

Adult access to dental care

Indigenous Australians

DS Brennan
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THE UNIVERSITY OF ADELAIDE

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DENTAL STATISTICS AND RESEARCH SERIES

Number 16

**Adult access to
dental care –
Indigenous Australians**

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1998

AIHW Catalogue No. DEN 40

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This is the sixteenth publication in the Australian Institute of Health and Welfare's Dental Statistics and Research Series. A complete list of the Institute's publications is available from the Publications Unit, Australian Institute of Health and Welfare, GPO Box 570, Canberra ACT 2601.

ISBN 0-86396-800-7

ISSN 1321-0254

Suggested citation

Brennan DS, Carter KD (1998). *Adult access to dental care – Indigenous Australians*. AIHW Dental Statistics and Research Series No. 16, The University of Adelaide, Adelaide.

Acknowledgments

Supported under the Public Health Partnerships Agreement between the AIHW and the Commonwealth Department of Health and Family Services.

The Adult Dental Programs Survey was collected in collaboration with the dental authorities in the participating States/Territories of Australia.

We also wish to acknowledge Mrs Lorna Lucas for preparing the manuscript.

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Abbreviations

ADA – Australian Dental Association

AIHW – Australian Institute of Health and Welfare

CATI – Computer Assisted Telephone Interview

CPITN – Community Periodontal Index of Treatment Need

DF – decayed and filled roots

dmft – decayed, missing and filled deciduous teeth

DMFT – decayed, missing and filled permanent teeth

MIS – Management Information System

OMR – Optical Mark Read

Explanatory notes

Indigenous status

Persons surveyed in the National Dental Telephone Interview Surveys, and public-funded dental patients surveyed as part of the Adult Dental Programs Survey, were asked “Are you of Aboriginal or Torres Strait Islander origin?”, with those answering ‘yes’ being coded as Indigenous for the purpose of this report. Those answering ‘no’ are coded as non-Indigenous.

Eligibility

Persons who were eligible for public-funded dental care were those who were covered by a Pensioner Concession Card, a Health Benefits Card, a Health Care Card, or a Commonwealth Seniors Health Card.

Cell numbers

Totals include cases for which data for the explanatory variables may have been missing and therefore row (column) cell counts may not sum to the total row (column) count.

Standard errors and relative standard errors

Estimates from the National Dental Telephone Interview Surveys which have a relative standard error greater than 25% have been identified in the tables. The relative standard error is the standard error of the estimate divided by the estimate itself, expressed as a percentage. In addition to highlighting high relative standard errors, if a percentage estimate had a standard error of greater than 10%, that has also been indicated. This has been done because estimates involving large percentages may have an acceptable relative standard error but still be highly variable as indicated by a high standard error.

Scope of the report

The findings of this report cover both population estimates (such as the percentage of persons with dental insurance), and estimates based on users of dental services. Estimates for users of dental services have been restricted to either dentate adults whose last visit was less than 12 months ago (including indicators such as reason for last dental visit) or patients who attended for public-funded dental care during the survey period (including indicators such as oral health status at the beginning of a course of care and services received during this public-funded course of care). Estimates based on users of dental services are by definition restricted to those persons who were able to access dental care and therefore may not necessarily be representative of those who did not access dental care during the survey period.

Data limitations

The data presented in this report are based on national surveys of both the population in general and public-funded dental patients attending for care. Some limitations of the data may relate to the methods of collection. For example, the population data were collected using a Computer Assisted Telephone Interview (CATI) method. Such methods have advantages in terms of ease and timeliness of collection, and while their application is restricted to people with access to telephones, this problem is small as the coverage/use of telephones in the Australian population is high. However, it should be acknowledged that there may be some loss of representativeness in the sample to the extent that people without phones or with language difficulties may have been excluded. This may be exacerbated among Indigenous persons, particularly for those living in remote areas.

While the data on public-funded dental patients covered all States and Territories, the sample yields varied between jurisdictions with consequent variation in precision of estimates. There is also some limitation in geographic scope of the survey, with all data from New South Wales coming from the United Dental Hospital of Sydney. While the survey was intended to include all patients receiving public-funded dental care, it is possible that Indigenous patients receiving care through specialised schemes or clinics may not have been fully represented.

In addition to specific issues relating to survey methodology, there are also some general issues to consider. Any survey of Indigenous persons may suffer from misclassification or under-reporting of Indigenous status. For example, there was a larger than expected increase in the estimated Indigenous population, based on census data between 1991 and 1996, suggesting that the accuracy of identifying persons of Aboriginal or Torres Strait Islander origin needs to be improved (AIHW, 1998). Despite the fact that the Indigenous population has increased, the percentage of Indigenous persons in the Australian population remains small. Therefore any survey which does not purposively sample Indigenous persons is likely to achieve only small numbers of responses from Indigenous persons, with resulting differences in levels of precision of estimates between Indigenous and non-Indigenous persons. Differences may also occur in age distributions by Indigenous status which may confound the comparison of estimates of Indigenous and non-Indigenous persons.

The data presented in this report are based on small numbers of Indigenous persons who have a younger age distribution compared to non-Indigenous persons. This means that the precision of the estimates is generally lower for Indigenous compared to non-Indigenous persons, and the numbers of Indigenous persons is low among older age groups. Therefore these data should be interpreted cautiously. Numbers of respondents are included in the tables, and the precision of estimates in terms of standard errors and relative standard errors is also listed to guide the interpretation. However, despite the limitations of the data the results have been presented both to highlight the lack of data on this important health issue and to provide impetus for further research. Such research may be directed at improving data quality through methodological developments; improving the precision of estimates of Indigenous health status, to enable the patterns of health documented here to be tested; and further investigating factors associated with these patterns of health.

Executive Summary

This report examines oral health and access issues relating to Indigenous Australian adults. Findings at the population level are presented from the series of National Dental Telephone Interview Surveys conducted in 1994, 1995 and 1996. These data include both adults who have a government concession card (who may be eligible for public-funded dental care), and those who do not. The findings are not restricted by time since last dental visit, and include adults who have not made a recent dental visit. Population estimates are presented on oral health status, access to services, and on social impact and economic factors.

Also presented are findings related to patients receiving public-funded dental care. These data were obtained from the Prospective Adult Dental Programs Survey in 1995–96. Public-funded dental care may include care provided at public dental clinics as well as care provided by private practitioners to eligible patients that is paid for by public funds. Estimates are presented on the type of care received, oral health status, and services provided.

The findings are based on national surveys but the number of Indigenous persons is small. Few older Indigenous persons were surveyed, resulting in a young age distribution of Indigenous persons. However, despite these limitations, the findings highlight the lack of information available on this important health issue, and may stimulate interest and debate on the topic, and serve to provide impetus for further research to improve our knowledge – and to assist in the process of planning and developing of policy to improve health status.

Population

Indigenous Australians experienced a higher rate of edentulism (i.e. complete tooth loss) than non-Indigenous Australians (27.8% cf. 14.1% among 45–64-year-olds, and 16.3% cf. 10.7% overall). When controlling for age group, the percentage of dentate persons (i.e. those having some natural teeth) who wore a denture was higher among Indigenous than non-Indigenous persons (e.g. 17.8% cf. 9.7% among 25–44-year-olds).

There were no discernible differences in the time since last dental visit by Indigenous status among dentate adults; however, a much higher percentage of Indigenous adults whose most recent dental visit was less than 12 months ago last visited for a dental problem (77.1% cf. 55.8%). Dentate Indigenous adults were also more likely than non-Indigenous adults to have reported a problem as their usual reason for a dental visit (63.7% cf. 49.7%). Among dentate adults, Indigenous compared to non-Indigenous Australians had made a lower mean number of dental visits (1.81 cf. 2.43 visits), and had received a lower number of fillings (0.42 cf. 0.98 fillings), but the same mean number of extractions, in the previous 12 months.

A higher percentage of dentate Indigenous adults reported experience of toothache in the previous 12 months compared to non-Indigenous adults (16.1% cf. 12.0%). Indigenous adults were less likely than non-Indigenous adults to have private dental insurance (28.2% cf. 39.2%), and were more likely to report ‘a lot of difficulty in paying a \$100 dental bill’ than non-Indigenous adults (33.5% cf. 14.1%).

Across the population indicators presented, Indigenous Australians were found to generally have less favourable results than non-Indigenous Australians. On no indicator were

Indigenous adults found to have a substantial advantage. Indigenous Australians had poorer oral health outcomes (i.e. higher edentulism and denture use), and were more likely to: visit for a dental problem, have fewer dental visits, experience more toothache, not be insured, and report a lot of difficulty in paying a \$100 dental bill.

Public-funded dental patients

The percentage of adults receiving emergency care was similar for Indigenous and non-Indigenous patients (51.7% cf. 57.3%). However, there were some differences in oral health status, with lower percentages of edentulism among Indigenous patients (3.2% cf. 8.3%). Among dentate adults, Indigenous patients had a higher percentage with periodontal pockets of 6+ mm (25.4% cf. 11.6%) and higher numbers of decayed teeth (3.56 cf. 1.94), but lower overall caries experience (10.47 cf. 13.91 decayed, missing and filled teeth), lower numbers of missing teeth (3.09 cf. 5.34) and filled teeth (3.81 cf. 6.62), and lower root caries experience (0.37 cf. 0.69 decayed and filled roots).

To control for potential confounding factors, multiple logistic regressions of services received were performed by Indigenous status, controlling for age, type of care, country of birth, language spoken, geographic location, numbers of decayed and missing teeth, numbers of decayed roots, and the presence of periodontal pockets. Differences in service provision by Indigenous status persisted in the area of extractions after controlling for these other factors. Compared to the reference category of non-Indigenous patients, Indigenous patients had higher odds of extraction services (odds ratio, 3.40; 95% confidence interval = 2.02–5.73).

The higher odds of receiving extraction services points to less favourable service provision outcomes for Indigenous patients.

1 Introduction

1.1 Trends in oral health access issues

Oral health in Australia has shown considerable improvement over recent decades. For example, among children the number of deciduous decayed, missing and filled teeth (dmft) among 6-year-olds declined from 3.13 in 1977, to 2.16 in 1989, and to 1.90 in 1993; and the number of permanent decayed, missing and filled teeth (DMFT) among 12-year-olds declined from 4.79 in 1977, to 1.50 in 1989, and to 1.10 in 1993 (Spencer et al., 1994; Davies and Spencer, 1995).

Oral health has also improved among adults in Australia, with dramatic declines in edentulism. For example, the percentage of persons aged 65 years or more who had no natural teeth declined from 66% in 1979 (Australian Bureau of Statistics, 1980), to 50% in 1987–88 (Barnard, 1993), to 40% in 1994 (Carter et al., 1994).

In private general practice, rates of service per visit have changed between 1983–84 and 1993–94, reflecting changes in oral health and population demographics. Over this period there were increases in rates of diagnostic, preventive, endodontic (root canal), crown and bridge, general/miscellaneous, and orthodontic services, and decreases in rates per visit of prosthodontic (denture) services (Brennan, 1997).

Use of dental services has increased among adults in Australia. For example, among persons aged 65 years or more the percentage who visited in the previous 12 months increased from 21.5% in 1979 (Australian Bureau of Statistics, 1980), to 40.9% in 1993 (AIHW Dental Statistics and Research Unit, 1993).

However, considerable variation underlies the improvements in oral health. For example, in 1993 the percentage of 6-year-old children with no experience of dental caries in the deciduous dentition was 53.2%, while 55.8% of 12-year-olds had no experience of dental caries in the permanent dentition (Davies and Spencer, 1995). There is growing interest in identifying special groups within the population who may be at greater risk of oral disease.

1.2 Social inequality in relation to oral health and access issues

Social inequalities in health have been highlighted through reports of associations between mortality and factors such as occupation, income, ethnic group and social class (Marmot et al., 1987; Feinstein, 1993). Even in countries with universal-access policies for health care, large differentials in mortality and morbidity by social class have been reported (Davey Smith et al., 1990). In 1992 the National Health Strategy identified inequalities in oral health and access to dental services as a major public health issue in Australia (National Health Strategy, 1992).

Use of dental services in Australia has been associated with factors such as age, income, age of leaving school and occupation, while having extractions was also associated with occupation (Roberts-Thomson et al., 1995). Among people on low incomes, health card-holders are thought to be particularly at risk of poorer oral health outcomes (AIHW Dental Statistics and Research Unit, 1993). Public patients have about twice the rate of extraction as patients in private general practice (Brennan et al., 1997). Such findings indicate sources of variation and social inequality in relation to oral health and access issues. Within the Australian population Indigenous persons comprise a special interest group who may be disadvantaged in terms of their health and access to services.

1.3 Health patterns of Indigenous Australians

The health status of Indigenous Australians is generally worse than that of non-Indigenous Australians. For example, the mortality rate from all causes decreased between 1988 and 1994 for Australians as a whole, but was stable for Indigenous males and increased among Indigenous females, resulting in a widening of the gap between Indigenous and total Australian mortality rates. Other measures such as infant and maternal mortality and hospital admission rates also indicate substantial disadvantage in terms of health among Indigenous Australians (AIHW, 1996).

While some historical reports indicated an advantage in terms of oral health for some Indigenous groups (Campbell and Moore, 1930 in AIHW, 1996), more recent studies have indicated high caries experience among Indigenous children (Schamschula et al., 1980a). Findings from the Northern Territory show more disease experience and a higher ratio of untreated disease for caries experience among 12-year-old Indigenous compared to non-Indigenous Australian-born children (AIHW, 1996). A study of adolescent and adult Indigenous Australians in New South Wales found that oral hygiene was poor overall, and that 70% of erupted teeth had been lost by 43 years of age (Schamschula et al., 1980b). Service provision has also been found to vary by Indigenous status among adult public-funded dental patients, with Indigenous patients having over twice the odds of receiving an extraction compared to non-Indigenous patients (Brennan et al, 1997).

1.4 Structure and themes

The next chapter outlines the data sources which constitute the basis of the findings of this report. The themes of oral health and access issues relating to Indigenous Australians are explored through chapters dealing first with the population as a whole, and then with the subset of the population who have attended for public-funded dental care.

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2 Data sources

2.1 National Dental Telephone Interview Surveys

Purpose

The purpose of the National Dental Telephone Interview Surveys was to: collect information on basic features of oral health and dental care within the Australian population; provide information on the broader parameters of dental health and access to services; monitor the extent of social inequities associated with oral health and dental care within the community; and investigate the underlying reasons behind dental behaviours, and their consequences.

Data collection

The National Dental Telephone Interview Surveys selected random samples of Australians aged five years and over from all States and Territories. The surveys were conducted in the first quarter of each year. Interviews were conducted using computer assisted telephone interviewing techniques. Questions were read directly from the computer screen, and responses were entered directly onto the database. Question sequencing was fully automated, and the computer program would only allow valid responses to be entered.

A primary approach letter explaining the nature and purpose of the study was sent to each sampled household approximately ten days prior to the initial phone call. Up to six calls on differing days and times were attempted to make initial contact with the household (excluding engaged calls). After six consecutive calls with no answer the number was designated as 'non-response'. Once contact was made with a household, a person aged five years or more was chosen at random from the household. If this person was at home, they were interviewed (if possible), otherwise a call back time was arranged and up to a further six attempts were made to contact the sampled person. Proxy interviews were conducted for children and for people who were unable to answer questions over the phone – because of a hearing impairment, for example. Additional interviews were conducted in languages other than English (Greek, Italian, Vietnamese, Chinese, Polish and Spanish).

Response levels

Table 2.1 outlines the number of telephone numbers sampled for each survey; the number of telephone numbers which were 'in scope', that is where the number served as a residential number and was not, for example, disconnected or a business number; the number of participants; and the participation rate.

Table 2.1: Participation in the National Dental Telephone Interview Surveys

	1994	1995	1996
Number of sampled phone numbers	12,522	8,509	13,075
Number of phone numbers 'in scope'	11,149	7,305	11,605
Number of participants	7,987	5,101	8,292
% participation	71.6	69.8	71.5

Weighting of data

Data were weighted by household size (the number of persons aged 5 years or more) and by geographic sampling region to account for different sampling probabilities due to the sampling design. The data were also post-stratified and weighted by age and gender within geographic sampling regions to ensure that the weighted data reflect the age and gender distribution of the Australian population for each region as estimated by the Australian Bureau of Statistics.

2.2 Prospective Adult Dental Programs Survey

Purpose

This survey obtained details of the oral health status and services received throughout a course of care within public-funded dental programs. The survey was conducted as an ongoing monitoring survey throughout the year.

Data collection

Data were collected by State and Territory dental services using manual forms or optical mark read (OMR) scan forms to record oral health data; and computer management information system (MIS) databases to record patient, visit, and service provision details. All data items can be collected on double-sided OMR forms where there is no access to computer MISs. The survey commenced in mid-1995.

Sampling rates

Sampling rates were determined to obtain 595 persons in each of six age groups, to provide 3,570 persons for the larger Australian States. Sample yields of this size enable prevalence estimates for five sub-groups within each age group with a relative standard error of less than 40%. These sampling rates were determined to provide appropriate sample yields based on patient flows and workloads specific to each State and Territory.

Sample yields and mode of collection

The table below outlines the yields obtained up to September 1996 and the mode of collection for each State and Territory.

Table 2.2: Response to the Adult Dental Programs Survey

		NSW	Vic	Qld	SA	WA	Tas	ACT	NT	All
1995–96	Mode	MIS	OMR +MIS	OMR	OMR +MIS	OMR +MIS	OMR	OMR +MIS	OMR	
	Yield	874	1,040	2,628	753	160	359	26	269	6,109

Sample yields obtained in each State/Territory were less than that required to provide specific breakdowns disaggregated within individual States/Territories. However, when aggregated at the national level the sample yield is in excess of that required (i.e. greater than 3,570) to provide acceptable precision at that level of disaggregation.

Weighting

The data were weighted using the estimated number of persons who made their last visit to either a public dental clinic, or public-funded, to a private practice, within the last 12 months, for persons aged 18 years or more from the 1996 National Dental Telephone Interview Survey. This was performed to weight the sample yields from each State and Territory in proportion to the number of public-funded visits for each State and Territory.

3 Population

This chapter presents findings related to the adult Australian population as a whole. It includes both persons who have a government concession card (who may be eligible for public-funded dental care), and those who do not. It includes persons who have made private dental visits at their own expense, persons who have received public-funded dental care, and persons who have received care from a private practitioner that was paid for by public funds. Findings in this chapter are not restricted by time since last dental visit, and includes adults who have not made a recent dental visit.

Results are presented on oral health status, access to services, social impact and economic factors. The oral health outcomes presented are dentate status and use of dentures. Access to services indicators presented are time since last dental visit, reason for last visit, mean number of dental visits and routine services (extractions, fillings, scale and clean), percentage receiving routine services, and usual reason for a dental visit. Social impact and economic factors presented are experience of toothache, dental insurance coverage, financial burden of dental visits, and difficulty in paying a \$100 dental bill.

3.1 Sample yield

Information on a total of 17,691 adults was obtained from the 1994, 1995, and 1996 National Dental Telephone Interview Surveys. Overall, 1.2% (217) of the adult sample were Indigenous, 98.6% (17,448) were non-Indigenous, and 0.1% (26) were of unknown Indigenous status.

The age distribution of Indigenous persons was younger than that of non-Indigenous persons. Approximately two-thirds (66.8%) of Indigenous respondents were aged 18–44 years, compared with 49.2% of non-Indigenous respondents.

Table 3.1: Age distribution of adults from the National Dental Telephone Interview Surveys by Indigenous status (unweighted)

	Indigenous status		Total
	Indigenous	Non-Indigenous	
Number	217	17448	17691
Age (%)			
18–24 years	16.6	10.9	10.9
25–44 years	50.2	38.3	38.5
45–64 years	21.2	30.2	30.1
65+ years	12.0	20.5	20.4

Source: 1994, 1995, 1996 National Dental Telephone Interview Surveys

Table 3.2 presents the number of Indigenous and non-Indigenous respondents by State and Territory. The Northern Territory had the greatest number of Indigenous respondents, 61, which was 4.2% of the Northern Territory sample, or 28.1% of the 217 Indigenous respondents. Victoria had the lowest percentage of Indigenous respondents, 0.4%. The percentage of Indigenous respondents in the remaining States and Territory ranged from 0.7% in the Australian Capital Territory to 1.6% in Tasmania.

Table 3.2: Indigenous status of adults from the National Dental Telephone Interview Surveys by State/Territory (unweighted)

	Indigenous status		% Indigenous
	Indigenous	Non-Indigenous	
State/Territory			
New South Wales	22	2549	0.9
Victoria	10	2622	0.4
Queensland	36	2603	1.4
South Australia	28	2699	1.0
Western Australia	24	2534	0.9
Tasmania	25	1491	1.6
Australian Capital Territory	11	1547	0.7
Northern Territory	61	1403	4.2
Total	217	17448	1.2

Source: 1994, 1995, 1996 National Dental Telephone Interview Surveys

3.2 Oral health status

Table 3.3 shows the dentate status of the population by Indigenous status and age group. Edentulism (having no natural teeth) increased across age groups, reflecting both the accumulation of disease experience and changing treatment philosophies over time. Indigenous persons were more likely to be edentulous than non-Indigenous persons, 5.6% cf. 1.6% among 25–44-year-olds, 27.8% cf. 14.1% among 45–64-year-olds, and 72.1% cf. 40.1% among persons aged 65 years or more.

Table 3.3: Dentate status of population by Indigenous status and age group

	Indigenous status		Total
	Indigenous	Non-Indigenous	
	%	%	%
18–24 years	<i>n=36</i>	<i>n=1900</i>	<i>n=1937</i>
Dentate	100.0	99.9	99.9
Edentulous	0.0	*0.1	*0.1
25–44 years	<i>n=109</i>	<i>n=6689</i>	<i>n=6807</i>
Dentate	94.4	98.4	98.4
Edentulous	*5.6	1.6	1.6
45–64 years	<i>n=46</i>	<i>n=5276</i>	<i>n=5331</i>
Dentate	†72.2	85.9	85.8
Edentulous	*27.8	14.1	14.2
65+ years	<i>n=26</i>	<i>n=3583</i>	<i>n=3616</i>
Dentate	*27.9	59.9	59.7
Edentulous	†72.1	40.1	40.3
Total	<i>n=217</i>	<i>n=17448</i>	<i>n=17691</i>
Dentate	83.7	89.1	89.1
Edentulous	*16.3	10.9	10.9

* estimate has a relative standard error greater than 25%

† estimate has a standard error greater than 10%

Source: 1994, 1995, 1996 National Dental Telephone Interview Surveys

The percentage of dentate adults wearing a denture by Indigenous status and age group is presented in Table 3.4. As was the case for edentulism, the use of dentures increased with increasing age. With the exception of the 18–24 age group, Indigenous persons were more likely to wear a denture than non-Indigenous persons. The near equality of the overall percentages (19.4% and 20.6%) is an artefact of the markedly younger age distribution of Indigenous persons.

Table 3.4: Percentage of persons wearing a denture by Indigenous status and age group – dentate adults

	Indigenous status		Total
	Indigenous	Non-Indigenous	
	%	%	%
Age	<i>n</i>=188	<i>n</i>=14935	<i>n</i>=15144
18–24 years	0.0	*1.6	*1.6
25–44 years	*17.8	9.7	9.8
45–64 years	*39.7	35.1	35.1
65+ years	†80.6	61.6	61.6
Total	*19.4	20.6	20.6

* estimate has a relative standard error greater than 25%

† estimate has a standard error greater than 10%

Source: 1994, 1995, 1996 National Dental Telephone Interview Surveys

3.3 Access to services

Presented in Table 3.5 is the time since last visit by Indigenous status and age group, among dentate adults. Accounting for the standard errors of the Indigenous estimates, there were no discernible general patterns across age groups or between Indigenous and non-Indigenous persons.

Table 3.5: Time since last dental visit by Indigenous status and age group – dentate adults

	Indigenous status		Total
	Indigenous	Non-Indigenous	
	%	%	%
18–24 years	<i>n=36</i>	<i>n=1886</i>	<i>n=1923</i>
<12 months	†69.2	53.4	53.6
1–<2 years	*12.6	18.3	18.3
2–<5 years	*3.6	17.9	17.7
5+ years	*14.5	10.4	10.5
25–44 years	<i>n=103</i>	<i>n=6564</i>	<i>n=6676</i>
<12 months	52.4	53.5	53.5
1–<2 years	*31.0	20.3	20.4
2–<5 years	*9.8	15.9	15.8
5+ years	*6.8	10.3	10.2
45–64 years	<i>n=36</i>	<i>n=4423</i>	<i>n=4466</i>
<12 months	*30.9	61.2	61.0
1–<2 years	*54.2	17.1	17.4
2–<5 years	*4.8	12.2	12.1
5+ years	*10.0	9.5	9.5
65+ years	<i>n=13</i>	<i>n=2003</i>	<i>n=2020</i>
<12 months	†69.4	61.7	61.6
1–<2 years	*16.2	14.8	14.9
2–<5 years	*12.3	12.1	12.1
5+ years	*2.1	11.5	11.4
All	<i>n=188</i>	<i>n=14876</i>	<i>n=15085</i>
<12 months	53.7	56.4	56.3
1–<2 years	29.7	18.5	18.7
2–<5 years	*7.6	14.8	14.8
5+ years	*9.0	10.2	10.2

* estimate has a relative standard error greater than 25%

† estimate has a standard error greater than 10%

Source: 1994, 1995, 1996 National Dental Telephone Interview Surveys

The reason for last dental visit was asked of persons whose last dental visit was in the previous 12 months, and Table 3.6 reports on the dentate respondents. For each age group, and overall, a higher percentage of Indigenous than non-Indigenous persons last made a dental visit for a problem. Over three-quarters of Indigenous persons aged 18–24 years, 25–44 years, and 45–64 years last visited for a problem. Among 25–44-year-olds, 79.3% of Indigenous persons, whose last dental visit was in the previous 12 months, last visited for a problem, compared with 55.4% of non-Indigenous persons.

Table 3.6: Reason for last dental visit by Indigenous status and age group – dentate adults whose last dental visit was less than 12 months ago

	Indigenous status		Total
	Indigenous	Non-Indigenous	
	%	%	%
18–24 years	n=15	n=946	n=961
Problem	†75.8	44.3	44.9
Check-up	*24.2	55.7	55.1
25–44 years	n=49	n=3497	n=3550
Problem	79.3	55.4	55.6
Check-up	*20.7	44.6	44.4
45–64 years	n=15	n=2646	n=2663
Problem	†75.9	61.4	61.4
Check-up	*24.1	38.6	38.6
65+ years	n=8	n=1196	n=1205
Problem	*64.1	59.1	59.2
Check-up	*35.9	40.9	40.8
Total	n=87	n=8285	n=8379
Problem	77.1	55.8	56.0
Check-up	*22.9	44.2	44.0

* estimate has a relative standard error greater than 25%

† estimate has a standard error greater than 10%

Source: 1994, 1995, 1996 National Dental Telephone Interview Surveys

The data in Table 3.7 relate to dentate adults whose last dental visit was in the previous 12 months. Presented are the mean number of visits, extractions, fillings, and scale and clean services per person in the last 12 months by Indigenous status and age group.

Overall, Indigenous persons made fewer visits on average than non-Indigenous persons (1.81 compared with 2.43 visits). There was no overall difference between Indigenous and non-Indigenous persons in terms of the mean number of extractions. For each age group Indigenous persons received fewer fillings on average than non-Indigenous persons. Overall, Indigenous persons received 0.42 fillings compared with 0.98 fillings for non-Indigenous persons. Indigenous persons were also less likely to have a scale and clean than non-Indigenous persons.

Table 3.7: Mean number of dental visits and routine services in previous 12 months by Indigenous status and age group – dentate adults whose last dental visit was less than 12 months ago

	Indigenous status		Total (mean)
	Indigenous (mean)	Non-Indigenous (mean)	
Number of visits in last 12 months	<i>n</i>= 86	<i>n</i>=8267	<i>n</i>=8360
18–24 years	1.28	2.53	2.51
25–44 years	1.77	2.36	2.35
45–64 years	*3.54	2.50	2.51
65+ years	2.61	2.37	2.37
<i>Total</i>	<i>1.81</i>	<i>2.43</i>	<i>2.42</i>
Number of extractions in last 12 months	<i>n</i>=85	<i>n</i>=8280	<i>n</i>=8372
18–24 years	*0.09	0.34	0.34
25–44 years	*0.33	0.22	0.22
45–64 years	*0.22	0.20	0.20
65+ years	*0.08	0.22	0.22
<i>Total</i>	<i>*0.23</i>	<i>0.23</i>	<i>0.23</i>
Number of fillings in last 12 months	<i>n</i>=86	<i>n</i>=8256	<i>n</i>=8349
18–24 years	*0.31	0.71	0.70
25–44 years	*0.43	1.02	1.01
45–64 years	*0.73	1.05	1.05
65+ years	*0.36	1.01	1.00
<i>Total</i>	<i>*0.42</i>	<i>0.98</i>	<i>0.97</i>
Number of scale and cleans in last 12 months	<i>n</i>=86	<i>n</i>=8215	<i>n</i>=8308
18–24 years	0.88	0.99	0.99
25–44 years	0.53	0.93	0.92
45–64 years	1.07	0.99	0.99
65+ years	0.80	0.96	0.96
<i>Total</i>	<i>0.70</i>	<i>0.96</i>	<i>0.96</i>

* estimate has a relative standard error greater than 25%

Source: 1994, 1995, 1996 National Dental Telephone Interview Surveys

Table 3.8 presents the percentage of dentate adults who had extractions, fillings, and scale and clean services among those whose last dental visit was in the previous 12 months. Overall there was little difference by Indigenous status in the percentage of persons who had an extraction. While nearly half (49.1%) of non-Indigenous persons received fillings, only 28.1% of Indigenous persons received fillings. A lower percentage of Indigenous persons received a scale and clean service (63.1%) compared to non-Indigenous persons (73.7%).

Table 3.8: Percentage of persons receiving routine dental services in previous 12 months by Indigenous status and age group – dentate adults whose last dental visit was less than 12 months ago

	Indigenous status		Total
	Indigenous	Non-Indigenous	
	%	%	%
Extractions	<i>n</i>=85	<i>n</i>=8280	<i>n</i>=8372
18–24 years	*8.3	16.1	15.9
25–44 years	*18.0	13.5	13.6
45–64 years	*9.7	13.1	13.0
65+ years	*7.6	12.7	12.7
<i>Total</i>	*13.6	13.7	13.7
Fillings	<i>n</i>=86	<i>n</i>=8256	<i>n</i>=8349
18–24 years	*17.1	32.7	32.4
25–44 years	*30.3	50.0	49.7
45–64 years	*62.0	54.1	54.1
65+ years	*12.0	55.5	55.3
<i>Total</i>	*28.1	49.1	48.9
Scale and clean	<i>n</i>=86	<i>n</i>=8215	<i>n</i>=8308
18–24 years	†80.1	70.5	70.7
25–44 years	†49.3	75.0	74.7
45–64 years	†76.9	74.5	74.5
65+ years	†80.3	70.7	70.8
<i>Total</i>	63.1	73.7	73.6

* estimate has a relative standard error greater than 25%

† estimate has a standard error greater than 10%

Source: 1994, 1995, 1996 National Dental Telephone Interview Surveys

All persons were asked whether their usual reason for making a dental visit was for a problem or for a check-up. Table 3.9 presents the results for dentate adults. Overall, approximately 50% of non-Indigenous persons reported a problem and 50% a check-up as their usual reason for a visit. In contrast, 63.7% of Indigenous persons reported a problem and 36.3% a check-up as their usual reason for a visit.

Table 3.9: Usual reason for a dental visit by Indigenous status and age group – dentate adults

	Indigenous status		Total
	Indigenous	Non-Indigenous	
	%	%	%
18–24 years	<i>n=36</i>	<i>n=1876</i>	<i>n=1913</i>
Problem	†69.4	43.8	44.2
Check-up	*30.6	56.2	55.8
25–44 years	<i>n=102</i>	<i>n=6539</i>	<i>n=6650</i>
Problem	65.8	51.0	51.1
Check-up	34.2	49.0	48.9
45–64 years	<i>n=36</i>	<i>n=4394</i>	<i>n=4437</i>
Problem	*47.3	50.3	50.3
Check-up	*52.7	49.7	49.7
65+ years	<i>n=13</i>	<i>n=1978</i>	<i>n=1994</i>
Problem	*65.4	51.4	51.5
Check-up	*34.6	48.6	48.5
Total	<i>n=187</i>	<i>n=14787</i>	<i>n=14994</i>
Problem	63.7	49.7	49.8
Check-up	36.3	50.3	50.2

* estimate has a relative standard error greater than 25%

† estimate has a standard error greater than 10%

Source: 1994, 1995, 1996 National Dental Telephone Interview Surveys

3.4 Social impact and economic factors

Dentate participants were asked about their experience of toothache during the previous 12 months. Table 3.10 presents the percentage of persons responding that they experienced toothache ‘very often’, ‘often’, or ‘sometimes’ during the last 12 months. Taking into account the standard errors of the Indigenous estimates, there were no substantial or consistent differences between Indigenous and non-Indigenous persons.

Table 3.10: Experience of toothache^(a) in previous 12 months by Indigenous status and age group – dentate adults

	Indigenous status		Total
	Indigenous	Non-Indigenous	
	%	%	%
Age	n=188	n=14915	n=15122
18–24 years	*16.6	16.2	16.3
25–44 years	*20.3	13.2	13.3
45–64 years	*3.0	9.2	9.1
65+ years	*8.3	7.2	7.2
Total	*16.1	12.0	12.1

(a) percentage of persons reporting ‘very often’, ‘often’, or ‘sometimes’ during the last 12 months

* estimate has a relative standard error greater than 25%

Source: 1994, 1995, 1996 National Dental Telephone Interview Surveys

Dental insurance by Indigenous status and age group is presented in Table 3.11. While a higher percentage of 18–24-year-old Indigenous persons were insured compared to non-Indigenous persons, this was not the case for older age groups. Among 25–44-year-olds, 24.9% of Indigenous persons were insured compared with 40.2% of non-Indigenous persons.

Table 3.11: Percentage of persons with dental insurance by Indigenous status and age group

	Indigenous status		Total
	Indigenous	Non-Indigenous	
	%	%	%
Age	n=212	n=17379	n=17617
18–24 years	*42.1	32.5	32.6
25–44 years	24.9	40.2	40.0
45–64 years	*34.5	48.1	48.0
65+ years	*5.8	27.6	27.5
Total	28.2	39.2	39.1

* estimate has a relative standard error greater than 25%

Source: 1994, 1995, 1996 National Dental Telephone Interview Surveys

Persons who made a dental visit during the previous 12 months were asked how much of a financial burden those visits were. The first half of Table 3.12 presents the percentage of dentate adults for whom those dental visits were a large financial burden. There were no consistent differences across age groups between Indigenous and non-Indigenous persons, and little difference overall (8.2% compared with 10.6%).

All persons were asked how much difficulty they would have in paying a \$100 dental bill, and the percentage reporting a lot of difficulty is presented in the second half of Table 3.12. For each age group, a higher percentage of Indigenous than non-Indigenous persons reported a lot of difficulty in paying a \$100 dental bill. This difference was greatest for the 25–44 age group (42.3% cf. 14.2%), and the 45–64 age group (30.7% cf. 12.2%).

Table 3.12: Affordability and hardship in purchasing dental care by Indigenous status and age group – dentate adults

	Indigenous status		Total
	Indigenous	Non-Indigenous	
	%	%	%
Dental visits in the last 12 months were a large financial burden^(a)	<i>n</i>=87	<i>n</i>=8273	<i>n</i>=8367
18–24 years	*15.9	10.1	10.2
25–44 years	*4.7	10.9	10.8
45–64 years	*6.4	11.7	11.6
65+ years	0.0	7.1	7.1
<i>Total</i>	*8.2	10.6	10.5
A lot of difficulty in paying a \$100 dental bill	<i>n</i>=188	<i>n</i>=14869	<i>n</i>=15078
18–24 years	*18.6	16.9	16.9
25–44 years	42.3	14.2	14.5
45–64 years	*30.7	12.2	12.3
65+ years	*14.5	13.7	13.7
<i>Total</i>	33.5	14.1	14.2

(a) dentate adults whose last dental visit was less than 12 months ago

* estimate has a relative standard error greater than 25%

Source: 1994, 1995, 1996 National Dental Telephone Interview Surveys

3.5 Discussion

Indigenous Australians experienced a higher rate of edentulism than non-Indigenous Australians, a difference which remained even after accounting for age group. Among those who were dentate, a higher percentage of Indigenous persons reported wearing a denture, after controlling for age group.

There were no discernible differences in the time since last dental visit by Indigenous status among dentate adults; however, a much higher percentage of Indigenous adults whose most recent dental visit was less than 12 months ago last visited for a dental problem. Dentate Indigenous adults were also more likely than non-Indigenous adults to have reported a problem as their usual reason for a dental visit. Among dentate adults, Indigenous Australians had made a lower mean number of dental visits and received a lower number of fillings, but the same mean number of extractions in the previous 12 months, compared to non-Indigenous adults.

A higher percentage of dentate Indigenous adults reported experience of toothache in the previous 12 months compared to non-Indigenous adults. Indigenous adults were less likely than non-Indigenous adults to have private dental insurance, and were more likely to report 'a lot of difficulty in paying a \$100 dental bill' than non-Indigenous adults.

Across the population measures presented, Indigenous Australians were found to generally have less favourable results than non-Indigenous Australians. On no indicator were Indigenous adults found to have a substantial advantage. Indigenous Australians had poorer oral health outcomes (i.e. higher edentulism and denture use), and were more likely to: visit for a dental problem, have fewer dental visits, experience more toothache, not be insured, and report a lot of difficulty in paying a \$100 dental bill.

4 Public-funded dental patients

This chapter presents findings related to patients receiving public-funded dental care. This may include care provided at public dental clinics as well as care provided by private practitioners to eligible patients which was paid for by public funds. Patients eligible for public dental care were primarily holders of government health cards.

Results are presented on the type of care received, oral health status, and services provided. Type of care is defined as emergency, general, screen and other, with emergency care relating to care provided for relief of pain. Oral health status refers to the health status recorded at the beginning of a course of dental care.

The oral health measures recorded were dentate status, periodontal status, and coronal caries and root caries experience. Periodontal status was assessed using the Community Periodontal Index of Treatment Needs (CPITN), while coronal caries status is reported using the DMFT index.

Service provision refers to items of treatment received during a course of dental care. These items were classified into one of ten main areas of service following the ADA Schedule of Dental Services. The exceptions to this classification scheme were the placement of scale and clean items in the periodontic rather than preventive area, and temporary restorations along with other emergency service items were classified as a separate main area, labelled temporary. Service provision is presented as the percentage of persons receiving that kind of service, its percentage of total services, and the mean number of such services per course of care.

4.1 Sample yield

A total of 278 patients were Indigenous (4.9%) and 5,417 patients were non-Indigenous (95.1%). There was a younger age distribution among Indigenous compared to non-Indigenous patients. For example, 20.6% of Indigenous patients were aged 18–24 years compared to 9.8% of non-Indigenous patients. There were only a small number of Indigenous patients aged 65 years or more (3.4%) compared to non-Indigenous patients (28.3%).

Table 4.1: Distribution of public-funded dental patients by Indigenous status

	Indigenous status		Total
	Indigenous	Non-Indigenous	
Number	278	5417	5926
Age (%)			
18–24 years	20.6	9.8	10.3
25–44 years	53.8	33.3	34.3
45–64 years	22.1	28.6	28.4
65+ years	3.4	28.3	26.8

Source: Prospective Adult Dental Programs Survey 1995–96

The Indigenous status of patients is presented in Table 4.2 by State/Territory. Of the total of 278 Indigenous patients, most were from the Northern Territory and Queensland. The percentage of Indigenous patients ranged from less than one per cent in New South Wales, Victoria, and South Australia, to between 2.5% and 6.7% in Queensland, Western Australia, Tasmania and the Australian Capital Territory, to 71.8% in the Northern Territory. Overall, the percentage of Indigenous patients in the sample was 4.9%. This provided a weighted estimate of 2.1% when weighted by the numbers of patients in each State/Territory. The lower percentage of Indigenous patients when weighted reflects higher weighting of the larger States such as New South Wales and Victoria, which had small percentages of Indigenous patients, in comparison to the lower weighting of smaller jurisdictions such as the Northern Territory, which had higher percentages of Indigenous patients.

Table 4.2: Indigenous status of public-funded dental patients by State/Territory

	Indigenous status		% Indigenous
	Indigenous	Non-Indigenous	
State/Territory			
New South Wales	1	758	0.1
Victoria	2	896	0.2
Queensland	64	2512	2.5
South Australia	0	753	0.0
Western Australia	10	140	6.7
Tasmania	12	259	4.4
Australian Capital Territory	1	25	3.9
Northern Territory	188	74	71.8
All	278	5417	4.9

Source: Prospective Adult Dental Programs Survey 1995–96

4.2 Type of care

Type of public-funded course of care is presented in Table 4.3 by Indigenous status and age. In total, the majority of care consisted of emergency (57.5%) and general care (39.8%). The percentage of emergency care declined across successively older age groups from 67.2% among 18–24-year-olds to 52.4% among patients aged 65 years or more.

Overall, the percentage of emergency care received by Indigenous patients (51.7%) was similar to that received by non-Indigenous patients (57.3%). While the percentage of emergency care received by Indigenous patients aged 65 years or more was high (78.5%), this estimate was based on a small number of patients.

Table 4.3: Type of public-funded course of care by Indigenous status

	Indigenous status		Total
	Indigenous	Non-Indigenous	
	%	%	%
18–24 years	n=54	n=516	n=613
Emergency	*42.5	68.0	67.2
General	†55.0	31.3	31.8
Screen	*2.5	*0.4	*0.6
Other	0.0	*0.3	*0.4
25–44 years	n=139	n=1749	n=2034
Emergency	58.3	58.4	58.8
General	39.7	40.1	39.8
Screen	*2.0	1.3	1.3
Other	0.0	*0.2	*0.2
45–64 years	n=58	n=1502	n=1680
Emergency	39.6	57.2	57.3
General	58.3	40.2	40.2
Screen	*2.1	2.4	2.3
Other	0.0	*0.2	*0.2
65+ years	n=9	n=1475	n=1574
Emergency	†78.5	51.9	52.4
General	*18.3	42.6	42.3
Screen	*3.2	5.1	4.9
Other	0.0	*0.4	*0.4
All	n=276	n=5396	n=6083
Emergency	51.7	57.3	57.5
General	46.0	39.9	39.8
Screen	*2.3	2.6	2.5
Other	0.0	0.3	0.3

* estimate has a relative standard error greater than 25%

† estimate has a standard error greater than 10%

Source: Prospective Adult Dental Programs Survey 1995–96

4.3 Oral health status

Dentate status of public-funded patients is presented in Table 4.4 by Indigenous status and age. Overall, the percentage of edentulous patients (i.e. those having no natural teeth) increased across successively older age groups from 0.4% among 18–24-year-olds to 19.8% among patients aged 65 years or more. Overall, edentulism was higher among non-Indigenous (8.3%) than Indigenous patients (3.2%), which may reflect the older age distribution of non-Indigenous patients in the sample.

Table 4.4: Dentate status of public-funded dental patients by Indigenous status

	Indigenous status		Total
	Indigenous	Non-Indigenous	
	%	%	%
18–24 years	<i>n=54</i>	<i>n=514</i>	<i>n=611</i>
Dentate	100.0	99.6	99.6
Edentulous	0.0	*0.4	*0.4
25–44 years	<i>n=141</i>	<i>n=1742</i>	<i>n=2028</i>
Dentate	100.0	98.7	98.8
Edentulous	0.0	1.3	1.2
45–64 years	<i>n=58</i>	<i>n=1499</i>	<i>n=1675</i>
Dentate	96.4	92.2	92.6
Edentulous	*3.6	7.8	7.4
65+ years	<i>n=9</i>	<i>n=1484</i>	<i>n=1583</i>
Dentate	†67.3	79.7	80.2
Edentulous	*32.7	20.4	19.8
All	<i>n=278</i>	<i>n=5394</i>	<i>n=6080</i>
Dentate	96.8	91.8	92.2
Edentulous	*3.2	8.3	7.8

* estimate has a relative standard error greater than 25%

† estimate has a standard error greater than 10%

Source: Prospective Adult Dental Programs Survey 1995–96

Periodontal status is presented in Table 4.5 as the worst sextant CPITN score by Indigenous status and age. CPITN scores range from a best score of 'periodontal health' to a worst score of periodontal pockets of 6+ mm. Overall, a higher percentage of Indigenous patients had periodontal pockets of 6+ mm (25.4%) compared to non-Indigenous patients (11.6%). Among 25–44-year-olds, 25.5% of Indigenous patients had periodontal pockets of 6+ mm compared to 8.9% of non-Indigenous patients.

Table 4.5: Periodontal status (worst sextant CPITN score) of public-funded dental patients by Indigenous status – dentate patients

	Indigenous status		Total
	Indigenous	Non-Indigenous	
	%	%	%
18–24 years	n=45	n=470	n=549
Periodontal health	*1.5	11.0	10.1
Bleeding	*15.0	20.8	23.4
Calculus	†64.0	49.0	47.9
Pockets 4–5 mm	*16.7	17.1	16.4
Pockets 6+ mm	*2.9	*2.1	*2.2
25–44 years	n=119	n=1546	n=1779
Periodontal health	*4.0	6.7	7.0
Bleeding	*7.7	10.4	10.0
Calculus	44.3	52.3	51.0
Pockets 4–5 mm	*18.6	21.7	22.3
Pockets 6+ mm	25.5	8.9	9.7
45–64 years	n=48	n=1168	n=1300
Periodontal health	*2.0	4.8	5.1
Bleeding	*15.0	9.1	9.2
Calculus	*19.2	37.8	36.5
Pockets 4–5 mm	*23.1	30.3	30.2
Pockets 6+ mm	40.8	18.1	18.9
65+ years	n=6	n=938	n=991
Periodontal health	0.0	6.8	6.7
Bleeding	0.0	13.6	12.6
Calculus	*19.3	36.9	36.3
Pockets 4–5 mm	*65.8	29.2	30.5
Pockets 6+ mm	*14.9	13.7	13.9
All	n=230	n=4254	n=4775
Periodontal health	*2.9	7.1	7.1
Bleeding	*10.7	12.5	12.4
Calculus	39.5	44.3	43.4
Pockets 4–5 mm	21.6	24.7	25.0
Pockets 6+ mm	25.4	11.6	12.1

* estimate has a relative standard error greater than 25%

† estimate has a standard error greater than 10%

Source: Prospective Adult Dental Programs Survey 1995–96

Coronal caries experience is presented in Table 4.6 by Indigenous status and age. Overall caries experience (DMFT) and numbers of filled and missing teeth were lower among Indigenous compared to non-Indigenous patients, while numbers of decayed teeth were higher. These differences may reflect the older age distribution of non-Indigenous patients. However, there were slightly higher numbers of decayed teeth among Indigenous patients in age groups less than 65 years old.

Table 4.6: Coronal caries experience of public-funded dental patients by Indigenous status – dentate patients

	Indigenous status		Total (mean)
	Indigenous (mean)	Non-Indigenous (mean)	
18–24 years	n=49	n=477	n=566
Decayed	3.45	3.18	3.07
Missing	*0.48	0.74	0.68
Filled	3.49	3.83	3.68
DMFT	7.42	7.74	7.44
25–44 years	n=135	n=1585	n=1857
Decayed	4.17	2.63	2.65
Missing	2.60	2.74	2.80
Filled	3.63	6.80	6.73
DMFT	10.40	12.17	12.18
45–64 years	n=49	n=1272	n=1427
Decayed	2.58	1.46	1.48
Missing	5.87	6.94	7.04
Filled	4.43	7.58	7.51
DMFT	12.89	15.98	16.03
65+ years	n=6	n=1049	n=1123
Decayed	*0.50	1.07	1.07
Missing	*5.31	9.62	9.84
Filled	*6.69	6.55	6.54
DMFT	*12.49	17.25	17.45
All	n=253	n=4522	n=5138
Decayed	3.56	1.94	1.96
Missing	3.09	5.34	5.39
Filled	3.81	6.62	6.55
DMFT	10.47	13.91	13.91

* estimate has a relative standard error greater than 25%

Source: Prospective Adult Dental Programs Survey 1995–96

Root caries experience is presented in Table 4.7 by Indigenous status and age of patient. Overall, root caries experience (DF) was higher among non-Indigenous compared to Indigenous patients. This may reflect the older age distribution of non-Indigenous patients. However, there was higher root caries experience among non-Indigenous patients in each age group.

Table 4.7: Root caries experience of public-funded dental patients by Indigenous status – dentate patients

	Indigenous status		Total (mean)
	Indigenous (mean)	Non-Indigenous (mean)	
18–24 years	n=49	n=477	n=566
Decayed	*0.26	0.19	0.22
Filled	*1.03	0.22	0.21
DF	*0.28	0.40	0.42
25–44 years	n=135	n=1585	n=1857
Decayed	0.24	0.24	0.28
Filled	*0.04	0.20	0.21
DF	0.29	0.44	0.49
45–64 years	n=49	n=1272	n=1427
Decayed	*0.37	0.34	0.34
Filled	*0.12	0.55	0.56
DF	*0.49	0.89	0.90
65+ years	n=6	n=1049	n=1123
Decayed	*0.20	0.33	0.33
Filled	*0.20	0.65	0.33
DF	*0.39	0.98	1.01
All	n=253	n=4522	n=5138
Decayed	*0.30	0.28	0.30
Filled	*0.07	0.41	0.42
DF	0.37	0.69	0.72

* estimate has a relative standard error greater than 25%

Source: Prospective Adult Dental Programs Survey 1995–96

4.4 Provision of services

Provision of diagnostic services is presented in Table 4.8 by Indigenous status and age. A higher percentage of non-Indigenous patients received diagnostic services (91.8%) compared to Indigenous patients (81.4%), with this effect most marked in patients aged over 44 years.

Diagnostic services comprised a higher percentage of services received by non-Indigenous (41.1%) compared to Indigenous patients (30.2%) declining across older age groups, especially for Indigenous patients.

Mean numbers of diagnostic services were higher for non-Indigenous (1.41) than for Indigenous patients (1.07), with low mean numbers of diagnostic services received by Indigenous patients aged over 44 years.

Table 4.8: Provision of diagnostic services to public-funded dental patients by Indigenous status – dentate patients

	Indigenous status		Total
	Indigenous	Non-Indigenous	
18–24 years	<i>n=54</i>	<i>n=509</i>	<i>n=605</i>
Per cent of persons	87.3	93.8	93.4
Per cent of services	35.8	44.3	43.9
Mean services	1.31	1.32	1.34
25–44 years	<i>n=137</i>	<i>n=1687</i>	<i>n=1967</i>
Per cent of persons	90.2	92.7	93.0
Per cent of services	29.7	41.8	41.4
Mean services	1.13	1.54	1.50
45–64 years	<i>n=54</i>	<i>n=1333</i>	<i>n=1497</i>
Per cent of persons	68.6	92.2	92.1
Per cent of services	27.4	40.9	40.6
Mean services	0.86	1.36	1.34
65+ years	<i>n=6</i>	<i>n=1108</i>	<i>n=1186</i>
Per cent of persons	*42.0	89.8	89.7
Per cent of services	*28.7	39.1	39.1
Mean services	*0.60	1.31	1.31
All	<i>n=266</i>	<i>n=4783</i>	<i>n=5428</i>
Per cent of persons	81.4	91.8	91.8
Per cent of services	30.2	41.1	40.8
Mean services	1.07	1.41	1.39

* estimate has a relative standard error greater than 25%

Source: Prospective Adult Dental Programs Survey 1995–96

Table 4.9 presents the provision of preventive services by Indigenous status and age. While overall a similar percentage of Indigenous (14.7%) and non-Indigenous patients (13.3%) received preventive services, a higher percentage of Indigenous patients received such services among younger patients (e.g. 25.9% cf. 11.5% among 18–24-year-old patients).

Preventive services comprised a similar percentage of services for Indigenous (5.6%) and non-Indigenous patients (5.5%), but there was a trend toward higher percentages of preventive services among Indigenous patients in younger age groups.

Overall, mean numbers of preventive services were similar for Indigenous (0.21) and non-Indigenous patients (0.20), but there was a trend toward higher mean numbers of preventive services among Indigenous patients in younger age groups (e.g. 0.34 cf. 0.14 among 18–24-year-old patients).

Table 4.9: Provision of preventive services to public-funded dental patients by Indigenous status – dentate patients

	Indigenous status		Total
	Indigenous	Non-Indigenous	
18–24 years	<i>n=54</i>	<i>n=509</i>	<i>n=605</i>
Per cent of persons	*25.9	11.5	13.4
Per cent of services	*9.3	4.5	4.8
Mean services	*0.34	0.14	0.16
25–44 years	<i>n=137</i>	<i>n=1687</i>	<i>n=1967</i>
Per cent of persons	*17.0	13.3	12.5
Per cent of services	*6.0	5.2	5.2
Mean services	0.23	0.19	0.18
45–64 years	<i>n=54</i>	<i>n=1333</i>	<i>n=1497</i>
Per cent of persons	*5.8	12.4	11.7
Per cent of services	*2.3	5.6	5.5
Mean services	*0.07	0.19	0.18
65+ years	<i>n=6</i>	<i>n=1108</i>	<i>n=1186</i>
Per cent of persons	*9.2	14.0	13.4
Per cent of services	*4.4	6.0	6.0
Mean services	*0.09	0.20	0.20
All	<i>n=266</i>	<i>n=4783</i>	<i>n=5428</i>
Per cent of persons	14.7	13.3	12.8
Per cent of services	5.6	5.5	5.5
Mean services	0.21	0.20	0.19

* estimate has a relative standard error greater than 25%

Source: Prospective Adult Dental Programs Survey 1995–96

Table 4.10 presents the provision of periodontic services by Indigenous status and age. A higher percentage of Indigenous patients (22.4%) received periodontic services compared to non-Indigenous patients (17.9%), with this pattern evident among patients aged less than 45 years.

Periodontic services comprised a slightly higher percentage of services for Indigenous (7.1%) compared to non-Indigenous patients (5.8%), with this trend occurring among patients aged less than 45 years.

Overall, mean numbers of periodontic services were higher for Indigenous (0.25) than for non-Indigenous patients (0.20), with this pattern occurring among patients aged less than 45 years (e.g. 0.46 cf. 0.12 among 18–24-year-old patients).

Table 4.10: Provision of periodontic services to public-funded dental patients by Indigenous status – dentate patients

	Indigenous status		Total
	Indigenous	Non-Indigenous	
18–24 years	<i>n=54</i>	<i>n=509</i>	<i>n=605</i>
Per cent of persons	*42.2	12.2	13.1
Per cent of services	*12.5	4.2	4.6
Mean services	0.46	0.12	0.13
25–44 years	<i>n=137</i>	<i>n=1687</i>	<i>n=1967</i>
Per cent of persons	24.6	18.3	17.5
Per cent of services	*7.0	5.7	5.8
Mean services	0.27	0.21	0.20
45–64 years	<i>n=54</i>	<i>n=1333</i>	<i>n=1497</i>
Per cent of persons	*11.0	18.2	17.1
Per cent of services	*4.2	6.3	6.3
Mean services	*0.13	0.21	0.20
65+ years	<i>n=6</i>	<i>n=1108</i>	<i>n=1186</i>
Per cent of persons	0.0	19.4	18.7
Per cent of services	0.0	6.1	6.1
Mean services	0.00	0.20	0.20
All	<i>n=266</i>	<i>n=4783</i>	<i>n=5428</i>
Per cent of persons	22.4	17.9	17.2
Per cent of services	7.1	5.8	5.9
Mean services	0.25	0.20	0.19

* estimate has a relative standard error greater than 25%

Source: Prospective Adult Dental Programs Survey 1995–96

Provision of oral surgery (extraction) services is presented in Table 4.11 by Indigenous status and age. Overall, a higher percentage of Indigenous patients (50.6%) received extractions compared to non-Indigenous patients (21.4%), with approximately twice the percentage of Indigenous patients receiving extractions among patients aged 25–44 years and older.

Extractions comprised a higher percentage of services for Indigenous (25.7%) than for non-Indigenous (10.8%) patients overall, with this pattern occurring for patients aged 25–44 years and older.

Mean numbers of extractions were higher for Indigenous (0.89) compared to non-Indigenous (0.36) patients overall, with this pattern evident among patients aged 25–44 years and older (e.g. 1.37 cf. 0.39 among 45–64-year-old patients).

Table 4.11: Provision of oral surgery (extraction) services to public-funded dental patients by Indigenous status – dentate patients

	Indigenous status		Total
	Indigenous	Non-Indigenous	
18–24 years	<i>n=54</i>	<i>n=509</i>	<i>n=605</i>
Per cent of persons	*28.2	23.9	24.5
Per cent of services	*10.7	12.7	12.6
Mean services	*0.39	0.38	0.38
25–44 years	<i>n=137</i>	<i>n=1687</i>	<i>n=1967</i>
Per cent of persons	51.2	22.9	23.8
Per cent of services	21.0	10.9	11.2
Mean services	0.80	0.40	0.41
45–64 years	<i>n=54</i>	<i>n=1333</i>	<i>n=1497</i>
Per cent of persons	58.4	21.2	21.5
Per cent of services	43.6	11.6	12.2
Mean services	1.37	0.39	0.41
65+ years	<i>n=6</i>	<i>n=1108</i>	<i>n=1186</i>
Per cent of persons	†85.8	19.7	20.5
Per cent of services	*40.7	9.1	9.2
Mean services	0.86	0.31	0.33
All	<i>n=266</i>	<i>n=4783</i>	<i>n=5428</i>
Per cent of persons	50.6	21.4	22.1
Per cent of services	25.7	10.8	11.2
Mean services	0.89	0.36	0.38

* estimate has a relative standard error greater than 25%

† estimate has a standard error greater than 10%

Source: Prospective Adult Dental Programs Survey 1995–96

Table 4.12 presents provision of endodontic services by Indigenous status and age. Overall, a similar percentage of Indigenous (5.4%) and non-Indigenous patients (3.5%) received endodontic services, with the only difference occurring among 45–64-year-old patients (8.9% cf. 2.4%).

Endodontic services comprised a similar percentage of services for Indigenous (3.7%) and non-Indigenous (2.3%) patients overall, however they comprised a higher percentage of services for Indigenous (5.6%) compared to non-Indigenous patients (1.7%) among 45–64-year-old patients.

Overall, mean numbers of endodontic services were similar for Indigenous (0.13) and non-Indigenous patients (0.08), but they were higher for Indigenous (0.18) than for non-Indigenous patients (0.06) among 45–64-year-olds.

Table 4.12: Provision of endodontic services to public-funded dental patients by Indigenous status – dentate patients

	Indigenous status		Total
	Indigenous	Non-Indigenous	
18–24 years	<i>n=54</i>	<i>n=509</i>	<i>n=605</i>
Per cent of persons	*9.0	6.1	6.2
Per cent of services	*3.1	3.9	3.9
Mean services	*0.11	0.12	0.11
25–44 years	<i>n=137</i>	<i>n=1687</i>	<i>n=1967</i>
Per cent of persons	*2.8	4.3	4.1
Per cent of services	*3.1	2.7	2.7
Mean services	*0.12	0.10	0.09
45–64 years	<i>n=54</i>	<i>n=1333</i>	<i>n=1497</i>
Per cent of persons	*8.9	2.4	2.5
Per cent of services	*5.6	1.7	1.8
Mean services	*0.18	0.06	0.06
65+ years	<i>n=6</i>	<i>n=1108</i>	<i>n=1186</i>
Per cent of persons	0.0	2.3	2.1
Per cent of services	0.0	1.9	1.9
Mean services	0.00	*0.07	*0.06
All	<i>n=266</i>	<i>n=4783</i>	<i>n=5428</i>
Per cent of persons	*5.4	3.5	3.4
Per cent of services	*3.7	2.3	2.4
Mean services	*0.13	0.08	0.08

* estimate has a relative standard error greater than 25%

Source: Prospective Adult Dental Programs Survey 1995–96

Provision of restorative services is presented in Table 4.13 by Indigenous status and age. A similar percentage of Indigenous (30.3%) and non-Indigenous patients (31.0%) received restorative services overall, while the low percentage of Indigenous patients aged 65 years or more receiving restorative services (9.2%) is most likely to be the result of the small numbers of patients in this cell.

Overall, restorative services comprised a similar percentage of services for Indigenous (20.1%) and non-Indigenous patients (22.9%). While there was a trend toward restorative services comprising a lower percentage of services among Indigenous patients in older age groups, this may reflect smaller numbers of patients in these cells.

Mean numbers of restorative services were similar overall for Indigenous (0.72) and non-Indigenous patients (0.78). Low mean numbers of restorative services were received by Indigenous patients aged 65 years or more (0.09) but this estimate was based on a small number of patients.

Table 4.13: Provision of restorative services to public-funded dental patients by Indigenous status – dentate patients

	Indigenous status		Total
	Indigenous	Non-Indigenous	
18–24 years	<i>n</i>=54	<i>n</i>=509	<i>n</i>=605
Per cent of persons	*37.4	28.2	28.1
Per cent of services	22.0	22.7	22.7
Mean services	0.81	0.68	0.65
25–44 years	<i>n</i>=137	<i>n</i>=1687	<i>n</i>=1967
Per cent of persons	38.5	32.7	31.5
Per cent of services	25.7	25.8	25.8
Mean services	0.97	0.95	0.90
45–64 years	<i>n</i>=54	<i>n</i>=1333	<i>n</i>=1497
Per cent of persons	*15.1	29.5	28.5
Per cent of services	*10.0	20.8	20.6
Mean services	*0.31	0.69	0.67
65+ years	<i>n</i>=6	<i>n</i>=1108	<i>n</i>=1186
Per cent of persons	*9.2	31.1	30.2
Per cent of services	*4.4	21.0	20.9
Mean services	*0.09	0.70	0.68
All	<i>n</i>=266	<i>n</i>=4783	<i>n</i>=5428
Per cent of persons	30.3	31.0	30.1
Per cent of services	20.1	22.9	22.9
Mean services	0.72	0.78	0.75

* estimate has a relative standard error greater than 25%

Source: Prospective Adult Dental Programs Survey 1995–96

Table 4.14 presents provision of crown and bridge services by Indigenous status and age. Overall, a low percentage of both Indigenous (0.2%) and non-Indigenous patients (2.5%) received crown and bridge services. While there was a trend towards higher percentages of non-Indigenous patients receiving crown and bridge services in age groups 25–44 years and older, the highest percentage was only 3.3% of non-Indigenous patients aged 65 years or more.

Crown and bridge services comprised a low percentage of services for both Indigenous (0.1%) and non-Indigenous (0.9%) patients overall.

Mean numbers of crown and bridge services were low for both Indigenous (0.00) and non-Indigenous (0.03) patients overall. The highest mean number of crown and bridge services was received by non-Indigenous patients aged 45–64 years (0.04).

Table 4.14: Provision of crown and bridge services to public-funded dental patients by Indigenous status – dentate patients

	Indigenous status		Total
	Indigenous	Non-Indigenous	
18–24 years	<i>n=54</i>	<i>n=509</i>	<i>n=605</i>
Per cent of persons	*1.3	*0.4	*0.4
Per cent of services	*0.3	*0.2	*0.2
Mean services	*0.01	0.01	0.01
25–44 years	<i>n=137</i>	<i>n=1687</i>	<i>n=1967</i>
Per cent of persons	0.0	2.5	2.2
Per cent of services	0.0	0.9	0.9
Mean services	0.00	*0.03	0.03
45–64 years	<i>n=54</i>	<i>n=1333</i>	<i>n=1497</i>
Per cent of persons	0.0	2.9	2.6
Per cent of services	0.0	1.1	1.1
Mean services	0.00	0.04	*0.03
65+ years	<i>n=6</i>	<i>n=1108</i>	<i>n=1186</i>
Per cent of persons	0.0	3.3	3.0
Per cent of services	0.0	1.0	1.0
Mean services	0.00	*0.03	*0.03
All	<i>n=266</i>	<i>n=4783</i>	<i>n=5428</i>
Per cent of persons	*0.2	2.5	2.3
Per cent of services	*0.1	0.9	0.9
Mean services	0.00	0.03	0.03

* estimate has a relative standard error greater than 25%

Source: Prospective Adult Dental Programs Survey 1995–96

Table 4.15 presents provision of prosthodontic services by Indigenous status and age. Overall, a similar percentage of Indigenous (5.1%) and non-Indigenous patients (7.9%) received prosthodontic services. The highest percentage of patients receiving prosthodontic services was recorded for non-Indigenous patients aged 65 years or more (16.3%).

Prosthodontic services comprised a low percentage of services for both Indigenous (4.2%) and non-Indigenous patients (6.3%) overall, with no consistent trends by age.

Mean numbers of prosthodontic services were lower for Indigenous (0.15) compared to non-Indigenous (0.21) patients overall, which may reflect the older age distribution of non-Indigenous patients in the sample.

Table 4.15: Provision of prosthodontic services to public-funded dental patients by Indigenous status – dentate patients

	Indigenous status		Total
	Indigenous	Non-Indigenous	
18–24 years	n=54	n=509	n=605
Per cent of persons	*3.3	*1.3	*1.3
Per cent of services	*0.9	*1.0	*1.0
Mean services	*0.03	*0.03	*0.03
25–44 years	n=137	n=1687	n=1967
Per cent of persons	*5.0	3.3	3.1
Per cent of services	*4.6	2.3	2.4
Mean services	*0.17	0.08	0.08
45–64 years	n=54	n=1333	n=1497
Per cent of persons	*4.4	9.4	8.8
Per cent of services	*4.5	8.6	8.5
Mean services	*0.14	0.29	0.26
65+ years	n=6	n=1108	n=1186
Per cent of persons	*9.2	16.3	15.8
Per cent of services	*17.5	12.3	12.3
Mean services	*0.37	0.41	0.39
All	n=266	n=4783	n=5428
Per cent of persons	*5.1	7.9	7.4
Per cent of services	4.2	6.3	6.3
Mean services	*0.15	0.21	0.20

* estimate has a relative standard error greater than 25%

Source: Prospective Adult Dental Programs Survey 1995–96

Provision of temporary services is presented in Table 4.16 by Indigenous status and age. Overall, low percentages of both Indigenous (3.8%) and non-Indigenous patients (7.8%) received temporary services, with higher percentages of non-Indigenous patients receiving temporary services in each age group.

Temporary services comprised a low percentage of services for both Indigenous (1.4%) and non-Indigenous (2.8%) patients overall. There were higher percentages of temporary services for non-Indigenous patients in each age group.

Mean numbers of temporary services tended to be lower among Indigenous patients (0.05) compared to non-Indigenous (0.10) patients overall, with this pattern being observed consistently in each age group.

Table 4.16: Provision of temporary services to public-funded dental patients by Indigenous status – dentate patients

	Indigenous status		Total
	Indigenous	Non-Indigenous	
18–24 years	<i>n=54</i>	<i>n=509</i>	<i>n=605</i>
Per cent of persons	*3.6	10.5	10.3
Per cent of services	*2.0	4.8	4.7
Mean services	*0.07	0.14	0.14
25–44 years	<i>n=137</i>	<i>n=1687</i>	<i>n=1967</i>
Per cent of persons	*4.7	9.5	8.9
Per cent of services	*1.4	3.3	3.2
Mean services	*0.05	0.12	0.11
45–64 years	<i>n=54</i>	<i>n=1333</i>	<i>n=1497</i>
Per cent of persons	*2.9	6.1	5.8
Per cent of services	*0.9	2.3	2.3
Mean services	*0.03	0.08	0.07
65+ years	<i>n=6</i>	<i>n=1108</i>	<i>n=1186</i>
Per cent of persons	0.0	5.3	5.2
Per cent of services	0.0	1.8	1.8
Mean services	0.00	0.06	0.06
All	<i>n=266</i>	<i>n=4783</i>	<i>n=5428</i>
Per cent of persons	*3.8	7.8	7.4
Per cent of services	*1.4	2.8	2.7
Mean services	*0.05	0.10	0.09

* estimate has a relative standard error greater than 25%

Source: Prospective Adult Dental Programs Survey 1995–96

Provision of miscellaneous services is presented in Table 4.17 by Indigenous status and age. Overall, a low percentage of both Indigenous (6.2%) and non-Indigenous patients (3.9%) received miscellaneous services, with higher percentages of Indigenous patients receiving miscellaneous services in each age group.

Miscellaneous services comprised a low percentage of services for both Indigenous (1.9%) and non-Indigenous (1.4%) patients overall, with no clear trends by age.

Mean numbers of miscellaneous services were similar for Indigenous (0.07) and non-Indigenous (0.05) patients overall, with the largest difference occurring among 18–24-year-old patients (0.12 cf. 0.05 respectively).

Table 4.17: Provision of miscellaneous services to public-funded dental patients by Indigenous status – dentate patients

	Indigenous status		Total
	Indigenous	Non-Indigenous	
18–24 years	<i>n</i>=54	<i>n</i>=509	<i>n</i>=605
Per cent of persons	*9.9	4.3	4.3
Per cent of services	*3.4	1.6	1.7
Mean services	*0.12	0.05	0.05
25–44 years	<i>n</i>=137	<i>n</i>=1687	<i>n</i>=1967
Per cent of persons	*5.4	4.3	4.4
Per cent of services	*1.4	1.4	1.4
Mean services	*0.05	0.05	0.05
45–64 years	<i>n</i>=54	<i>n</i>=1333	<i>n</i>=1497
Per cent of persons	*4.2	3.1	3.1
Per cent of services	*1.3	1.2	1.2
Mean services	*0.04	0.04	0.04
65+ years	<i>n</i>=6	<i>n</i>=1108	<i>n</i>=1186
Per cent of persons	*9.2	4.2	4.4
Per cent of services	*4.4	1.7	1.7
Mean services	*0.09	0.06	0.06
All	<i>n</i>=266	<i>n</i>=4783	<i>n</i>=5428
Per cent of persons	*6.2	3.9	4.0
Per cent of services	*1.9	1.4	1.4
Mean services	*0.07	0.05	0.05

* estimate has a relative standard error greater than 25%

Source: Prospective Adult Dental Programs Survey 1995–96

4.5 Discussion

Emergency care constituted a similar percentage of care for Indigenous and non-Indigenous patients. However, there were some differences in oral health status, with lower percentages of edentulism among Indigenous patients. Among dentate patients, Indigenous patients had a higher percentage with periodontal pockets of 6+ mm and higher numbers of decayed teeth, but lower overall caries experience (DMFT), lower numbers of missing and filled teeth, and lower root caries experience (DF).

Service provision also varied by Indigenous status, with differences in areas such as diagnostic, periodontic, oral surgery (extraction), and endodontic services. Some of these differences in service provision and oral health may reflect confounding by factors such as age.

To control for potential confounding factors, multiple logistic regressions of services received were performed by Indigenous status, controlling for age, type of care, country of birth, language spoken, geographic location, numbers of decayed and missing teeth, numbers of decayed roots, and the presence of periodontal pockets. Differences in service provision by Indigenous status persisted in the area of extractions after controlling for these other factors. Compared to the reference category of non-Indigenous patients, Indigenous patients had higher odds of extraction services (odds ratio, 3.40; 95% confidence interval = 2.02–5.73).

The higher odds of extraction services points to less favourable service provision outcomes for Indigenous patients.

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