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Insurance and use of dental services: National Dental Telephone Interview Survey 2010

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Abbreviations

ABS	Australian Bureau of Statistics
AEC	Australian Electoral Commission
AIHW	Australian Institute of Health and Welfare
ARCPOH	Australian Research Centre for Population Oral Health
CATI	computer-assisted telephone interviewing
CDHP	Commonwealth Dental Health Program
CI	confidence interval
DSRU	Dental Statistics and Research Unit
ERP	estimated resident population
EWP	Electronic White Pages
NDTIS	National Dental Telephone Interview Survey
NSAOH	National Survey of Adult Oral Health

Summary

Dental insurance associated with proportion visiting

'Dental insurance' means private health insurance extras cover (also known as ancillary cover) that includes any form of dental cover. A higher proportion of Australian adults with insurance made a dental visit in the last 12 months (70.9%) than adults without insurance (48.3%). Adults who visited in the last 12 months made 2.3 dental visits on average, and this did not vary between those with and without insurance. This indicates that while insurance may have enabled access to dental care, it did not lead to a greater demand for visits once access had been obtained. A higher proportion of adults with dental insurance visited for a check-up (66.1%) than adults without insurance (50.2%).

Dental insurance related to more preventive care

A higher proportion of adults with insurance had scale and clean services in the previous 12 months (83.5%) than adults without insurance (63.6%). A lower proportion of adults with insurance had fillings (37.2%), than adults without insurance (43.9%). A higher proportion of adults without insurance had extractions (19.0%) than adults with insurance (10.4%). Provision of dentures varied by insurance status, with a lower proportion of adults with insurance receiving dentures (3.2%) than adults without insurance (6.3%). Insurance was associated with a different reason for dental visits and a different pattern of services that was more oriented to prevention and retention of natural teeth.

Similar visit and treatment patterns for cardholders and non-cardholders with dental insurance

Proportions of adults who made a dental visit in the previous 12 months were similar for Australian Government concession cardholders (see Box 1) and non-cardholders with insurance (68.3% and 73.0%) and for adults without insurance (46.4% and 52.1%). Average numbers of dental visits were similar for cardholders and non-cardholders for adults with insurance (2.6 and 2.2 visits) and without (2.4 and 2.3). Cardholders with insurance were far more likely than cardholders without insurance to have visited for a check-up at their most recent dental visit (61.9% and 40.4%).

Proportions of adults who had extractions were similar for cardholders and non-cardholders for adults with insurance (15.2% and 10.4%) and without (23.8% and 17.5%). Proportions of adults who had scale and clean services were similar for cardholders and non-cardholders for adults with insurance (81.2% and 83.4%) and without (57.3% and 67.4%).

1 Introduction

Background

In Australia, more than two-thirds of total health expenditure is funded by government, with the majority coming from the Australian Government primarily through Medicare and the Pharmaceutical Benefits Scheme (AIHW 2010). In addition, there are a range of dental insurance products supported by an Australian Government private health insurance rebate.

Most dental care is provided through the private sector, with the majority of dentists in private practice (ARCPOH 2010). Adults accessing private dental care usually pay directly out of pocket or indirectly through private health insurance. Disadvantaged groups that are not eligible for public dental services may have difficulty accessing regular private oral health services due to the cost, while those eligible for public dental care may face long waiting times for care (NACOH 2004).

Insurance

Insurance may be considered an enabling factor that can assist in access to health care (Kiyak 1987). Having dental insurance has been identified as a buffer against the financial burden of dental care. The likelihood of avoiding or delaying dental care or the likelihood of forgoing recommended dental treatment due to cost were lower for Australian adults with insurance (Slade et al. 2007).

Insurance status has been related to use and mix of dental services, and oral health (Manning et al. 1985; Bailit et al. 1985; Mueller & Monheit 1988). Dental service patterns have also been associated with visit patterns. A service mix less oriented to preventive care and tooth retention has been associated with emergency visits after controlling for insurance status (Brennan, Spencer & Szuster 1997).

Focus of this publication

This publication examines dental insurance and use of dental services to answer the following questions:

- Who has insurance?
- Do adults with insurance visit the dentist more often?

Among those making visits the following questions are examined:

- Is possession of insurance related to more dental visits?
- Are check-up visits more common for those with insurance?
- Does the type of dental treatment relate to insurance?
- Do visit and treatment patterns by insurance differ by cardholder status?

This publication is based on the 2010 National Dental Telephone Interview Survey (NDTIS) using data from adults aged 18 or older who were dentate (that is, had some of their own natural teeth). The survey was conducted from July to December 2010, with some final interviews completed during January 2011. Further details on methods are in Appendix A.

2 Who has dental insurance?

For this report, people with dental insurance means people with general treatment insurance (commonly sold as 'extras cover'), which usually includes dental insurance.

In Australia, 53.0% of the population had general treatment insurance (PHIAC Quarterly Statistics, December quarter 2011).

People with insurance include those with high or low levels of dental benefits and those with good access or limited access to a dentist (related to geographic remoteness, variation in workforce distribution and shortages in supply and availability of services).

Possession of dental insurance varies with a range of population characteristics. Age and sex are two commonly used demographic measures. Cardholder status is presented as a measure of socioeconomic status.

Box 1. Why are results reported by cardholder status?

Cardholder status is used to determine eligibility for free or subsidised dental care provided by state and territory governments. Cardholders are persons who hold an Australian Government concession card by virtue of their household income.

The level of dental insurance was higher for non-cardholders than cardholders and varied by age groups, being highest among those aged 45–64 (Figure 2.1). Males and females had similar levels of dental insurance.

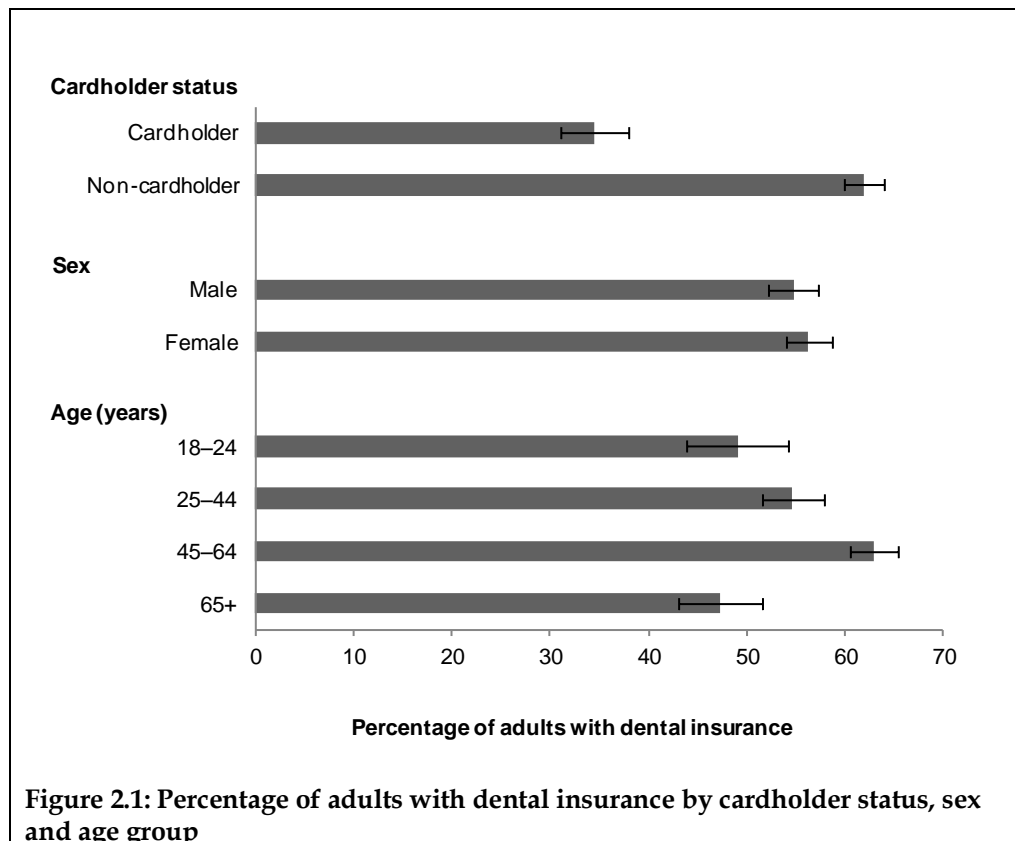


Figure 2.1: Percentage of adults with dental insurance by cardholder status, sex and age group

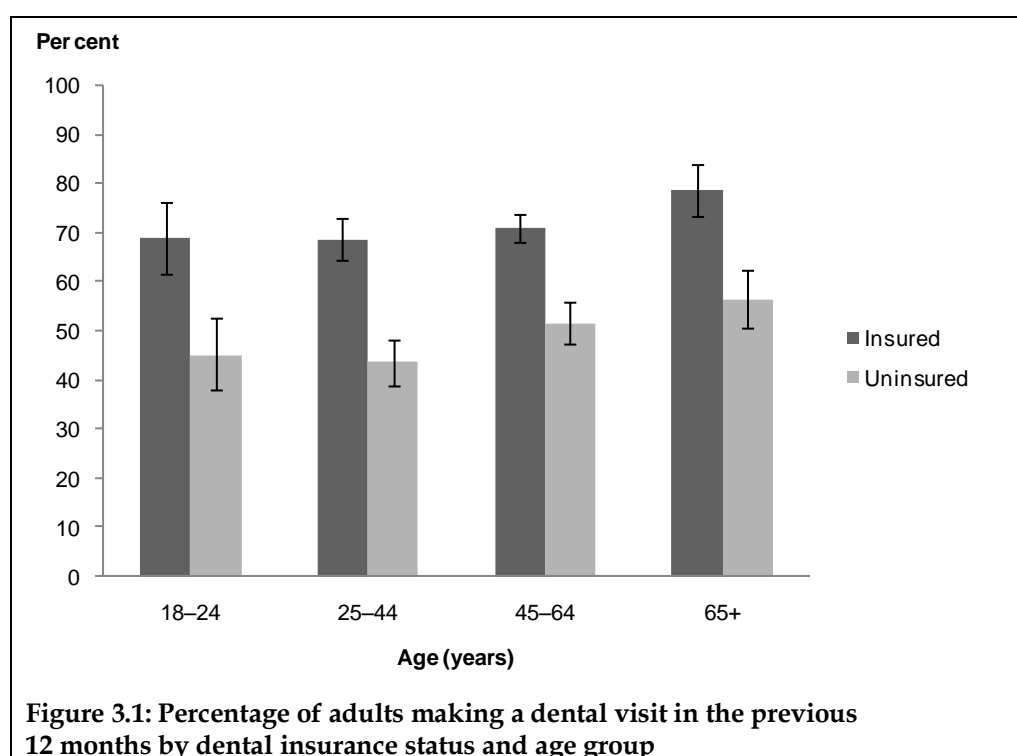
3 Do more adults with dental insurance visit the dentist?

Frequency of visits is a key indicator of access to dental care. Some visits will be for a check-up, while others may be prompted by a dental problem.

Among Australian adults, the majority (60.6%) made a dental visit in the previous 12 months (Table 3.1 and Table B.3). In all age groups, a higher proportion of adults with insurance made a dental visit in the last 12 months (70.9%) than adults without insurance (48.3%).

Table 3.1: Percentage of adults who made a dental visit in the previous 12 months by dental insurance status

		Insured	Uninsured	All
Dental visiting	Per cent	70.9	48.3	60.6
	95% CI	68.7, 73.1	45.6, 51.0	58.9, 62.4



4 Do adults with dental insurance visit more often?

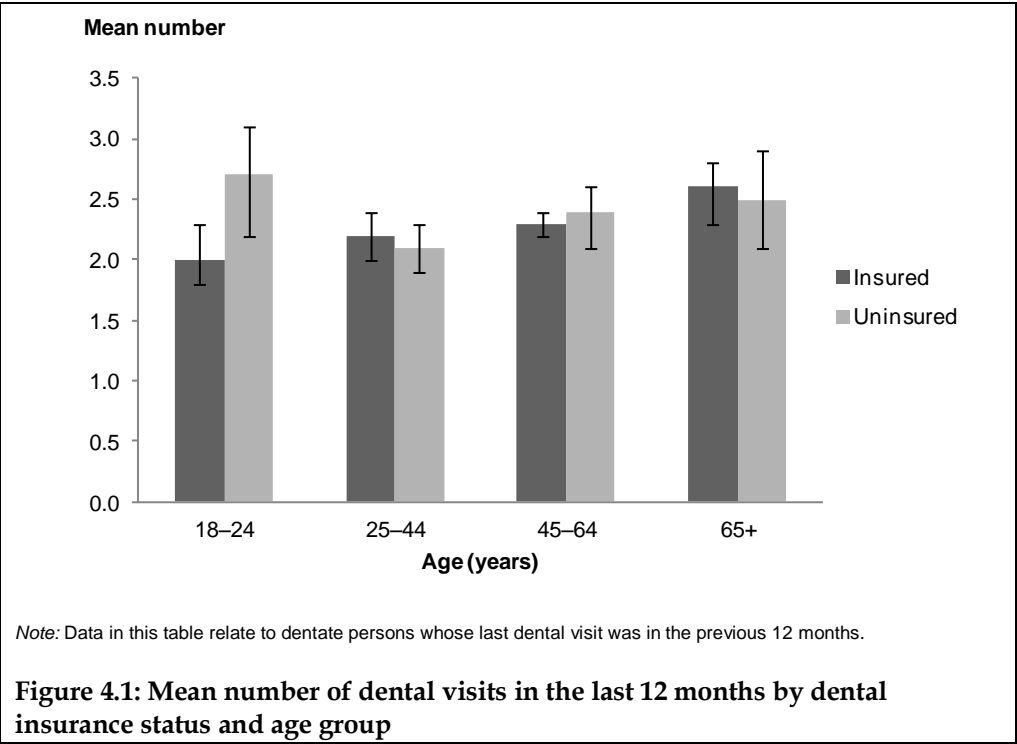
For those who access dental care, the number of dental visits provides a measure of the intensity of the services provided.

Australian adults who visited in the last 12 months made a mean number of 2.3 visits, and this did not vary between adults with or without insurance (Table 4.1), or by age group (Figure 4.1 and Table B.7).

Table 4.1: Mean number of dental visits in the previous 12 months by dental insurance status^(a)

		Insured	Uninsured	All
Dental visits	Mean	2.3	2.3	2.3
	95% CI	2.2, 2.4	2.2, 2.5	2.2, 2.4

(a) Dentate adults who visited in last 12 months.



5 Are check-up visits more common for those with dental insurance?

For those who access dental care, whether they have a check-up provides an indication of the type of care received. The dental profession widely recommends that people should attend for a dental check-up each 12 months (Slade et al. 2007). The rationale is that this enables the provision of preventive care, early diagnosis of dental problems and timely treatment of dental disease.

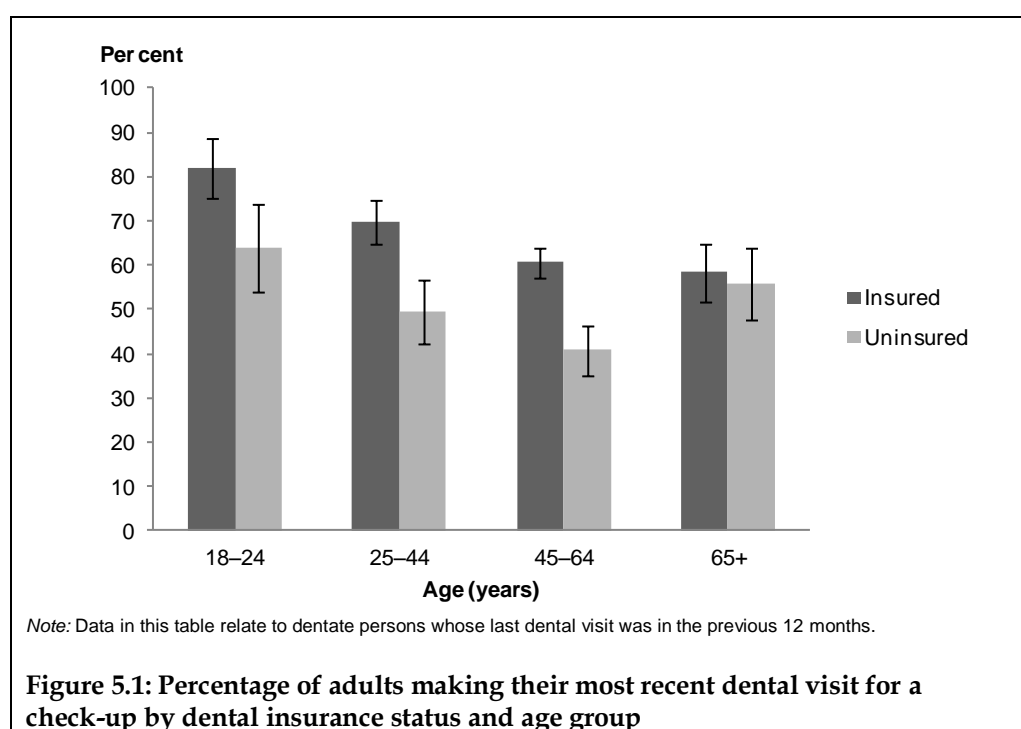
For adults who had visited in the last 12 months, 60.6% made their most recent dental visit for a check-up (Table 5.1). A higher proportion of adults with dental insurance visited for a check-up (66.1%) than adults without insurance (50.2%).

Table 5.1: Percentage of adults whose most recent dental visit was for a check-up by dental insurance status^(a)

		Insured	Uninsured	All
Check-up visit	Per cent	66.1	50.2	60.6
	95% CI	63.6, 68.7	46.5, 54.0	58.5, 62.7

(a) Dentate adults who visited in last 12 months.

The proportion of adults making check-up visits was significantly higher for adults with insurance than adults without insurance in all age groups except for adults aged 65 or older (Figure 5.1 and Table B.17).



6 Does the type of treatment vary with dental insurance status?

The type of treatment received can reflect the timeliness of dental care. Ideally, dental care is sought regularly to maximise opportunities for prevention or, if disease has occurred, to moderate the underlying experience of disease. Early intervention enables treatments that restore form and function of the teeth and surrounding structures, and this usually involves fillings. When there is no early intervention, teeth may have to be extracted rather than filled.

Tooth extraction may be used to relieve pain, but the natural teeth lost may need to be replaced by bridges or dentures. Root canal treatment may be an alternative to extractions for treating infections of the tooth and tooth root. Fillings and crowns can be used to restore tooth structure lost to decay or tooth fracture. Gum treatment can treat gum infections that can lead to tooth loss, while scale and clean services are preventive in nature.

6.1 Extractions

Dental extractions can occur for a variety of reasons, such as dental decay and gum disease. Extraction of teeth reflects not only oral disease but factors such as patient and provider attitudes, access issues and treatment philosophies (Weintraub & Burt 1985).

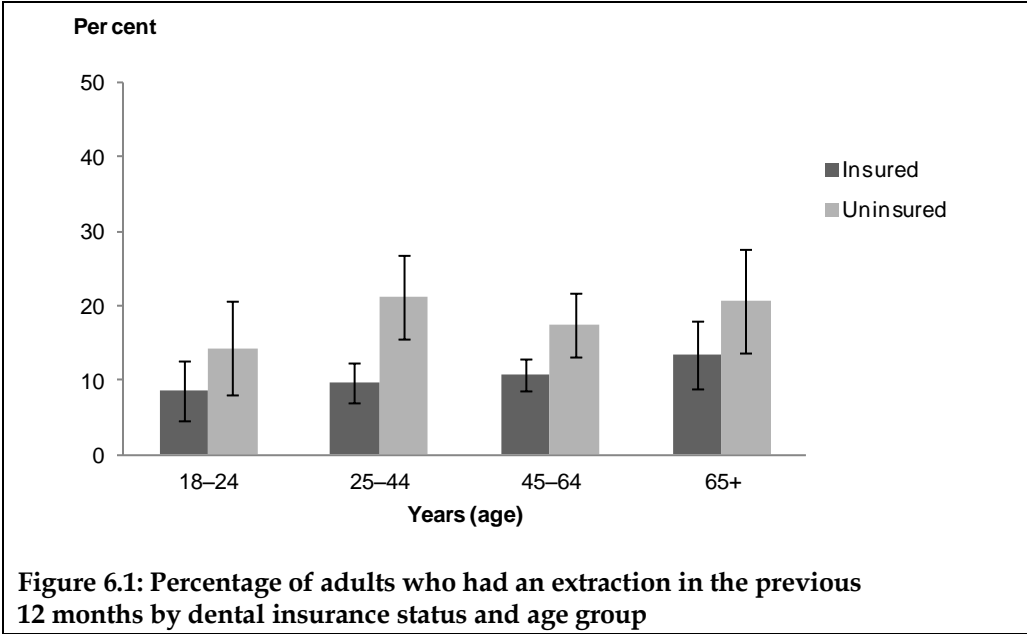
For Australian adults making a dental visit in the last 12 months, 13.4% had extractions (Table 6.1). A higher proportion of adults without insurance had extractions (19.0%) than adults with insurance (10.4%).

Table 6.1: Percentage of adults who had an extraction in the previous 12 months by dental insurance status^(a)

		Insured	Uninsured	All
Extractions	Per cent	10.4	19.0	13.4
	95% CI	8.9, 11.9	16.1, 22.0	12.0, 14.8

(a) Dentate adults who visited in last 12 months.

While the proportion of adults who had extractions was lower for those with insurance than adults without insurance in all age groups (Figure 6.1 and Table B.11), statistically significant differences were observed in the 25-44 and 45-64 age groups only.



6.2 Fillings

Fillings are restorative services generally provided to treat dental decay. They can help prevent loss of natural teeth and restore tooth function.

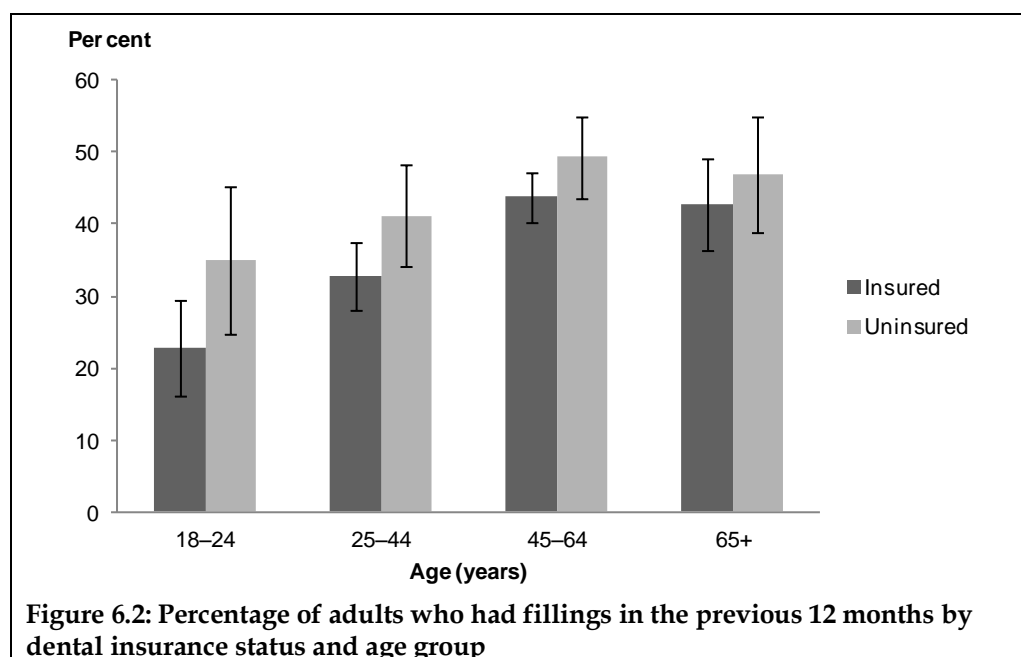
The proportion of adults who had fillings in the previous 12 months was 39.3% (Table 6.2). A lower proportion of adults with insurance had fillings (37.2%), than adults without insurance (43.9%).

Table 6.2: Percentage of adults who had a filling in the previous 12 months by dental insurance status^(a)

		Insured	Uninsured	All
Fillings	Per cent	37.2	43.9	39.3
	95% CI	34.6, 39.7	40.1, 47.6	37.2, 41.4

(a) Dentate adults who visited in last 12 months.

While there was a consistent pattern with a lower percentage of adults with insurance receiving fillings than adults without insurance in each age group (Figure 6.2 and Table B.13), these differences were not statistically significant (see Appendix B).



6.3 Scale and clean services

Scale and clean services are preventive treatments to remove dental plaque and calculus.

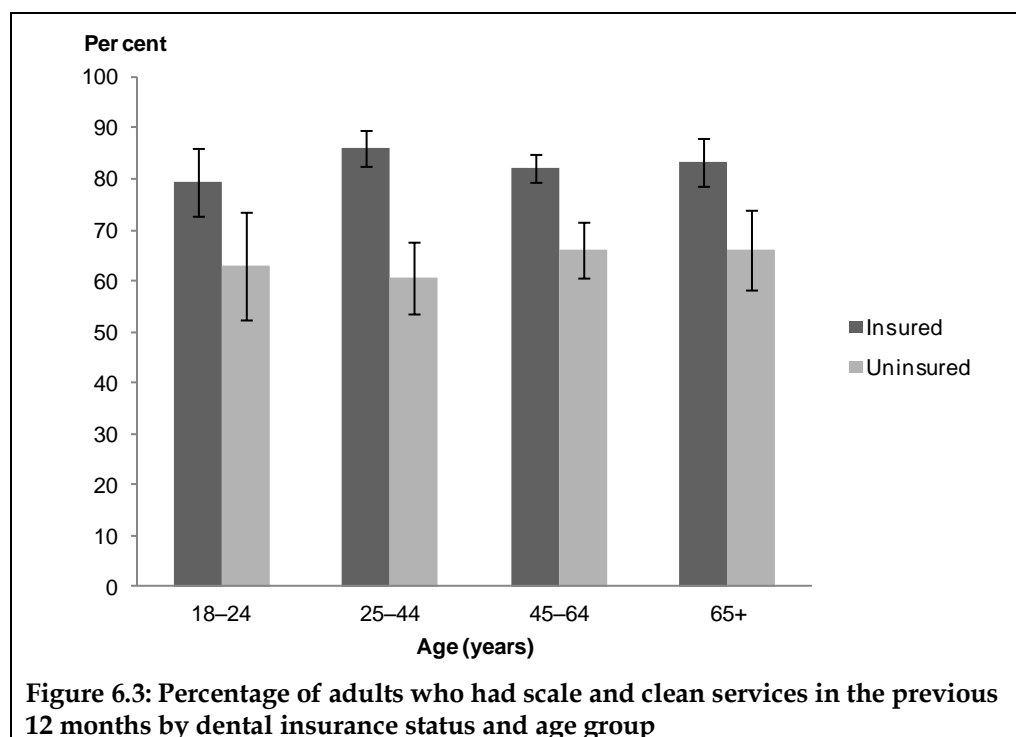
About three-quarters of adults (76.3%) who visited in the last 12 months had scale and clean services (Table 6.3). A higher proportion of adults with dental insurance had scale and clean services in the previous 12 months (83.5%) than adults without insurance (63.6%).

Table 6.3: Percentage of adults who had a scale and clean in the previous 12 months by dental insurance status^(a)

		Insured	Uninsured	All
Scale and clean	Per cent	83.5	63.6	76.3
	95% CI	81.6, 85.4	59.9, 67.4	74.4, 78.2

(a) Dentate adults who visited in last 12 months.

There was a consistent pattern of a higher proportion of adults with insurance who had scale and clean services than adults without insurance in all age groups (Figure 6.3). However, the difference for adults aged 18–24 was not statistically significant (see Table B.15).



6.4 Root canal treatment

Root canal services are provided to treat infections in the tooth and tooth root. They can help prevent tooth loss by averting other alternative treatments such as extraction.

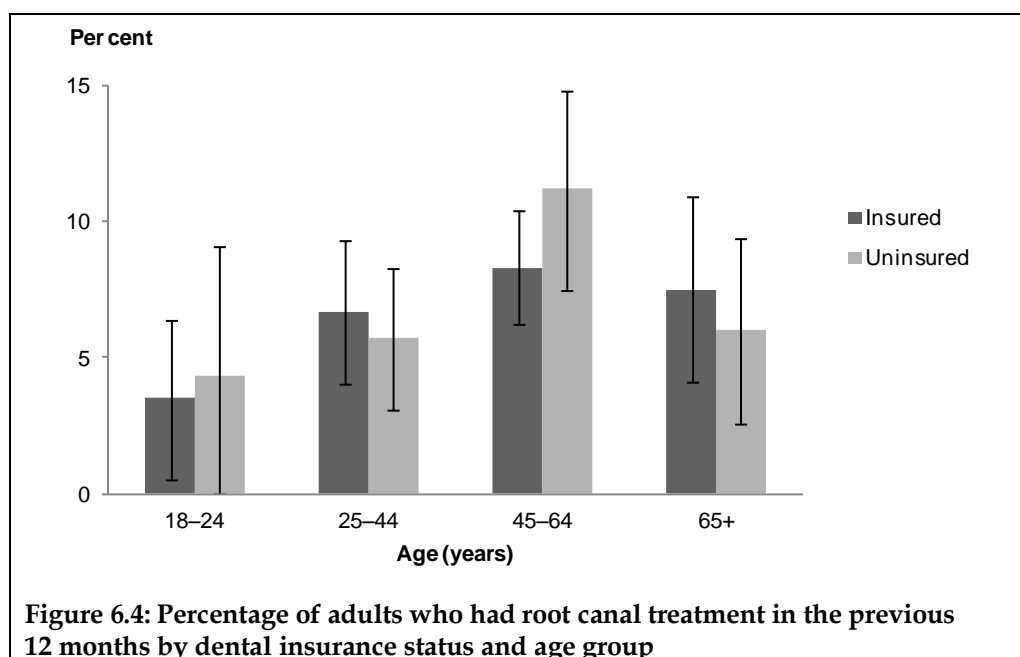
For adults who visited in the last 12 months, a small proportion (7.0%) had root canal treatment (Table 6.4), and the proportion was similar for adults with insurance (7.0%) and without insurance (7.2%).

Table 6.4: Percentage of adults who had root canal treatment in the previous 12 months by dental insurance status^(a)

		Insured	Uninsured	All
Root canal treatment	Per cent	7.0	7.2	7.0
	95% CI	5.6, 8.4	5.4, 8.9	5.9, 8.1

(a) Dentate adults who visited in last 12 months.

Provision of root canal treatment among those who visited in the last 12 months showed no consistent pattern by insurance status across age groups (Figure 6.4 and Table B.19).



6.5 Crowns and bridges

Dental crowns are provided to restore tooth structure that has been lost (for example, as a result of cuspal fracture of a tooth). Bridges replace lost teeth with artificial teeth attached to adjoining natural teeth.

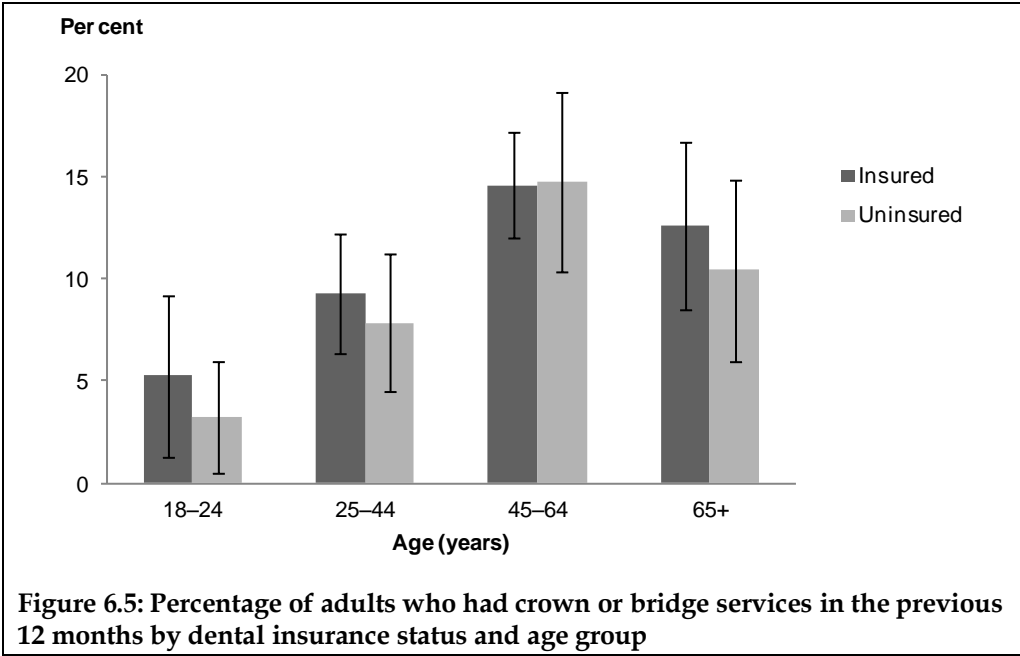
Almost 11% of adults who visited in the last 12 months had crown or bridge services (Table 6.5). A similar percentage of adults with insurance had crowns or bridges (11.3%) compared with adults without insurance (9.8%).

Table 6.5: Percentage of adults who had a crown or bridge in the previous 12 months by dental insurance status^(a)

		Insured	Uninsured	All
Crown or bridge	Per cent	11.3	9.8	10.7
	95% CI	9.6, 12.9	7.7, 11.8	9.4, 11.9

(a) Dentate adults who visited in last 12 months.

While provision of crown and bridge services for those who visited in the last 12 months tended to be higher for adults with insurance than adults without insurance in most age groups (Figure 6.5), the differences were not statistically significant for any age group (see Table B.21).



6.6 Gum treatment

Gum treatment is provided to treat gum infection, which is a major cause of tooth loss in adults.

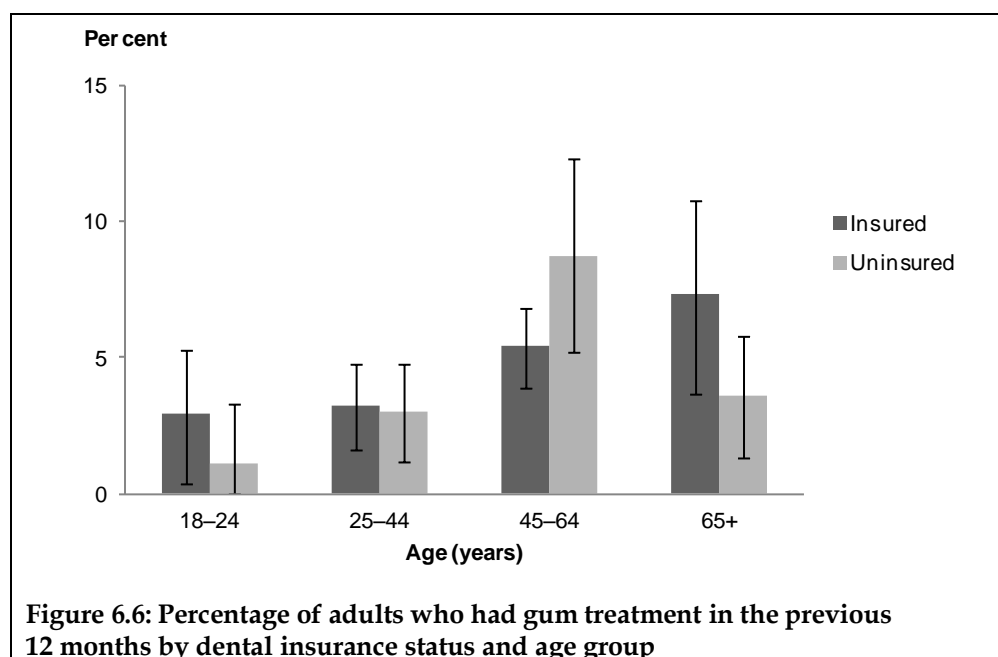
Fewer than 5% of adults who visited in the last 12 months had gum treatment (Table 6.6), and this did not vary between adults with dental insurance and those without.

Table 6.6: Percentage of adults who had gum treatment in the previous 12 months by dental insurance status^(a)

		Insured	Uninsured	All
Gum treatment	Per cent	4.5	4.5	4.5
	95% CI	3.6, 5.5	3.1, 5.9	3.7, 5.3

(a) Dentate adults who visited in last 12 months.

Provision of gum treatment in adults who visited in the last 12 months showed no consistent pattern by dental insurance status across age groups (Figure 6.6 and Table B.23).



6.7 Dentures

Dentures replace natural teeth that have been lost with artificial teeth.

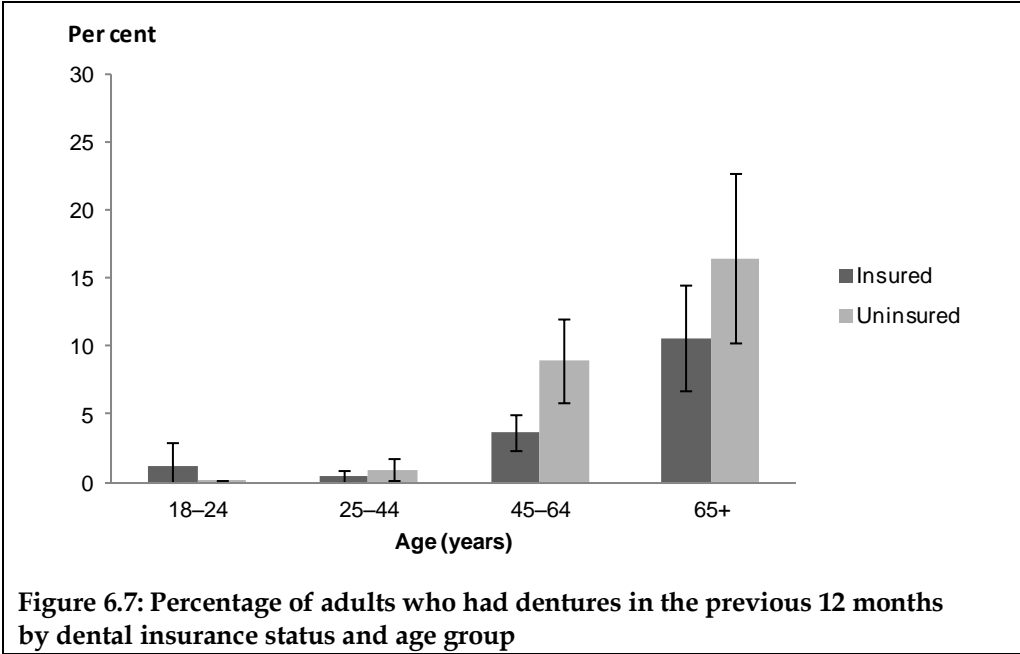
A small proportion of adults who visited in the last 12 months (4.2%) received dentures (Table 6.7). Provision varied by insurance status, with a lower proportion of adults with insurance receiving dentures (3.2%) than adults without insurance (6.3%).

Table 6.7: Percentage of adults who had a new denture in the previous 12 months by dental insurance status^(a)

		Insured	Uninsured	All
Dentures	Per cent	3.2	6.3	4.2
	95% CI	2.4, 4.0	4.6, 7.9	3.5, 5.0

(a) Dentate adults who visited in last 12 months.

The proportion of adults receiving dentures among those who visited in the last 12 months tended to increase across older age groups (Figure 6.7). While there was little difference in provision among younger age groups, a lower proportion of adults with insurance received dentures than adults without insurance in the two older age groups. However, the differences by insurance status were only statistically significant for the 45–54 age group (see Table B.25).

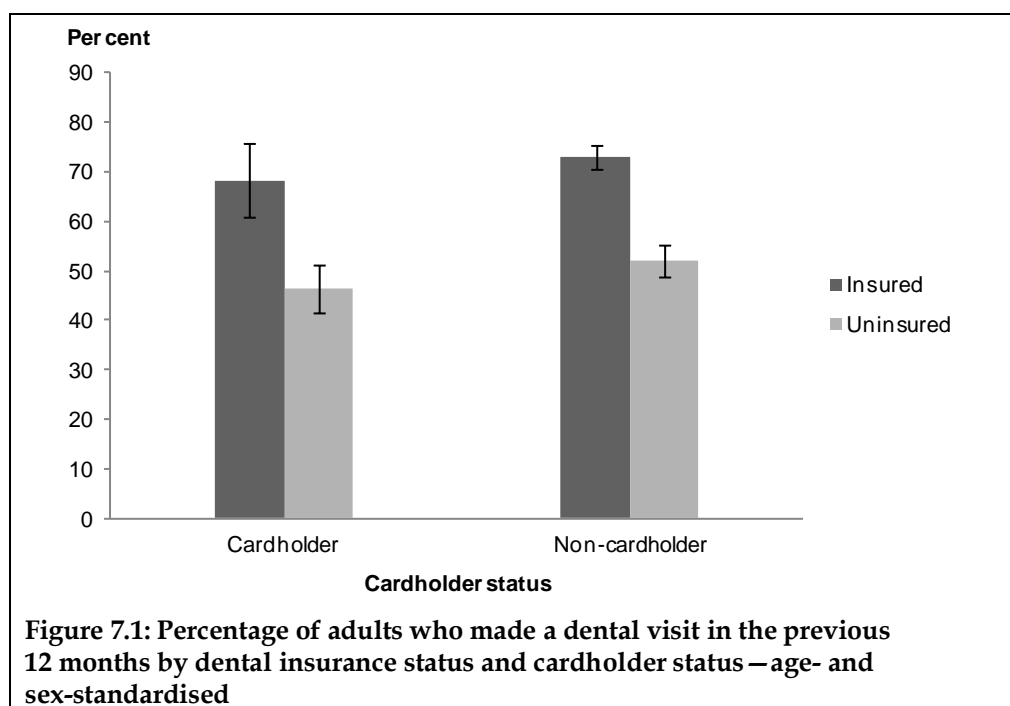


7 Do insurance-related visit patterns vary with cardholder status?

7.1 Percentage visiting in the previous 12 months

In Section 3 it was shown that a higher proportion of adults with dental insurance made a dental visit in the last 12 months than adults without insurance (see Table 3.1). For both cardholders and non-cardholders, the age- and sex-standardised (see Appendix A) estimates of the proportion of adults who made a dental visit in the previous 12 months was higher for adults with insurance than adults without insurance (Figure 7.1).

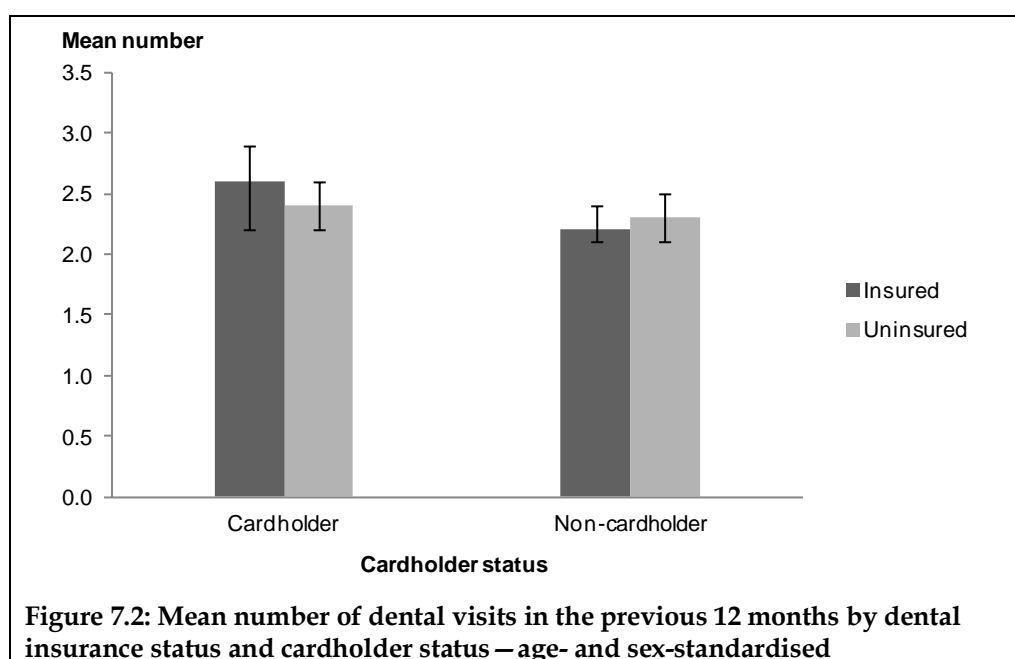
The differences in the proportion visiting in the previous 12 months between cardholders and non-cardholders were not significant either for adults with or without insurance (see Table B.4).



7.2 Mean number of dental visits in the previous 12 months

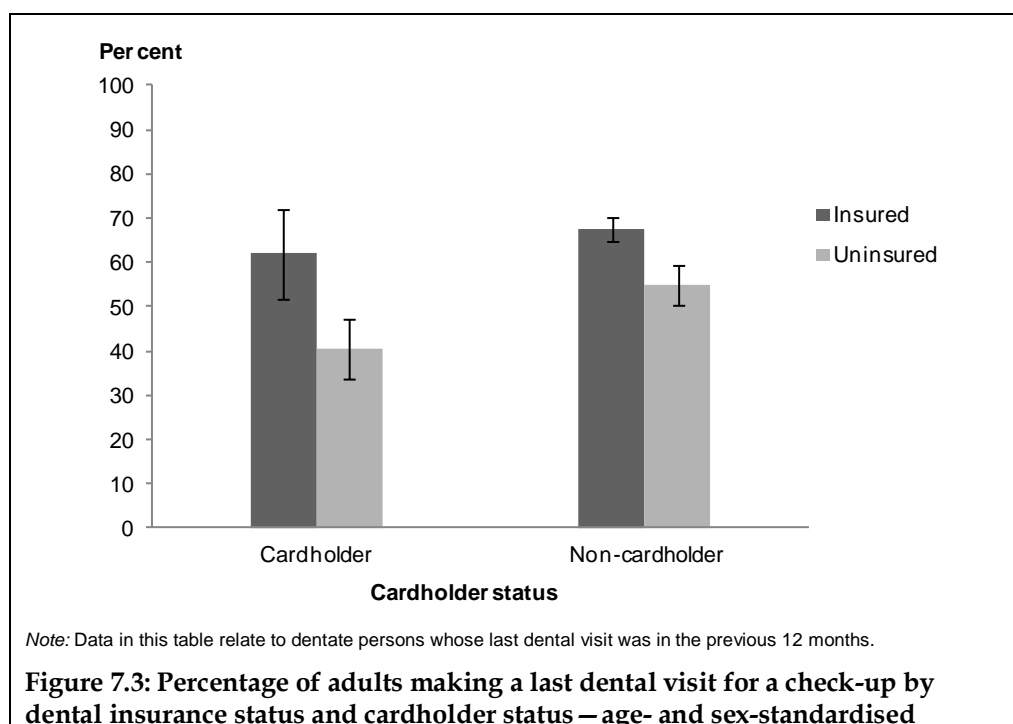
In Section 4 it was shown that the number of dental visits among adults who visited in the last 12 months did not vary between adults with and without dental insurance (see Table 4.1). For both cardholders and non-cardholders who had visited in the last 12 months, the age- and sex-standardised (see Appendix A) estimates of the mean number of dental visits they had in that period were similar by insurance status (Figure 7.2).

The differences in the mean number of dental visits in the previous 12 months between cardholders and non-cardholders were not significant either for adults with or without insurance (see Table B.8).



7.3 Percentage visiting for a dental check-up

In Section 5 it was shown that a higher proportion of adults with insurance had a check-up than adults without insurance (see Table 5.1). Cardholders with insurance were significantly more likely to have had a check-up at their last dental visit (61.9%) than cardholders without insurance (40.4%) (Figure 7.3). Among non-cardholders, those with insurance (67.5%) were also more likely to have had a check-up (67.5%) than non-cardholders without insurance (54.8%). Differences in visiting behaviour by insurance status were more evident among cardholders than non-cardholders (see Table B.10).



8 Do insurance-related treatment patterns vary with cardholder status?

In this section two key services of extraction and scale and clean services (related to tooth loss and prevention respectively) that were shown to vary by dental insurance status are also examined by cardholder status. This section looks at whether treatment patterns by insurance status also differ by cardholder status.

8.1 Extractions

In Section 6.1 it was shown that a higher proportion of adults without insurance had extractions than adults with insurance (Table 6.1). While there was a similar pattern of a lower proportion of adults with insurance who had extractions in the previous 12 months than adults without insurance for both cardholders and non-cardholders (Figure 8.1), the difference was only significant for non-cardholders (see Table B.12).

The differences in the proportion of adults who had extractions among those visiting in the previous 12 months between cardholders and non-cardholders was not significant either for adults with or without insurance (see Table B.12).

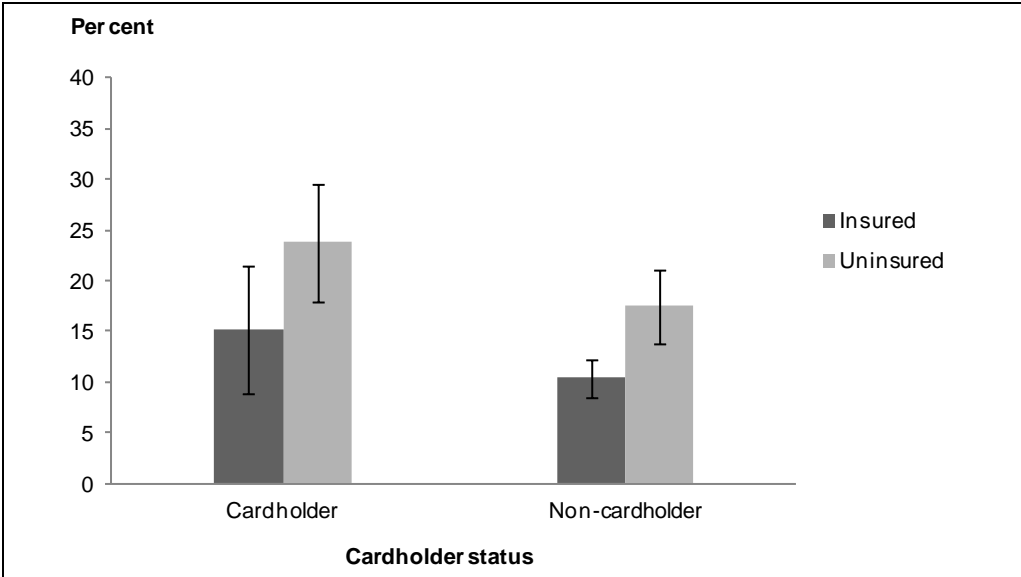
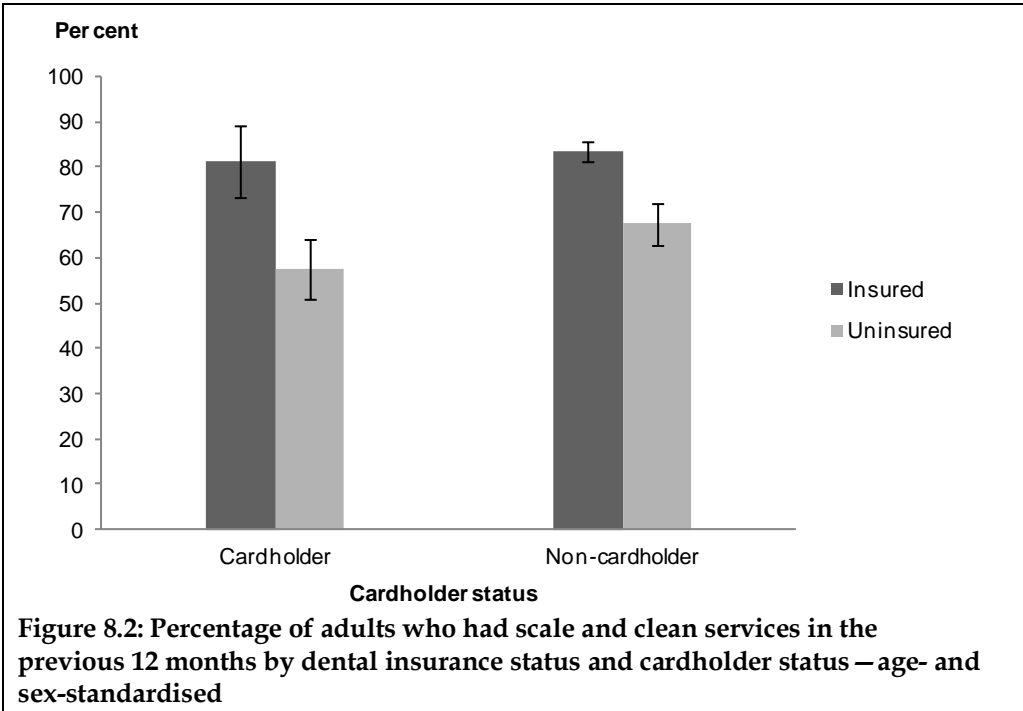


Figure 8.1: Percentage of adults who had extractions in the previous 12 months by dental insurance status and cardholder status – age- and sex-standardised

8.2 Scale and clean services

In Section 6.3 it was shown that a higher proportion of adults with dental insurance had scale and clean services in the previous 12 months than adults without insurance (Table 6.3). For both cardholders and non-cardholders, the age- and sex-standardised estimates of the proportion of adults who had scale and clean services was higher for adults with dental insurance than adults without insurance (Figure 8.2).

The differences in the proportion who had scale and clean services among those who made a dental visit in the previous 12 months between cardholders and non-cardholders was not significant either for adults with or without insurance (see Table B.16).



9 Discussion

The findings showed that aspects of dental visits and types of treatment varied with insurance status.

9.1 Dental visit patterns

Patients who attend a dentist frequently have been shown to have a lower extraction rate than infrequent attenders (Nuttall 1984). Frequent visits may help postpone tooth loss and maintain dental function (Sheiham et al. 1985).

Observational studies such as a birth cohort study from New Zealand have found that routine dental attendance was associated with better self-reported oral health, less tooth loss and lower levels of dental caries (Thomson et al. 2010). Australian data have shown dental visiting is related to decay in adults with people who usually visit for a dental problem having a higher mean number of decayed surfaces than those who visit for a check-up (Slade et al. 2007).

In the current report, dental insurance was related to a higher proportion of people making a dental visit and, among those who made visits, a higher proportion of check-ups. A similar proportion of cardholders with insurance visited in the last 12 months compared with non-cardholders with insurance. Of cardholders who made dental visits, the number of visits was similar for those with and those without insurance.

9.2 Dental treatment

While dental services have been presented separately, the mix of services reflects a profile and provides an indication of access to an acceptable standard of care. In general, a less invasive dental service mix oriented toward prevention and retention of teeth would be accepted as better than a service mix oriented toward emergency care involving relief of pain and loss of natural teeth through extraction.

A number of studies have implicated caries and periodontal disease as major causes of tooth loss (Brennan, Spencer & Szuster 2001). The decision to extract a tooth is not simply a biological process (Eklund & Burt 1994). The most common reason for extraction in a study of an Australian population was that 'the dentist was unable to save the tooth', followed by 'the patient being unwilling to retain the tooth' (Bischof & Brown 1999). How a patient accesses dental treatment is associated with tooth loss, with more extractions among public-funded than private patients in Australia (Brennan, Spencer & Slade 1997).

Fillings may prevent tooth loss and restore function, but can contribute to the restoration cycle of filling and re-filling teeth. It is recognised that many clinical situations are amenable to preventive, non-invasive minimum intervention dentistry (Elderton 1993; Tyas et al. 2000), with the aim of limiting the restoration/re-restoration cycle (White & Eakle 2000).

In this publication, adults with dental insurance showed a pattern of service provision characterised by a lower level of extractions, fillings and dentures, but a higher level of provision of preventive dental care. Cardholders with insurance showed similar levels of extraction and preventive services as non-cardholders with insurance.

Distinctive patterns of service by diagnosis category have been reported (Brennan, Spencer & Szuster 2000), with caries associated with high provision of fillings and extraction services, cuspal fracture and failed restoration with high provision of fillings and crown and bridge services, pulpal/periapical infection with high provision of endodontic (root canal) and extraction services, periodontal (gum) disease with high provision of extraction, and recall maintenance with high provision of diagnostic and preventive services.

In addition, in this publication there were also service patterns associated with both insurance and visit type. These variables have significance regarding the extent to which they may be modified to produce more beneficial outcomes, such as preventing loss of natural teeth.

9.3 Conclusions

While a higher proportion of adults making visits was associated with dental insurance, the mean number of visits for adults was similar regardless of insurance status. This indicates that while insurance may have enabled access to dental care, it did not lead to a greater demand for visits once access had been obtained.

However, adults with insurance were more likely to have a check-up than adults without insurance. This was consistent with differences in types of treatment received by insurance status. Adults with insurance had a higher level of provision of preventive care in the form of scale and clean services, but had less invasive treatment, such as fillings or extractions or replacement of teeth with dentures. This indicated that dental insurance was associated with a different reason for dental visits and a different pattern of services that was more oriented to prevention and retention of natural teeth.

Appendix A: Background to the National Dental Telephone Interview Survey

In a background paper released by the National Health Strategy (*Improving Dental Health in Australia, Background Paper No. 9, 1992*), major concerns were documented on the social inequalities in the receipt of dental services and oral health status among the Australian population. The main theme of the report was the need to improve access to dental care for low-income adults. In addition, the report stressed the need for improved data collection on oral health, including a national dental survey and specific monitoring of an expanded dental program.

Subsequently, the 1992–93 Research Database on Dental Care in Australia was undertaken at The University of Adelaide for the (now) Australian Government Department of Health and Ageing to provide appropriate information for the introduction of the Commonwealth Dental Health Program (CDHP) in 1994.

With the introduction of the CDHP, the Dental Statistics and Research Unit (DSRU) was commissioned to undertake part of the evaluation of the program. Building on experience gained in developing the 1992–93 Research Database on Dental Care in Australia, the DSRU implemented the NDTIS. The NDTIS was conducted in 1994, 1995 and 1996 as part of the evaluation project for the CDHP. When the CDHP finished at the end of 1996, the Australian Government Department of Health and Aged Care funded the DSRU to continue research on ‘adult access to dental care’, and the fourth NDTIS was conducted in 1999. The fifth NDTIS was conducted in 2002 and a sixth in 2004–06 as the computer-assisted telephone interviewing (CATI) component of the National Survey of Adult Oral Health 2004–06 (NSAOH). The 2008 NDTIS and 2010 NDTIS form part of the continued research in this area.

Methods

The target population for the 2010 NDTIS was Australian residents aged 2 and over in all states and territories. The findings in this report concentrate on adults aged 18 or older.

To be able to select a representative sample of residents, a two-stage stratified sample design was implemented. In the first stage, a random sample of households was selected from the Electronic White Pages (EWP). To be able to access the latest version of the EWP, the AIHW DSRU requested that the Australian Electoral Commission (AEC) extract a sample of Australian adults aged 18 or older from the electoral roll database. Electoral roll records do not contain telephone numbers, so the records were matched against the Sensis MacroMatch database by address (which uses the same source data as other Sensis products, such as the EWP and White Pages Online) to append a residential telephone number. Note that only publicly listed telephone numbers (that is, those that would be listed in the White Pages and related products) can be appended under this process. Matched records that returned either a landline or mobile telephone number formed the basis of the sample frame for the 2010 NDTIS.

The sample frame was stratified by state and region where region was defined as metropolitan or non-metropolitan. Records were assigned to strata based on their residential postcode using the ABS product '2006 Postcode to 2009 Stat Div Concordance CA2009SD_2006POA'. Metropolitan strata were defined as the capital city Statistical Division (code 05) and non-metropolitan strata were defined as all other Statistical Divisions (code > 05).

To ensure that target sample sizes were achieved for each stratum and to allow for non-response and non-contacts, all matched records were loaded to the WinCati software program (WinCati 4.2 Sawtooth Technologies, Inc.). Using the inbuilt features of this program, households were randomly selected from each stratum and scheduled to be contacted by telephone.

About 1 week before contacting the household, a primary approach letter explaining the purpose of the survey and encouraging participation was mailed to each sampled household. A toll-free telephone number was provided to allow those who received a primary approach letter to discuss the survey with DSRU staff. When a person contacted the DSRU to decline participation in the survey, they were recorded as a refusal outcome (Table A.2) and were not contacted by interviewers.

A 10 workstation telephone interview laboratory was established by the DSRU and a panel of 38 interviewers recruited to undertake interviews from 2 July 2010 to 18 February 2011. Interviewers were recruited through an advertisement on The University of Adelaide website. Invitations to apply for interviewing positions were also circulated by email among Health Science postgraduate students. The large number of applicants enabled DSRU to recruit interviewers with previous experience in conducting telephone interviews for health research. An interviewer supervisor was also recruited to schedule interviewer shifts and to assist in monitoring the day-to-day operations of the survey. Interviewers were trained by DSRU staff to ensure they understood the survey methodology, research objectives and questionnaire content and were instructed to read questions directly from the computer screen. Sequencing of questions was automatically performed by the WinCati software.

Before the survey began, the questionnaire and interview procedures were pilot tested on randomly selected Adelaide households, and minor modifications implemented. Although 38 people were trained and participated in interviewing, the majority of the interviewing was completed by 19 interviewers.

When a sampled household was called, each attempt was automatically recorded by the WinCati program. Calls were scheduled during weekdays, weeknights and Saturdays to maximise the likelihood of making contact. Each sampled household was initially called up to six times and, where no answer was obtained after six calls, the number was designated as a non-contact.

If telephone contact was made with a household, the interviewer established whether the telephone number served a residential dwelling. Business numbers, hospitals and nursing homes (where the telephone was not within a private room), caravan parks and hotels were excluded from the scope of the survey.

If the household was in-scope of the survey, the second stage of selection involved randomly selecting an adult aged 18 or older and usually living in the household. If there was only one adult usually living in the household, that person was selected as the target adult. If there were two or more adults usually living in the household, the householder was asked to identify the person who was due to have the next birthday as well as the person who had the

last birthday. The WinCati program then randomly selected one of the nominated adults as the target adult to complete the telephone interview.

If the target adult was not available to complete the interview a call back was scheduled for a convenient date and up to six additional calls were made in an attempt to complete an interview. Those who did not wish to participate were designated as refusals. In a small number of instances a proxy adult was asked to complete the interview on behalf of the target adult due to language barriers, illness or because the target person was away from the household for more than 6 weeks. Some interviews were undertaken by the Australian Research Centre for Population Oral Health (ARCPOH) staff in Greek, Vietnamese, Cantonese and Mandarin to overcome language barriers.

After completing the interview with the target adult, the interviewer established whether there were any children aged 2–17 usually living in the household. If there were not, the interview process was completed. If there were children aged 2–17 usually living in the household, then one child was randomly selected using the same technique used to select an adult from the household. The interviewer then established the most appropriate adult to answer questions about the target child’s dental visiting and an interview was completed with that person or scheduled for another time.

The target sample size for the 2010 NDTIS was 6,600 adults aged 18 or older, 400 children aged 2–4 and 3,000 children aged 5–17. The number of survey participants after data editing was completed is in Table A.1.

Table A.1: Number of participants in the 2010 National Dental Telephone Interview Survey

Age (years)	Sample size
2–4	418
5–17	3,054
18–24	649
25–44	2,104
45–64	2,908
65+	1,104
Total	10,237

Weighting of data

Weights were calculated to reflect a person’s probability of selection in the survey. A person was selected if the telephone number of their household was initially selected from the sampling frame, and if they were the target person selected to be interviewed from the household.

The probability of a household being selected from the sampling frame was determined by the stratum the household was assigned to and the proportion of households selected in that stratum. The probability of a person being selected as the target adult to be interviewed was determined by the number of adults aged 18 or older usually living in the household. The probability of a child being selected as the target child to be interviewed was determined by the number of children aged 2–17 usually living in the household.

After the target sample of 400 children aged 2–4 was achieved, only children aged 5–17 were selected from a household. The probability of a child being selected as the target child was determined by the number of children aged 5–17 usually living in the household.

The initial weight for each person was calculated as the inverse of the person's overall probability of being selected in the survey.

Due to differential response rates by age and sex within strata, the initial weights were adjusted to ensure that the age-sex distribution of the sample reflected the Australian population age-sex distribution. Within each of the 15 strata, substrata were defined by age group and sex. The age groups were defined as 2-4, 5-9, 10-14 through to 75-79, 80 or older. Each substratum was linked to the estimated resident population (ERP) for that sub-stratum where the ERPs were obtained from Australian Bureau of Statistics (ABS) Super CUBE data set *Population estimates by age and sex, Australia, by geographical classification* (ASGC 2009) at 30 June 2009 (ABS 2009).

The weight for each respondent was calculated using the following formula:

$$w_{i,j,h,a,s} = \frac{N_{h,a,s}}{\sum_{i \in h,a,s} \left(\frac{M_h}{m_h} \right) * (r_{h,j})} * \left(\frac{M_h}{m_h} \right) * (r_{h,j})$$

where:

i = person

j = household

h = stratum defined as state by region (metropolitan/non-metropolitan)

a = age group (age categories 2-4, 5-9, 10-14, ,....., 75-79, 80 or older)

s = sex (male, female)

$N_{h,a,s}$ = ERP for stratum h, age group a, sex s

M_h = number of households listed on the sampling frame in stratum h

m_h = number of households selected from the sampling frame in stratum h

$r_{h,j}$ = number of adults in the target age group usually living in dwelling j

To enable population estimates from the survey to be compared and inferences to be made about characteristics of the population, 95% confidence intervals (CIs) were produced for each survey estimate. The CIs were calculated using SAS Callable SUDAAN software that incorporates the two-stage sample design used in the 2010 NDTIS. Where sample sizes used to produce survey estimates were deemed too small these estimates were suppressed.

Age- and sex-standardisation

Standardisation is used widely in epidemiology to remove the influence of factors that differ between groups and can influence measures of interest. In this publication, comparisons between cardholders and non-cardholders may be influenced by the different age and sex profiles of the two groups. Therefore, where comparisons are made between cardholders and non-cardholders, estimates of measures of interest are standardised by age and sex. This ensures that any differences in insurance status or dental visiting observed between the groups are not due to differences in their age and sex profiles. Where age- and sex-standardisation have been applied, this is noted in the table or figure caption for that data.

Response levels

Table A.2 lists the sampling and participation details for the survey. An overall participation rate of 47.8% was achieved in the 2010 survey. A total of 20,343 unique telephone numbers were called, resulting in 7,869 participating households and 10,237 completed interviews. Participation rates ranged from 41.9% in Sydney to 59.8% in non-metropolitan South Australia.

Table A.2: Participation in the 2010 National Dental Telephone Interview Survey

Stratum	Total sampled	Out of scope	Out of scope no child in household	Non-contact	Refusal	Participating households	Per cent participation
Sydney	2,780	191	395	335	939	920	41.9%
Balance of New South Wales	1,717	97	180	165	562	713	49.5%
Melbourne	2,907	182	456	302	1,003	964	42.5%
Balance of Victoria	1,317	62	234	123	404	494	48.4%
Brisbane	1,218	80	32	137	423	546	49.4%
Balance of Queensland	1,309	87	11	156	476	579	47.8%
Adelaide	1,450	99	275	147	367	562	52.2%
Balance of South Australia	574	26	16	51	163	318	59.8%
Perth	1,982	139	440	178	589	636	45.3%
Balance of Western Australia	633	37	0	79	205	312	52.3%
Hobart	814	38	145	80	207	344	54.5%
Tasmania	807	45	86	78	249	349	51.6%
Australian Capital Territory	1,304	72	220	125	340	547	54.1%
Darwin	852	102	56	106	272	316	45.5%
Northern Territory	679	64	23	112	211	269	45.4%
Total	20,343	1,321	2,569	2,174	6,410	7,869	47.8%

Criteria for determining statistical significance

As with any survey where data are collected from only some of the people in the population, percentages and means presented in this report are estimates of the true population values. These estimates have some degree of uncertainty, which is expressed in this report using 95% confidence intervals (95% CIs). The 95% CI signifies the likely lower and upper limits of the range of values within which the true population percentage would fall. In this context 'likely' means that there is a 95% probability that the true population value lies between the lower and upper limits.

In this report, 95% CIs were used as a guideline to identify differences between population subgroups that are statistically significant. When there was no overlap between the 95% CIs for two groups, the difference between the groups was deemed to be statistically significant. This criterion for judging statistical significance is more conservative than the alternative method of calculating P-values. In fact, when 95% CIs do not overlap, it means that a test of statistical significance for the difference between the groups would yield a P-value of less than 0.05 (the conventional threshold used in many reports). A P-value of less than 0.05

indicates that the likelihood that a difference of the magnitude observed between the population subgroups would occur by chance is less than 5%.

Where attention is drawn to differences between population groups, these differences are statistically significant at the 5% level unless stated otherwise.

Appendix B: Data tables

All data tables in this section are for dentate adults.

Table B.1: Percentage of adults who have dental insurance by sex and age

		Male	Female	Total
Age (years)				
18–24	Per cent	46.8	51.4	49.1
	95% CI	39.4, 54.2	44.1, 58.8	43.8, 54.3
25–44	Per cent	51.8	57.5	54.6
	95% CI	47.2, 56.5	53.2, 61.7	51.5, 57.8
45–64	Per cent	63.9	62.0	62.9
	95% CI	60.2, 67.5	58.8, 65.1	60.5, 65.3
65+	Per cent	49.5	45.2	47.3
	95% CI	43.5, 55.5	39.3, 51.1	43.1, 51.5
Total	Per cent	54.8	56.3	55.6
	95% CI	52.2, 57.3	54.0, 58.7	53.8, 57.3

Table B.2: Percentage of adults who have dental insurance by cardholder status and age

		Cardholder	Non-cardholder	Total
Age (years)				
18–24	Per cent	34.3	53.4	49.1
	95% CI	23.8, 44.8	47.5, 59.3	43.8, 54.3
25–44	Per cent	23.2	59.1	54.6
	95% CI	14.1, 32.3	55.8, 62.4	51.5, 57.8
45–64	Per cent	28.2	69.3	62.9
	95% CI	23.1, 33.4	66.8, 71.8	60.5, 65.3
65+	Per cent	42.8	58.7	47.3
	95% CI	37.8, 47.8	51.1, 66.2	43.1, 51.5
Total	Per cent	34.5	62.0	55.6
	95% CI	31.1, 37.9	60.0, 64.0	53.8, 57.3

Table B.3: Percentage of adults who made a dental visit in the previous 12 months by dental insurance status and age, sex, cardholder status

		Insured	Uninsured	All
Age (years)				
18–24	Per cent	69.1	45.3	56.7
	95% CI	61.8, 76.4	38.0, 52.6	51.6, 61.9
25–44	Per cent	68.7	43.7	57.1
	95% CI	64.5, 73.0	39.1, 48.4	54.0, 60.3
45–64	Per cent	71.0	51.6	63.6
	95% CI	68.2, 73.9	47.4, 55.8	61.2, 66.1
65+	Per cent	78.9	56.4	66.9
	95% CI	73.5, 84.2	50.5, 62.3	62.9, 71.0
Sex				
Male	Per cent	66.3	45.1	56.5
	95% CI	63.0, 69.7	41.2, 49.0	53.9, 59.0
Female	Per cent	75.3	51.6	64.8
	95% CI	72.4, 78.3	47.9, 55.2	62.4, 67.1
Cardholder status				
Cardholder	Per cent	72.2	48.5	56.4
	95% CI	66.7, 77.7	44.0, 52.9	52.9, 60.0
Non-cardholder	Per cent	70.7	48.3	61.9
	95% CI	68.2, 73.1	44.9, 51.6	59.9, 63.9
Total	Per cent	70.9	48.3	60.6
	95% CI	68.7, 73.1	45.6, 51.0	58.9, 62.4

Table B.4: Percentage of adults who made a dental visit in the previous 12 months by dental insurance status and cardholder status – age- and sex-standardised

		Insured	Uninsured	All
Cardholder status				
Cardholder	Per cent	68.3	46.4	52.4
	95% CI	60.8, 75.8	41.4, 51.4	48.2, 56.7
Non-cardholder	Per cent	73.0	52.1	64.8
	95% CI	70.6, 75.3	48.8, 55.4	62.8, 66.7
Total	Per cent	71.2	48.7	60.9
	95% CI	68.9, 73.4	46.1, 51.3	59.2, 62.6

Table B.5: Percentage of adults who made a dental visit in the previous 12 months by dental insurance status and sex and age

		Insured	Uninsured	All
Male (years)				
18–24	Per cent	60.0	40.1	49.3
	95% CI	48.7, 71.4	30.3, 49.8	42.1, 56.5
25–44	Per cent	64.9	41.1	53.2
	95% CI	58.6, 71.2	34.4, 47.7	48.5, 57.8
45–64	Per cent	65.3	49.7	59.4
	95% CI	60.8, 69.8	43.2, 56.1	55.6, 63.1
65+	Per cent	79.2	53.6	66.1
	95% CI	71.9, 86.5	44.9, 62.2	60.3, 71.8
Female (years)				
18–24	Per cent	77.9	51.4	64.5
	95% CI	69.5, 86.2	40.4, 62.4	57.4, 71.6
25–44	Per cent	72.2	46.7	61.1
	95% CI	66.5, 77.8	40.3, 53.2	56.9, 65.4
45–64	Per cent	76.9	53.4	67.9
	95% CI	73.5, 80.3	48.0, 58.8	64.9, 70.9
65+	Per cent	78.6	58.9	67.7
	95% CI	70.7, 86.5	50.9, 66.9	62.1, 73.4
Total	Per cent	70.9	48.3	60.6
	95% CI	68.7, 73.1	45.6, 51.0	58.9, 62.4

Table B.6: Percentage of adults who made a dental visit in the previous 12 months by dental insurance status and cardholder status and age

		Insured	Uninsured	All
Cardholder (years)				
18–24	Per cent	62.5	55.5	56.7
	95% CI	43.7, 81.3	41.7, 69.2	46.0, 67.3
25–44	Per cent	75.7	38.5	47.1
	95% CI	60.7, 90.6	28.3, 48.7	37.4, 56.8
45–64	Per cent	70.9	48.1	54.6
	95% CI	61.7, 80.1	40.5, 55.7	48.3, 60.8
65+	Per cent	74.0	52.6	61.6
	95% CI	66.5, 81.4	45.8, 59.3	56.6, 66.6
Non-cardholder (years)				
18–24	Per cent	70.3	41.1	56.8
	95% CI	62.4, 78.3	32.8, 49.4	50.9, 62.6
25–44	Per cent	68.4	45.1	58.5
	95% CI	64.0, 72.7	39.9, 50.3	55.2, 61.9
45–64	Per cent	71.1	53.1	65.3
	95% CI	68.1, 74.1	48.1, 58.1	62.7, 67.9
65+	Per cent	88.1	70.2	80.7
	95% CI	82.5, 93.6	58.9, 81.6	74.8, 86.6
Total	Per cent	70.9	48.3	60.6
	95% CI	68.7, 73.1	45.6, 51.0	58.9, 62.4

Table B.7: Mean number of dental visits in the previous 12 months by dental insurance status and age, sex, cardholder status^(a)

		Insured	Uninsured	All
Age (years)				
18–24	Mean	2.0	2.7	2.2
	95% CI	1.8, 2.3	2.2, 3.1	2.0, 2.5
25–44	Mean	2.2	2.1	2.1
	95% CI	2.0, 2.4	1.9, 2.3	2.0, 2.3
45–64	Mean	2.3	2.4	2.3
	95% CI	2.2, 2.4	2.1, 2.6	2.2, 2.4
65+	Mean	2.6	2.5	2.6
	95% CI	2.3, 2.8	2.1, 2.9	2.3, 2.8
Sex				
Male	Mean	2.2	2.4	2.2
	95% CI	2.0, 2.3	2.1, 2.6	2.1, 2.4
Female	Mean	2.3	2.3	2.3
	95% CI	2.2, 2.5	2.1, 2.5	2.2, 2.4
Cardholder status				
Cardholder	Mean	2.5	2.4	2.5
	95% CI	2.3, 2.8	2.2, 2.7	2.3, 2.7
Non-cardholder	Mean	2.2	2.3	2.2
	95% CI	2.1, 2.3	2.1, 2.4	2.1, 2.3
Total	Mean	2.3	2.3	2.3
	95% CI	2.2, 2.4	2.2, 2.5	2.2, 2.4

(a) Dentate adults who visited in last 12 months.

Table B.8: Mean number of dental visits in the previous 12 months by dental insurance status and cardholder status^(a) – age- and sex-standardised

		Insured	Uninsured	All
Cardholder status				
Cardholder	Mean	2.6	2.4	2.4
	95% CI	2.2, 2.9	2.2, 2.6	2.3, 2.6
Non-cardholder	Mean	2.2	2.3	2.3
	95% CI	2.1, 2.4	2.1, 2.5	2.2, 2.4
Total	Mean	2.3	2.3	2.3
	95% CI	2.2, 2.4	2.2, 2.5	2.2, 2.4

(a) Dentate adults who visited in last 12 months.

Table B.9: Percentage of adults whose last dental visit was for a check-up by dental insurance status and age, sex, cardholder status^(a)

		Insured	Uninsured	All
Age (years)				
18–24	Per cent	81.9	64.0	75.4
	95% CI	75.1, 88.7	54.2, 73.7	70.0, 80.9
25–44	Per cent	69.6	49.6	62.4
	95% CI	64.8, 74.5	42.4, 56.7	58.3, 66.5
45–64	Per cent	60.7	40.7	54.7
	95% CI	57.3, 64.1	35.1, 46.2	51.8, 57.7
65+	Per cent	58.3	55.7	57.1
	95% CI	51.8, 64.7	47.7, 63.7	52.0, 62.2
Sex				
Male	Per cent	64.2	48.0	58.4
	95% CI	60.3, 68.1	42.3, 53.7	55.2, 61.7
Female	Per cent	67.8	52.2	62.5
	95% CI	64.4, 71.1	47.2, 57.2	59.7, 65.3
Cardholder status				
Cardholder	Per cent	58.8	44.4	51.2
	95% CI	51.3, 66.3	38.0, 50.8	46.4, 56.0
Non-cardholder	Per cent	67.4	53.3	63.2
	95% CI	64.8, 70.1	48.7, 58.0	60.9, 65.6
Total	Per cent	66.1	50.2	60.6
	95% CI	63.6, 68.7	46.5, 54.0	58.5, 62.7

(a) Dentate adults who visited in last 12 months.

Table B.10: Percentage of adults whose last dental visit was for a check-up by dental insurance status and cardholder status^(a) – age- and sex-standardised

		Insured	Uninsured	All
Cardholder status				
Cardholder	Per cent	61.9	40.4	47.8
	95% CI	51.8, 72.0	33.5, 47.4	42.0, 53.6
Non-cardholder	Per cent	67.5	54.8	63.7
	95% CI	64.7, 70.4	50.2, 59.3	61.3, 66.1
Total	Per cent	66.3	49.5	60.6
	95% CI	63.7, 68.9	45.8, 53.2	58.5, 62.8

(a) Dentate adults who visited in last 12 months.

Table B.11: Percentage of adults who had an extraction in the previous 12 months by dental insurance status and age, sex, cardholder status^(a)

		Insured	Uninsured	All
Age (years)				
18–24	Per cent	8.6	14.3	10.4
	95% CI	4.6, 12.7	8.0, 20.6	7.0, 13.7
25–44	Per cent	9.6	21.2	13.7
	95% CI	6.9, 12.3	15.5, 26.8	11.0, 16.3
45–64	Per cent	10.7	17.6	12.8
	95% CI	8.6, 12.9	13.3, 21.9	10.8, 14.7
65+	Per cent	13.4	20.6	16.6
	95% CI	8.9, 17.9	13.6, 27.6	12.6, 20.6
Sex				
Male	Per cent	11.4	19.8	14.4
	95% CI	9.0, 13.8	15.3, 24.3	12.1, 16.6
Female	Per cent	9.6	18.3	12.5
	95% CI	7.7, 11.5	14.5, 22.2	10.7, 14.4
Cardholder status				
Cardholder	Per cent	12.9	22.0	17.8
	95% CI	8.7, 17.1	16.9, 27.1	14.4, 21.3
Non-cardholder	Per cent	10.0	17.4	12.2
	95% CI	8.4, 11.6	13.8, 21.0	10.6, 13.7
Total	Per cent	10.4	19.0	13.4
	95% CI	8.9, 11.9	16.1, 22.0	12.0, 14.8

(a) Dentate adults who visited in last 12 months.

Table B.12: Percentage of adults who had an extraction in the previous 12 months by dental insurance status and cardholder status^(a) – age- and sex-standardised

		Insured	Uninsured	All
Cardholder status				
Cardholder	Per cent	15.2	23.8	20.8
	95% CI	8.9, 21.5	18.0, 29.6	16.3, 25.4
Non-cardholder	Per cent	10.4	17.5	12.5
	95% CI	8.5, 12.2	13.8, 21.1	10.8, 14.2
Total	Per cent	10.5	19.1	13.5
	95% CI	9.0, 12.1	16.2, 22.0	12.0, 14.9

(a) Dentate adults who visited in last 12 months.

Table B.13: Percentage of adults who had a filling in the previous 12 months by dental insurance status and age, sex, cardholder status^(a)

		Insured	Uninsured	All
Age (years)				
18–24	Per cent	22.8	35.0	26.3
	95% CI	16.2, 29.5	24.7, 45.2	20.7, 32.0
25–44	Per cent	32.8	41.2	35.8
	95% CI	28.0, 37.6	34.2, 48.3	31.8, 39.8
45–64	Per cent	43.8	49.3	45.4
	95% CI	40.3, 47.3	43.6, 55.0	42.4, 48.4
65+	Per cent	42.8	47.0	44.6
	95% CI	36.4, 49.1	38.9, 55.0	39.6, 49.7
Sex				
Male	Per cent	37.7	46.0	40.5
	95% CI	33.9, 41.6	40.3, 51.7	37.3, 43.7
Female	Per cent	36.7	42.0	38.2
	95% CI	33.3, 40.0	37.0, 47.0	35.5, 41.0
Cardholder status				
Cardholder	Per cent	45.7	49.8	47.6
	95% CI	38.5, 53.0	43.4, 56.3	42.7, 52.4
Non-cardholder	Per cent	35.7	40.7	37.0
	95% CI	33.0, 38.3	36.2, 45.2	34.7, 39.3
Total	Per cent	37.2	43.9	39.3
	95% CI	34.6, 39.7	40.1, 47.6	37.2, 41.4

(a) Dentate adults who visited in last 12 months.

Table B.14: Percentage of adults who had a filling in the previous 12 months by dental insurance status and cardholder status^(a) – age- and sex-standardised

		Insured	Uninsured	All
Cardholder status				
Cardholder	Per cent	49.1	51.6	49.0
	95% CI	39.9, 58.3	43.9, 59.2	42.7, 55.3
Non-cardholder	Per cent	35.2	41.5	36.9
	95% CI	32.3, 38.0	37.0, 46.1	34.5, 39.3
Total	Per cent	36.7	44.2	39.2
	95% CI	34.2, 39.3	40.5, 47.9	37.1, 41.3

(a) Dentate adults who visited in last 12 months.

Table B.15: Percentage of adults who had a scale and clean in the previous 12 months by dental insurance status and age, sex, cardholder status^(a)

		Insured	Uninsured	All
Age (years)				
18–24	Per cent	79.3	63.1	72.3
	95% CI	72.7, 85.9	52.6, 73.5	66.4, 78.2
25–44	Per cent	86.2	60.6	77.1
	95% CI	82.7, 89.7	53.4, 67.8	73.5, 80.7
45–64	Per cent	82.1	66.0	77.3
	95% CI	79.4, 84.9	60.6, 71.5	74.7, 79.8
65+	Per cent	83.3	66.0	75.7
	95% CI	78.7, 88.0	58.2, 73.8	71.2, 80.1
Sex				
Male	Per cent	82.1	65.5	76.0
	95% CI	78.9, 85.3	59.8, 71.1	73.1, 78.9
Female	Per cent	84.7	62.0	76.6
	95% CI	82.3, 87.0	57.0, 67.1	74.1, 79.1
Cardholder status				
Cardholder	Per cent	83.1	58.1	68.9
	95% CI	78.2, 88.0	51.6, 64.7	64.3, 73.4
Non-cardholder	Per cent	83.6	66.6	78.4
	95% CI	81.5, 85.7	62.0, 71.2	76.4, 80.5
Total	Per cent	83.5	63.6	76.3
	95% CI	81.6, 85.4	59.9, 67.4	74.4, 78.2

(a) Dentate adults who visited in last 12 months.

Table B.16: Percentage of adults who had a scale and clean in the previous 12 months by dental insurance status and cardholder status^(a) – age- and sex-standardised

		Insured	Uninsured	All
Cardholder status				
Cardholder	Per cent	81.2	57.3	66.9
	95% CI	73.3, 89.1	50.7, 63.9	61.5, 72.4
Non-cardholder	Per cent	83.4	67.4	78.5
	95% CI	81.1, 85.8	62.8, 72.0	76.3, 80.7
Total	Per cent	83.5	63.8	76.3
	95% CI	81.4, 85.5	60.1, 67.5	74.4, 78.2

(a) Dentate adults who visited in last 12 months.

Table B.17: Percentage of adults who had a check-up in the previous 12 months by dental insurance status and age, sex, cardholder status^(a)

		Insured	Uninsured	All
Age (years)				
18–24	Per cent	96.8	92.0	95.0
	95% CI	94.3, 99.3	86.9, 97.2	92.6, 97.4
25–44	Per cent	94.6	88.2	92.4
	95% CI	92.0, 97.2	83.3, 93.1	90.0, 94.8
45–64	Per cent	92.7	83.8	90.0
	95% CI	90.7, 94.6	79.6, 87.9	88.2, 91.9
65+	Per cent	90.4	88.8	89.7
	95% CI	86.1, 94.7	84.0, 93.5	86.5, 92.8
Sex				
Male	Per cent	92.6	88.0	91.0
	95% CI	90.3, 94.8	85.0, 91.0	89.3, 92.8
Female	Per cent	94.4	87.2	91.9
	95% CI	92.7, 96.1	83.4, 91.0	90.1, 93.6
Cardholder status				
Cardholder	Per cent	94.6	84.2	88.9
	95% CI	91.6, 97.6	79.0, 89.4	85.6, 92.1
Non-cardholder	Per cent	93.4	89.3	92.2
	95% CI	91.8, 94.9	86.9, 91.8	90.9, 93.5
Total	Per cent	93.5	87.5	91.5
	95% CI	92.2, 94.9	85.1, 90.0	90.2, 92.7

(a) Dentate adults who visited in last 12 months.

Table B.18: Percentage of adults who had a check-up in the previous 12 months by dental insurance status and cardholder status^(a) – age- and sex-standardised

		Insured	Uninsured	All
Cardholder status				
Cardholder	Per cent	93.9	83.5	87.6
	95% CI	89.3, 98.6	77.8, 89.2	83.5, 91.7
Non-cardholder	Per cent	92.5	89.7	91.9
	95% CI	90.6, 94.5	87.3, 92.1	90.4, 93.4
Total	Per cent	93.4	87.4	91.5
	95% CI	92.0, 94.9	85.0, 89.8	90.2, 92.7

(a) Dentate adults who visited in last 12 months.

Table B.19: Percentage of adults who had root canal treatment in the previous 12 months by dental insurance status and age, sex, cardholder status^(a)

		Insured	Uninsured	All
Age (years)				
18–24	Per cent	3.5	4.3	3.6
	95% CI	0.5, 6.4	0.0, 9.1	1.1, 6.1
25–44	Per cent	6.7	5.7	6.3
	95% CI	4.0, 9.3	3.1, 8.3	4.3, 8.3
45–64	Per cent	8.3	11.2	9.1
	95% CI	6.2, 10.4	7.5, 14.8	7.3, 10.9
65+	Per cent	7.5	6.0	6.9
	95% CI	4.1, 10.9	2.6, 9.4	4.4, 9.3
Sex				
Male	Per cent	7.5	8.7	7.9
	95% CI	5.2, 9.8	5.8, 11.6	6.1, 9.6
Female	Per cent	6.6	5.8	6.3
	95% CI	4.9, 8.3	3.8, 7.8	5.0, 7.6
Cardholder status				
Cardholder	Per cent	8.2	7.8	7.9
	95% CI	3.9, 12.4	4.7, 10.9	5.4, 10.5
Non-cardholder	Per cent	6.8	6.8	6.8
	95% CI	5.4, 8.3	4.7, 8.9	5.6, 8.0
Total	Per cent	7.0	7.2	7.0
	95% CI	5.6, 8.4	5.4, 8.9	5.9, 8.1

(a) Dentate adults who visited in last 12 months.

Table B.20: Percentage of adults who had root canal treatment in the previous 12 months by dental insurance status and cardholder status^(a) – age- and sex-standardised

		Insured	Uninsured	All
Cardholder status				
Cardholder	Per cent	8.6	9.8	9.5
	95% CI	2.7, 14.4	5.3, 14.3	5.8, 13.1
Non-cardholder	Per cent	6.8	7.4	7.0
	95% CI	5.2, 8.4	4.9, 9.8	5.6, 8.3
Total	Per cent	6.9	7.4	7.0
	95% CI	5.5, 8.3	5.7, 9.2	5.9, 8.1

(a) Dentate adults who visited in last 12 months.

Table B.21: Percentage of adults who had a crown or bridge in the previous 12 months by dental insurance status and age, sex, cardholder status^(a)

		Insured	Uninsured	All
Age (years)				
18–24	Per cent	5.3	3.2	4.3
	95% CI	1.3, 9.2	0.5, 6.0	1.8, 6.8
25–44	Per cent	9.3	7.8	8.8
	95% CI	6.4, 12.2	4.5, 11.2	6.6, 11.0
45–64	Per cent	14.6	14.8	14.6
	95% CI	12.0, 17.2	10.4, 19.2	12.4, 16.9
65+	Per cent	12.6	10.5	11.7
	95% CI	8.5, 16.7	6.0, 14.9	8.7, 14.7
Sex				
Male	Per cent	10.9	12.2	11.3
	95% CI	8.4, 13.5	8.8, 15.6	9.3, 13.3
Female	Per cent	11.6	7.6	10.1
	95% CI	9.4, 13.7	5.1, 10.1	8.5, 11.8
Cardholder status				
Cardholder	Per cent	12.4	10.9	11.4
	95% CI	7.8, 16.9	7.2, 14.6	8.6, 14.3
Non-cardholder	Per cent	11.1	9.2	10.4
	95% CI	9.3, 12.8	6.7, 11.6	9.0, 11.9
Total	Per cent	11.3	9.8	10.7
	95% CI	9.6, 12.9	7.7, 11.8	9.4, 11.9

(a) Dentate adults who visited in last 12 months.

Table B.22: Percentage of adults who had a crown or bridge in the previous 12 months by dental insurance status and cardholder status^(a) – age- and sex-standardised

		Insured	Uninsured	All
Cardholder status				
Cardholder	Per cent	11.2	12.8	13.0
	95% CI	5.5, 16.9	7.7, 17.8	8.7, 17.4
Non-cardholder	Per cent	11.0	9.6	10.6
	95% CI	9.1, 12.9	6.9, 12.3	9.0, 12.1
Total	Per cent	11.0	10.0	10.6
	95% CI	9.3, 12.6	8.0, 12.1	9.3, 11.9

(a) Dentate adults who visited in last 12 months.

Table B.23: Percentage of adults who had gum treatment in the previous 12 months by dental insurance status and age, sex, cardholder status^(a)

		Insured	Uninsured	All
Age (years)				
18–24	Per cent	2.9	1.1	2.1
	95% CI	0.4, 5.3	0.0, 3.3	0.4, 3.7
25–44	Per cent	3.2	3.0	3.1
	95% CI	1.6, 4.8	1.2, 4.8	1.9, 4.3
45–64	Per cent	5.4	8.7	6.4
	95% CI	3.9, 6.8	5.2, 12.3	4.9, 7.8
65+	Per cent	7.3	3.6	5.7
	95% CI	3.7, 10.8	1.3, 5.8	3.4, 7.9
Sex				
Male	Per cent	4.9	4.5	4.7
	95% CI	3.3, 6.5	2.4, 6.7	3.5, 6.0
Female	Per cent	4.2	4.5	4.3
	95% CI	3.0, 5.5	2.8, 6.3	3.3, 5.3
Cardholder status				
Cardholder	Per cent	6.2	5.6	5.9
	95% CI	3.0, 9.5	2.8, 8.4	3.8, 7.9
Non-cardholder	Per cent	4.3	3.9	4.1
	95% CI	3.2, 5.3	2.5, 5.4	3.3, 5.0
Total	Per cent	4.5	4.5	4.5
	95% CI	3.6, 5.5	3.1, 5.9	3.7, 5.3

(a) Dentate adults who visited in last 12 months.

Table B.24: Percentage of adults who had gum treatment in the previous 12 months by dental insurance status and cardholder status^(a) – age- and sex-standardised

		Insured	Uninsured	All
Cardholder status				
Cardholder	Per cent	5.2	7.5	7.3
	95% CI	1.2, 9.3	2.9, 12.0	3.6, 11.0
Non-cardholder	Per cent	4.4	4.3	4.4
	95% CI	3.2, 5.6	2.7, 5.9	3.4, 5.4
Total	Per cent	4.6	4.6	4.5
	95% CI	3.6, 5.7	3.2, 6.1	3.7, 5.3

(a) Dentate adults who visited in last 12 months.

Table B.25: Percentage of adults who had a new denture in the previous 12 months by dental insurance status and age, sex, cardholder status^(a)

		Insured	Uninsured	All
Age (years)				
18–24	Per cent	1.2	0.1	0.7
	95% CI	0.0, 3.0	0.0, 0.2	0.0, 1.7
25–44	Per cent	0.5	0.9	0.6
	95% CI	0.0, 0.9	0.1, 1.7	0.2, 1.0
45–64	Per cent	3.7	9.0	5.3
	95% CI	2.4, 5.0	5.9, 12.0	4.0, 6.6
65+ years	Per cent	10.6	16.4	13.2
	95% CI	6.8, 14.5	10.2, 22.7	9.7, 16.7
Sex				
Male	Per cent	3.2	6.8	4.4
	95% CI	2.0, 4.4	4.3, 9.2	3.3, 5.6
Female	Per cent	3.1	5.9	4.0
	95% CI	2.0, 4.2	3.6, 8.1	3.0, 5.1
Cardholder status				
Cardholder	Per cent	7.6	10.5	9.1
	95% CI	4.4, 10.7	6.8, 14.1	6.7, 11.6
Non-cardholder	Per cent	2.4	4.1	2.9
	95% CI	1.6, 3.1	2.5, 5.6	2.2, 3.6
Total	Per cent	3.2	6.3	4.2
	95% CI	2.4, 4.0	4.6, 7.9	3.5, 5.0

(a) Dentate adults who visited in last 12 months.

Table B.26: Percentage of adults who had a new denture in the previous 12 months by dental insurance status and cardholder status^(a) – age- and sex-standardised

		Insured	Uninsured	All
Cardholder status				
Cardholder	Per cent	3.7	8.4	6.8
	95% CI	1.7, 5.6	5.6, 11.3	4.6, 8.9
Non-cardholder	Per cent	3.0	5.6	3.8
	95% CI	1.9, 4.1	3.3, 8.0	2.7, 4.9
Total	Per cent	3.3	6.2	4.3
	95% CI	2.5, 4.2	4.7, 7.7	3.6, 5.1

(a) Dentate adults who visited in last 12 months.

References

- ARCPOH (Australian Research Centre for Population Oral Health): Balasubramanian M, Teusner DN, Brennan DS 2010. Dental specialists in Australia. *Australian Dental Journal* 55: 96–100.
- ABS (Australian Bureau of Statistics) 2009. Super CUBE data set Population estimates by age and sex, Australia, by geographical classification (ASGC 2009) at 30 June 2009.
- AIHW (Australian Institute of Health and Welfare) 2010. Australia's health 2010. Australia's health series no. 12. Cat. no. AUS 122. Canberra: AIHW.
- Bailit H, Newhouse J, Brook R, Duan N, Goldberg G, Hamley J et al. 1985. Does more generous dental insurance coverage improve oral health? *Journal of the American Dental Association* 110: 701–7.
- Bischof W & Brown L 1999. The relationship between the diagnosis and reason for tooth extraction. [abstract] *Journal of Dental Research* 78: 943.
- Brennan DS, Spencer AJ & Slade GD 1997. Service provision among adult public dental service patients: baseline data from the Commonwealth Dental Health Program. *Australian and New Zealand Journal of Public Health* 21: 40–4.
- Brennan DS, Spencer AJ & Szuster FSP 1997. Insurance status and provision of dental services in Australian private general practice. *Community Dentistry and Oral Epidemiology* 25: 423–8.
- Brennan DS, Spencer AJ & Szuster FSP 2000. Service provision patterns by main diagnoses and characteristics of patients. *Community Dentistry and Oral Epidemiology* 28: 225–33.
- Brennan DS, Spencer AJ & Szuster FSP 2001. Provision of extractions by main diagnoses. *International Dental Journal* 51: 1–6.
- Dooland M 1992. Improving Dental Health in Australia, Background Paper No. 9. National Health Strategy, Department of Health Housing and Community Services, AGPS: Canberra.
- Eklund SA & Burt BA 1994. Risk factors for total tooth loss in the United States; longitudinal analysis of national data. *Journal of Public Health Dentistry* 54: 5–14.
- Elderton RJ 1993. Overtreatment with restorative dentistry: when to intervene? *International Dental Journal* 43: 17–24.
- Kiyak HA 1987. An explanatory model of older persons' use of dental services. Implications for health policy. *Medical Care* 25: 936–952.
- Manning WG, Bailit HL, Benjamin B & Newhouse JP 1985. The demand for dental care: evidence from a randomised trial in health insurance. *Journal of the American Dental Association* 110: 895–902.
- Mueller CD & Monheit AC 1988. Insurance coverage and the demand for dental care. Results for non-aged whites. *Journal of Health Economics* 7: 59–72.
- NACOH (National Advisory Committee on Oral Health) 2004. Healthy mouths, Healthy lives. Australia's National Oral Health Plan 2004–2013. Canberra: AHMAC.
- Nuttall NM 1984. General Dental Service treatment received by frequent and infrequent attenders in Scotland. *British Dental Journal* 156: 363–366.

- PHIAC (Private Health Insurance Administration Council) 2012. Quarterly Statistics. December 2011. Canberra: PHIAC.
- Sheiham A, Maizels J, Cushing A & Holmes J 1985. Dental attendance and dental status. *Community Dentistry and Oral Epidemiology* 13: 304-309.
- Slade GD, Spencer AJ & Roberts-Thomson KF 2007. Australia's dental generations: the National Survey of Adult Oral Health. Canberra: AIHW.
- Thomson WM, Williams SM, Broadbent JM, Poulton R & Locker D 2010. Long-term dental visiting patterns and adult oral health. *Journal of Dental Research* 89: 307-11.
- Tyas MJ, Anusavice KJ, Frencken JE & Mount GJ 2000. Minimal intervention dentistry – a review. FDI Commission Project 1-97. *International Dental Journal* 50: 1-12.
- Weintraub JA & Burt BA 1985. Oral health status in the United States: tooth loss and edentulism. *Journal of Dental Education* 49: 368-76.
- White JM & Eakle WS 2000. Rationale and treatment approach in minimally invasive dentistry. *Journal of the American Dental Association* 131: 13S-19S.

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