i>	<i>n.p.</i>	<i>n.p.</i>	<i>69</i>
<b>Public and private hospitals</b>									
Aboriginal but not Torres Strait Islander origin	94	7	28	33	1	n.p.	n.p.	n.p.	176
Torres Strait Islander but not Aboriginal origin	54	7	69	4	1	n.p.	n.p.	n.p.	138
Aboriginal and Torres Strait Islander origin	152	1	8	1	0	n.p.	n.p.	n.p.	162
<b>Total Indigenous</b>	<b>300</b>	<b>15</b>	<b>105</b>	<b>38</b>	<b>2</b>	<b>n.p.</b>	<b>n.p.</b>	<b>n.p.</b>	<b>476</b>

(a) Separations for which the care type was reported as 'Newborn' with no qualified days and records for 'Hospital boarders' and 'Posthumous organ procurement' have been excluded.

n.p. Not published for confidentiality reasons.

Source: AIHW National Hospital Morbidity Database.

**Table A20: Estimated resident population, by Indigenous subcategory, states and territories, 30 June 2001**

<b>Indigenous subcategory</b>	<b>NSW</b>	<b>Vic</b>	<b>Qld</b>	<b>WA</b>	<b>SA</b>	<b>Tas</b>	<b>ACT</b>	<b>NT</b>	<b>Total<sup>(a)</sup></b>
Aboriginal but not Torres Strait Islander origin	126,231	24,786	97,280	63,477	24,132	15,023	3,624	54,957	409,729
Torres Strait Islander but not Aboriginal origin	4,770	1,913	18,525	962	837	1,375	164	679	29,239
Aboriginal and Torres Strait Islander origin	3,887	1,147	10,105	1,492	575	986	121	1,239	19,552
<i>Total Indigenous</i>	<i>134,888</i>	<i>27,846</i>	<i>125,910</i>	<i>65,931</i>	<i>25,544</i>	<i>17,384</i>	<i>3,909</i>	<i>56,875</i>	<i>458,520</i>
Neither Aboriginal nor Torres Strait Islander origin	6,440,329	4,776,880	3,503,036	1,835,228	1,486,184	454,411	315,408	140,893	18,954,720
<b>Total</b>	<b>6,710,105</b>	<b>4,832,572</b>	<b>3,754,856</b>	<b>1,967,090</b>	<b>1,537,272</b>	<b>489,179</b>	<b>323,226</b>	<b>254,643</b>	<b>19,871,760</b>

(a) Includes other territories of Australia.

Source: *Experimental Estimates and Projections, Aboriginal and Torres Strait Islander Australians* (Australian Bureau of Statistics, cat. no. 3238.0).



**Table A21: Estimated total Indigenous population, by remoteness area of residence<sup>(a)</sup>, Australia, 30 June 2001**

<b>Remoteness area of residence</b>	<b>NSW</b>	<b>Vic</b>	<b>Qld</b>	<b>WA</b>	<b>SA</b>	<b>Tas</b>	<b>ACT</b>	<b>NT</b>	<b>Total<sup>(b)</sup></b>
Major cities	56,332	13,701	31,208	20,968	11,828	0	3,901	0	137,938
Inner regional	42,925	9,699	23,208	5,475	2,243	8,896	8	0	92,669
Outer regional	26,520	4,315	41,573	9,614	5,795	7,852	0	10,687	106,356
Remote	6,724	131	11,617	11,844	1,767	434	0	10,417	42,935
Very remote	2,387	31,208	18,304	18,030	3,911	202	0	35,771	78,622
<b>Total</b>	<b>134,888</b>	<b>59,054</b>	<b>125,910</b>	<b>65,931</b>	<b>25,544</b>	<b>17,384</b>	<b>3,909</b>	<b>56,875</b>	<b>458,520</b>

(a) Based on the remoteness classification of the Australian Standard Geographic Classification (Asutrialian Bureau of Statistics).

(b) Includes other territories of Australia.

Source: *Experimental Estimates and Projections, Aboriginal and Torres Strait Islander Australians* (Australian Bureau of Statistics, cat. no. 3238.0).

# Appendix B: Survey of Indigenous identification in hospital separations data

## Introduction

This survey is being undertaken by the Australian Institute of Health and Welfare as part of the Australian Ministers' Health Advisory Council (AHMAC) project to improve identification of Aboriginal and Torres Strait Islander admitted patients in Australian hospitals.

The AIHW is undertaking this project with the advice of the National Advisory Group on Aboriginal and Torres Strait Islander Health Information and Data (NAGATSIHID) and the AIHW Australian Hospital Statistics Advisory Committee (AHSAC).

The stated aim of project is to monitor and improve the completeness of Indigenous identification in hospital records over time. Measuring the use of services by Aboriginal and Torres Strait Islander people is essential for services to be well-planned, well-resourced and accountable to both funders (governments) and users (Aboriginal and Torres Strait Islander people). Reliable information has been scarce, but in recent years has there been a concentrated effort to improve the situation.

The specific outcomes of the project are:

- A description of the completeness of Indigenous identification from summary of work undertaken to date
- An outline of methods used by jurisdictions to improve identification including examples of best practice and of those methods that have not worked.
- The development of analysis guidelines to support the consistent and appropriate analysis of Indigenous status in hospital data. This could include adjustment or correction factors for under-reporting, recommendations for analysing 'not stated' responses, recommendations relating to the use of the sub-categories of Aboriginal, Torres Strait Islander and Aboriginal and Torres Strait Islander and recommendations on the use of specific jurisdiction's data (as done for mortality data).

The purpose of this survey is to chart in general terms the policies and processes that are currently in place to collect Indigenous identification in hospital separation data and to seek advice from the states and territories to identify methods used to improve identification, including examples of best practice and methods that have not worked.

## **Guide to completing the questionnaire**

### *Who should complete this questionnaire?*

The questionnaire should be completed by an officer of the Department who is responsible for administering the jurisdiction's hospital separation data collection or by an officer responsible for the collection or analysis of Indigenous information familiar with the jurisdiction's hospital separation data collection.

### *What level of detail is required?*

In most cases the questions are seeking summary information at the jurisdictional level. It would be useful to indicate regional or local variations in practice and policy where appropriate.

There is no need to disseminate the questionnaire at the regional or hospital levels.

The questions are intended to obtain brief rather than extensive answers. However, please provide more detail if it would be useful, for example, to describe variation in practice within your state/territory.

### *Do I need to rewrite existing material to answer the questions?*

There is no need to rewrite existing material.

Please include any documents relevant to the questions.

### *Can I provide references to websites where the information is available?*

Yes.

### *Who should I contact for any questions I may have?*

Graeme Vaughan

Hospital and Mental Health Services Unit

Australian Institute of Health and Welfare

Telephone: 02 6244 1042

Fax: 02 6244 1166

Email: [graeme.vaughan@aihw.gov.au](mailto:graeme.vaughan@aihw.gov.au)

### *Where should I send the questionnaire when I have completed it?*

To the above at

GPO Box 570

Canberra ACT 2601

Or via email or facsimile.

### *When is the questionnaire due to be returned?*

Questionnaires should be returned by 14 October.

## Jurisdiction:

State or Territory: \_\_\_\_\_

## Contact details

The Australian Institute of Health and Welfare is interested in obtaining contact details for any follow-up queries.

Please note that the identifying details provided will NOT be used for any other purpose, nor will any individual be identified in the analysis and reporting of results.

Name: \_\_\_\_\_

Position/job title: \_\_\_\_\_

Unit/section: \_\_\_\_\_

Organisation: \_\_\_\_\_

Address: \_\_\_\_\_

City/town: \_\_\_\_\_ State: \_\_\_\_\_ Postcode: \_\_\_\_\_

Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_

E-mail address: \_\_\_\_\_

Date this survey was completed: \_\_\_\_\_

## Data quality

1. Is the quality of indigenous identification data within your jurisdiction subject to regular monitoring? If so, how is this undertaken?

2. Please provide details of the most recent evaluation of the quality of Indigenous identification data undertaken in your jurisdiction. (Refer to attached documentation if appropriate).

3. What is your overall assessment of the quality of Indigenous identification in hospital data within your jurisdiction?

4. What is the basis for this assessment? (for example, based on patient re-interview study conducted in 1999 which showed 98% of Indigenous patients were correctly recorded; based on comparative data analysis; based on data edit checks; based on reports from service managers).

## Public hospitals

### Collection processes (public hospitals)

5. To what extent do the **public** hospitals within your jurisdiction use an electronic patient administration system to collect and record Indigenous identification

- |                          |    |                                                                                          |
|--------------------------|----|------------------------------------------------------------------------------------------|
| <input type="checkbox"/> | A. | all or most hospitals use the same electronic patient administration system              |
| <input type="checkbox"/> | B. | all or most hospitals use different electronic patient administration systems            |
| <input type="checkbox"/> | C. | only some hospitals use an electronic patient administration system                      |
| <input type="checkbox"/> | D. | no hospitals use an electronic patient administration system ( <i>Go to Question 7</i> ) |
| <input type="checkbox"/> | E. | unknown ( <i>Go to Question 7</i> )                                                      |

6. Is the data element "Indigenous status" as defined in the National Health Data Dictionary V12 used for the Indigenous status data item in your hospital patients administration system(s)?

- A. in all patient administration systems
- B. in some patient administration systems
- C. no
- E. unknown

Please provide a screen dump of the input screen(s) and the response codes that can be selected

7. To what extent do the **public** hospitals within your jurisdiction use a standard or common admission form

- A. all or most hospitals
- B. some hospitals
- C. no standard or common admission form
- D. unknown

Please provide a copy of the standard or common admission form.

8. To what extent are the following question and categories used in the **public** hospitals within your jurisdiction to collect Indigenous status?

Are you of Aboriginal or Torres Strait Islander origin?

No.....

Yes, Aboriginal.....

Yes, Torres Strait Islander.....

If a person is of both Aboriginal and Torres Strait Islander origin, both 'Yes' boxes should be marked. Alternatively, the response option 'Yes, both Aboriginal and Torres Strait Islander' can be included

- A. all or most hospitals
- B. some hospitals
- C. unknown

9. Is it mandatory to update the data item for Indigenous status when re-registering or re-admitting patients?

- A. Yes (*Go to Question 11*)  
 B. No

Comment:

10. If Indigenous status is fixed or refreshed from a previous registration or admission, is there a policy to check with the patient and update the Indigenous status data item?

- A. Yes  
 B. No

Comment:

11. If a patient's Indigenous status is recorded as "not stated or not known", is there a common process or policy to follow up patients?

- A. The response is left as "not stated or unknown"  
 B. The system defaults to non-Indigenous  
 C. Patients are followed up to obtain a valid response (*please describe the usual process by which this is done or attach relevant documentation*)

12. Are Aboriginal and Torres Strait Islander liaison officers used to assist in obtaining valid and accurate responses to the Indigenous identification question?

- A. Yes  
 B. No

Comment:

13. Is there a protocol for responses by non-Australian Indigenous peoples such as Maoris, South Pacific Islanders and Papuan and New Guineans? If so, could you please describe it.

- A. Yes  
 B. No

Comment:

14. What processes and policies are in place to encourage or require public hospitals to collect, record and report Indigenous identification in a common or standard way? Please select from this list and provide documentation if appropriate. More than one response may be selected

- A. Service agreements between the state/territory department and the public hospital management  
 B. Financial incentives, e.g. payment loadings for Indigenous patients  
 C. Feedback or analysis of data on Indigenous status at the state or local level  
 D. Best Practice Guidelines  
 E. Departmental Circulars  
 F. Data Dictionary  
 G. Instruction manual  
 H. Training Programs  
 I. Other (please specify)

### Staff education and training (public hospitals)

15. Do the staff of public hospitals have access to training or modules in training that cover issues involved in the asking and recording of Indigenous status?

- A. all hospitals  
 B. most hospitals  
 C. only some hospitals  
 D. unknown (*Go to Question 23*)

16. Is this training provided by a central agency or is it undertaken by the individual hospitals?



17. Is the training required for all new staff?

- A. yes
- B. no

18. How often is the training available?

- A. one-off event
- B. on-going
- C. as required

19. Is the training based on any standard package, for example, as developed by the Australian Bureau of Statistics? If so, please provide the name of the package.

- A. Yes
- B. No

Name of package:

20. Does training usually cover the following issues? (more than one response may be selected)

- A. why the question is asked
- B. what happens to the information
- C. how to handle queries about or objections to the question

21. How useful is the training generally regarded?

- A. very useful
- B. somewhat useful
- C. of little use
- D. other .....

22. Are there any outstanding examples of training being provided in your jurisdiction? If so, please describe these or refer to attached documentation or provide references.

## Private hospitals

### Collection processes (private hospitals)

23. To what extent do the **private** hospitals within your jurisdiction use an electronic patient administration system to collect and record Indigenous identification

- A. all or most hospitals use the same electronic patient administration system
- B. all or most hospitals use different electronic patient administration systems
- C. only some hospitals use an electronic patient administration system
- D. no hospitals use an electronic patient administration system (*Go to Question 25*)
- E. unknown (*Go to Question 25*)

24. Is the data element "Indigenous status" as defined in the National Health Data Dictionary V12 used for the Indigenous status data item in your hospital patients administration system(s)?

- A. in all patient administration systems
- B. in some patient administration systems
- C. no
- E. unknown

Please provide a screen dump of the input screen(s) and the response codes that can be selected.

25. To what extent do the **private** hospitals within your jurisdiction use a standard or common admission form

- A. all or most hospitals
- B. some hospitals
- C. no standard or common admission form
- D. unknown

Please provide a copy of the standard or common admission form.

26. To what extent are the following question and categories used in the **private** hospitals within your jurisdiction to collect Indigenous status?

Are you of Aboriginal or Torres Strait Islander origin?

No.....

Yes, Aboriginal.....

Yes, Torres Strait Islander.....

If a person is of both Aboriginal and Torres Strait Islander origin, both 'Yes' boxes should be marked. Alternatively, the response option 'Yes, both Aboriginal and Torres Strait Islander' can be included

- A. all or most hospitals
- B. some hospitals
- C. unknown

27. Is it mandatory to update the data item for Indigenous status when re-registering or re-admitting patients?

- A. Yes (*Go to Question 29*)
- B. No
- C. Unknown

Comment:

28. If Indigenous status is fixed or refreshed from a previous registration or admission, is there a policy to check with the patient and update the Indigenous status data item?

- A. Yes
- B. No
- C. Unknown

Comment:

29. If a patient's Indigenous status is recorded as "not stated or not known", is there a common process or policy to follow up patients?

- A. The response is left as "not stated or unknown"
- B. The system defaults to non-Indigenous
- C. Patients are followed up to obtain a valid response (*please describe the usual process by which this is done or attach relevant documentation*)
- D. Unknown

Comment:

30. Are Aboriginal and Torres Strait Islander liaison officers used to assist in obtaining valid and accurate responses to the Indigenous identification question?

- A. Yes
- B. No
- C. Unknown

31. Is there a protocol for responses by non-Australian Indigenous peoples such as Maoris, South Pacific Islanders and Papuan and New Guineans? If so, could you please describe it.

- A. Yes
- B. No
- C. Unknown

Comment:

32. What processes and policies are in place to encourage or require private hospitals to collect, record and report Indigenous identification in a common or standard way? Please select from this list and provide documentation if appropriate. More than one response may be selected

- A. Service agreements between the state/territory department and the private hospital management
- B. Financial incentives, e.g. payment loadings for Indigenous patients
- C. Feedback or analysis of data on Indigenous status at the state or local level
- D. Best Practice Guidelines
- E. Departmental Circulars
- F. Data Dictionary
- G. Instruction manual
- H. Training Programs
- I. Other (please specify)

### Staff education and training (private hospitals)

33. Do the staff of private hospitals have access to training or modules in training that cover issues involved in the asking and recording of Indigenous status?

- A. all hospitals
- B. most hospitals
- C. only some hospitals
- D. unknown (*Go to Question 41*)

34. Is this training provided by a central agency or is it undertaken by the individual hospitals?

35. Is the training required for all new staff?

- A. yes
- B. no
- C. unknown

36. How often is the training available?

- A. one-off event
- B. on-going
- C. as required
- D. unknown

37. Is the training based on any standard package, for example, as developed by the Australian Bureau of Statistics? If so, please provide the name of the package.

- A. Yes
- B. No

Name of package:

38. Does training usually cover the following issues? (More than one response may be selected)

- A. why the question is asked
- B. what happens to the information
- C. how to handle queries about or objections to the question
- D. unknown

39. How useful is the training generally regarded?

- A. very useful
- B. somewhat useful
- C. of little use
- D. other .....
- E. unknown

40. Are there any outstanding examples of training being provided in your jurisdiction to private hospitals? If so, please describe these or refer to attached documentation or provide references

### **Other data quality improvement activity**

*In this section you may prefer to provide references to attached documentation or to material available via the Internet, rather than providing descriptions.*

41. Please describe any strategic or high level incentives to support the completeness and accuracy of Indigenous status identification in admitted patient data collections, for example, casemix loading, peer to peer benchmarking, feedback of analysed data at state or local level.

42. Please describe any recent or current activities to improve the completeness and accuracy of Indigenous status identification in admitted patient data collections being undertaken within your jurisdiction, other than those covered above.

43. Please describe any planned future activities to improve the completeness and accuracy of Indigenous status identification in admitted patient data collections being undertaken within your jurisdiction.

44. Of the activities which have been undertaken either recently or in the past, please identify the most successful and the key factors for its success.

45. Of the activities which have been undertaken either recently or in the past, please identify the least successful and the key limiting factors.

46. Are there any individual hospitals which could be identified as outstanding examples of best practice in the collection of Indigenous identification? What features contribute to best practice?

### Data analysis

47. Do you have any guidelines for using Indigenous identification data for analysing and reporting hospital information in your jurisdiction? If so could you please provide a copy of these guidelines.

48. Do you apply correction factors to the data for estimated or known levels of under-reporting? If so, could you provide details of the correction factors.

49. Do you have any specific guidelines for how the *not stated* category is to be used in analysis and reporting? If so could you provide details.



50. Do you have any specific guidelines for how the separate categories for Aboriginal, Torres Strait Islander and Aboriginal and Torres Strait Islander are to be used in analysis and reporting? If so could you provide details.

### **Other**

51. Are there any issues that relate to the quality of Indigenous identification hospital data that you would like to raise?

*Thank you for your co-operation in completing this questionnaire. Please see the Guide for Completion for the return of the completed survey to the Australian Institute of Health and Welfare.*

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