

AUSTRALIAN INSTITUTE OF  
HEALTH & WELFARE



THE UNIVERSITY  
OF ADELAIDE

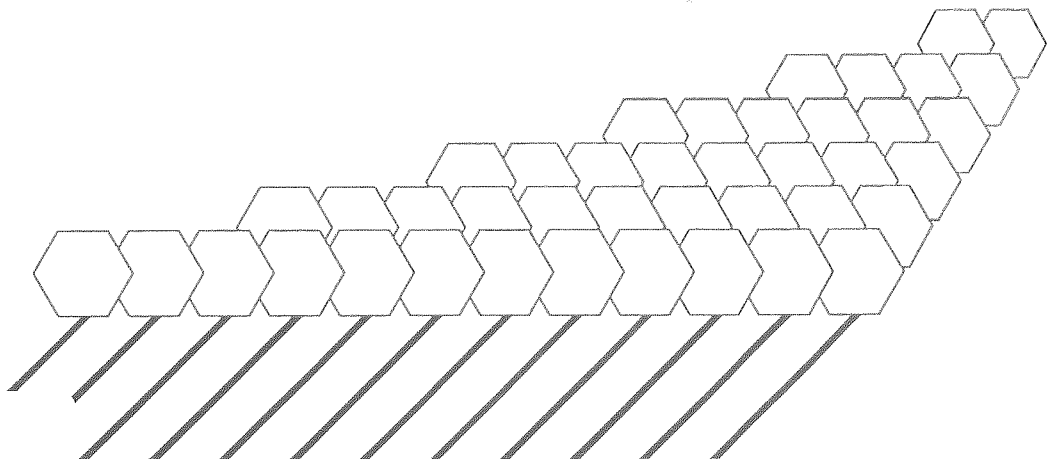
# Dental Care for Adults in Australia

## Proceedings of a Workshop

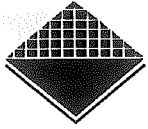
Australian Institute of Health and Welfare

Dental Statistics  
and Research Unit

at The University of Adelaide



AIH  
WU 029  
D414



AUSTRALIAN INSTITUTE OF  
HEALTH & WELFARE



THE UNIVERSITY  
OF ADELAIDE

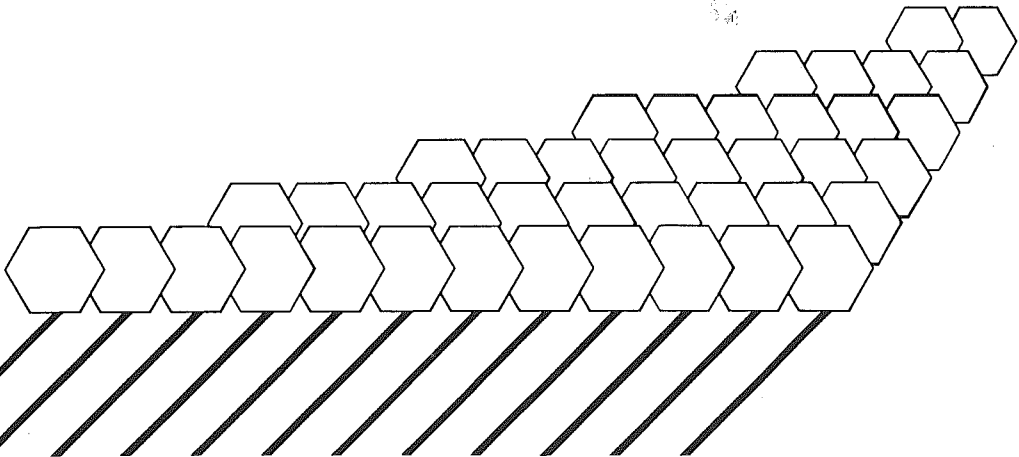
# Dental Care for Adults in Australia

Proceedings of a Workshop

Australian Institute of Health and Welfare

Dental Statistics  
and Research Unit

at The University of Adelaide



AIH  
WU 029  
D414

CCPY NO. 377732

MASTER NO. 849036



377732

© *Copyright Australian Institute of Health and Welfare, Dental Statistics and Research Unit 1993.* This work may be reproduced in whole or in part without further permission of the publisher, provided that it is acknowledged as the work of the Australian Institute of Health and Welfare's Dental Statistics and Research Unit.

Published by the AIHW Dental Statistics and Research Unit at The University of Adelaide,  
South Australia 5005.

ISBN 0 86396 191 6



# TABLE OF CONTENTS

	<i>Page</i>
List of Figures . . . . .	(iv)
List of Tables . . . . .	(vi)
Acknowledgements . . . . .	(vii)
Participants . . . . .	(viii)
<b>1. INTRODUCTION</b>	<b>1</b>
<hr/>	
BACKGROUND . . . . .	2
THE RESEARCH DATABASE . . . . .	2
THE PUBLICATION . . . . .	3
REFERENCES . . . . .	3
<b>2. METHODS</b>	<b>5</b>
<hr/>	
INTRODUCTION . . . . .	5
TELEPHONE INTERVIEW SURVEY . . . . .	5
ADULT DENTAL PROGRAMS SURVEY . . . . .	8
WEST AUSTRALIAN SUBSIDY SCHEME . . . . .	10
NATIONAL ORAL HEALTH SURVEY OF AUSTRALIA FOLLOW-UP . . . . .	10
DENTAL LABOURFORCE STATISTICS . . . . .	11
CONCLUSION . . . . .	11
<b>3. SOCIAL INEQUALITIES AND ORAL HEALTH</b>	<b>13</b>
<hr/>	
SOCIAL INEQUALITIES AND TOOTH LOSS . . . . .	13
SOCIAL INEQUALITIES AND DENTURE USE . . . . .	16
SOCIAL IMPACT . . . . .	18
SUMMARY . . . . .	18





<b>4. DENTAL TREATMENT NEED</b>	<b>23</b>
<hr/>	
INTRODUCTION . . . . .	23
PERCEIVED NEED . . . . .	23
URGENCY OF NEED . . . . .	25
SPECIFIC TREATMENT NEEDS . . . . .	25
PREDICTORS OF NEED . . . . .	27
PERCEIVED NEED, NORMATIVE NEED AND SERVICE PROVISION . . . . .	28
SUMMARY . . . . .	29
<b>5. AVAILABILITY OF DENTAL SERVICES</b>	<b>31</b>
<hr/>	
INTRODUCTION . . . . .	31
PRIVATE DENTAL PRACTITIONERS . . . . .	32
PUBLIC DENTAL PRACTITIONERS . . . . .	33
DENTAL PRACTITIONERS AT THE STUDY SITES . . . . .	35
DISCUSSION . . . . .	36
SUMMARY . . . . .	36
<b>6. USE OF DENTAL CARE</b>	<b>37</b>
<hr/>	
INTRODUCTION . . . . .	37
TRENDS IN THE USE OF DENTAL SERVICES . . . . .	37
USE OF SERVICES BY ADULTS . . . . .	38
VARIATIONS IN THE RECEIPT OF DENTAL SERVICES . . . . .	40
DISCUSSION . . . . .	42
SUMMARY . . . . .	42
<b>7. PROVISION OF DENTAL CARE TO CLIENT GROUPS</b>	<b>43</b>
<hr/>	
INTRODUCTION . . . . .	43
CHARACTERISTICS OF PATIENTS . . . . .	43
SERVICE PROVISION . . . . .	47
DISCUSSION . . . . .	52
SUMMARY . . . . .	52
<b>8. DENTAL INSURANCE</b>	<b>53</b>
<hr/>	
INTRODUCTION . . . . .	53
FREQUENCY OF INSURANCE . . . . .	53
USE/RECEIPT OF DENTAL CARE . . . . .	55
DISCUSSION . . . . .	59
SUMMARY . . . . .	59



<b>9. COST OF DENTAL CARE</b>	<b>61</b>
<hr/>	
COST OF DENTAL CARE TO THE INDIVIDUAL . . . . .	61
IMPUTED COST OF DENTAL CARE . . . . .	63
COMPARISON OF COSTS . . . . .	65
SUMMARY . . . . .	67
<b>10. AFFORDABILITY AND HARDSHIP IN PURCHASING DENTAL CARE</b>	<b>69</b>
<hr/>	
AFFORDABILITY AND HARDSHIP . . . . .	69
DISTRIBUTION OF AFFORDABILITY AND HARDSHIP . . . . .	69
ASSOCIATION WITH ACCESS TO DENTAL CARE . . . . .	72
ASSOCIATION WITH ORAL HEALTH OUTCOMES . . . . .	73
SUMMARY . . . . .	75
REFERENCES . . . . .	75
<b>11. KEY PROBLEMS, TARGET GROUPS AND POLICY DIRECTION</b>	<b>77</b>
<hr/>	
INTRODUCTION . . . . .	77
PROCEDURE . . . . .	77
PROBLEMS, TARGET GROUPS AND POLICY DIRECTIONS . . . . .	79
<b>12. SUMMARY</b>	<b>81</b>
<hr/>	



**FIGURES**

**Chapter 2**

2.1 Telephone Interview Survey: Participation rates and ERPs . . . . . 6  
 2.2 Adult Dental Programs Survey – SA: Service provision among dentate  
 sampled and non-sampled persons: emergency visits . . . . . 9  
 2.3 Adult Dental Programs Survey – SA: Service provision among dentate  
 sampled and non-sampled persons: non-emergency visits . . . . . 10

**Chapter 3**

3.1 Edentulism by age and household income . . . . . 14  
 3.2 Edentulism by age and health card status . . . . . 15  
 3.3 Mean number of missing teeth by age and household income . . . . . 15  
 3.4 Mean number of missing teeth by age and health card status . . . . . 16  
 3.5 Denture use by age and household income . . . . . 17  
 3.6 Denture use by age and health card status . . . . . 18  
 3.7 Social impact – toothache  
 by annual household income and health card status . . . . . 19  
 3.8 Social impact – avoidance of some foods  
 by annual household income and health card status . . . . . 19  
 3.9 Social impact – difficulty relaxing  
 by annual household income and health card status . . . . . 20

**Chapter 4**

4.1 Perceived treatment needs  
 by age, income and health card status – dentate . . . . . 24  
 4.2 Perceived need: within one week  
 by age, income and health card status – dentate . . . . . 24  
 4.3 Perceived need for filling(s)  
 by age, income and health card status – dentate . . . . . 25  
 4.4 Perceived need for extraction(s)  
 by age, income and health card status – dentate . . . . . 26  
 4.5 Perceived need for denture(s)  
 by age, income and health card status – dentate . . . . . 26  
 4.6 Need and service provision: Dentate card holders . . . . . 28

**Chapter 5**

5.1 Private dental practitioners – 1991/92  
 rates per 100,000 ERP population . . . . . 32  
 5.2 Private dental practitioners – 1991/92  
 rates: state/territory by section of state . . . . . 33  
 5.3 Public dental practitioners – 1991/92  
 rates per 100,000 health card holders and dependent spouses . . . . . 34  
 5.4 Public dental practitioners – 1991/92  
 rates: state/territory by section of state . . . . . 34



**Chapter 6**

- 6.1 Persons visiting in last 12 months by age and year . . . . . 37
- 6.2 Persons visiting a dental provider by income and time since last visit . . . . . 38
- 6.3 Persons visiting a dental provider by income and usual reason for visit . . . . . 39
- 6.4 Persons visiting a dental provider by health card status and location of last visit . . . . . 40
- 6.5 Extractions and restorations by usual reason for visit and location . . . . . 41
- 6.6 Extractions and restorations by foregone/not foregone treatment and usual reason . . . . . 41

**Chapter 7**

- 7.1 Country of birth . . . . . 44
- 7.2 Dentate status . . . . . 44
- 7.3 Nature of treatment . . . . . 45
- 7.4 Period since last visit . . . . . 45
- 7.5 Caries experience: dentate basic and emergency patients . . . . . 46
- 7.6 Periodontal conditions: dentate basic and emergency patients . . . . . 47
- 7.7 Service provision: Percentage of persons receiving services . . . . . 48
- 7.8 Emergency dental visits by socio-demographic factors: Dentate persons . . . . . 48
- 7.9 Emergency dental visits by oral health status: Dentate persons . . . . . 49
- 7.10 Oral surgery by socio-demographic factors: Dentate persons . . . . . 50
- 7.11 Oral surgery by oral health status: Dentate persons . . . . . 51

**Chapter 8**

- 8.1 Dental insurance coverage: Dentate persons: 1987/88 and 1992/93 . . . . . 54
- 8.2 Insurance among socio-economic groups: Dentate persons 18+ years . . . . . 55
- 8.3 Period since last visit: Dentate persons . . . . . 56
- 8.4 Visit patterns: Health Card and Insurance Groups . . . . . 57
- 8.5 Financial barriers and receipt of care:  
Dentate persons aged 18+ with visit last year . . . . . 58

**Chapter 9**

- 9.1 Direct out-of-pocket expenditure: dentate – all individuals . . . . . 62
- 9.2 Indirect costs of dental care: dentate – visited in last 12 months . . . . . 62
- 9.3 Imputed cost in public dental services for basic dental care by areas of care . . . . . 64
- 9.4 Imputed cost in public dental services for emergency care by area of care . . . . . 64
- 9.5 Comparison of reported costs: visited in the last 12 months and public programs . . . . . 66

**Chapter 10**

- 10.1 Affordability of dental care: avoiding or delaying visiting because of cost . . . . . 70
- 10.2 Hardship in purchasing dental care: a lot of difficulty paying a \$100 dental bill . . . . . 70
- 10.3 Use of services by affordability: avoided or delayed visiting because of cost . . . . . 71
- 10.4 Use of services by hardship: difficulty in paying a \$100 dental bill . . . . . 71
- 10.5 Treatment received by affordability: avoided or delayed visiting because of cost . . . . . 72
- 10.6 Treatment received by hardship: difficulty in paying a \$100 dental bill . . . . . 73
- 10.7 Oral health outcome by affordability: avoided or delayed visiting because of cost . . . . . 74
- 10.8 Oral health outcome by hardship: difficulty in paying a \$100 dental bill . . . . . 74



**TABLES**

---

**Chapter 2**

2.1 Telephone Interview Survey – participation . . . . .	6
2.2 Correlation between response rates in Telephone Interview Survey and socio-demographic characteristics of 264 postcodes . . . . .	7
2.3 Adult Dental Programs Survey – number of subjects . . . . .	8

**Chapter 4**

4.1 Odds ratios for perceived dental needs – dentate . . . . .	27
--	----

**Chapter 5**

5.1 Study site availability – dentate persons attending last year . . . . .	35
---	----

**Chapter 7**

7.1 Socio-demographic characteristics . . . . .	43
7.2 Emergency visits – odds ratios from logistic regression model . . . . .	49
7.3 Oral surgery – odds ratios from logistic regression model . . . . .	51

**Chapter 8**

8.1 Percentage of persons with dental insurance . . . . .	53
8.2 Fillings and extractions – dentate persons attending during last year . . . . .	57

**Chapter 9**

9.1 Imputed cost of dental care (\$) – public dental programs . . . . .	65
---	----

**Chapter 11**

11.1 Key dental care problems, target groups and interventions . . . . .	78
--	----



## ACKNOWLEDGEMENTS

---

The data on dental care covered in this publication were collected and analysed over the period October 1992 to April 1993 under a consulting service to the Commonwealth Department of Health, Housing, Local Government and Community Services. The interest shown and the resources made available by the Commonwealth Department during the consulting service were crucial to establishing the range and depth of data on dental care presented. However, all the data, analyses and statements in this publication are the responsibility of the authors, and may not reflect the views of the Commonwealth Department of Health, Housing, Local Government and Community Services.

The data described and discussed could not have been collected without the collaboration of the dental authorities in many States of Australia. The support of those dental authorities and their staff was extensive and generously given.

The help and assistance of Dr Martin Dooland and Dr Bernadette Dodson (South Australian Dental Service), Mr David Johns (Australian Bureau of Statistics) and Mrs Anna Puzio (The University of Adelaide) is also gratefully acknowledged.

Administrative staff in Social and Preventive Dentistry and the AIHW Dental Statistics and Research Unit at The University of Adelaide – Ms Kate Battersby, Mrs Lorna Lucas, Miss Margaret Malavazos and Mrs Di Parish – have also assisted in the preparation of this publication. Their ability to work under pressure and beyond levels normally expected was crucial to the timeliness of this publication.

Finally, a large group of people have contributed to this publication in telephone interviewing, field survey recording and data preparation and management. Their help was much appreciated.



## PARTICIPANTS

---

Joan Allister	The University of Adelaide, SA
Peter Barnard	University of Sydney, NSW
Anne Barry	SACOSS, SA
David Brennan	AIHW, Dental Statistics and Research Unit, SA
David Burrow	South Australian Dental Service, SA
Pat Dalton	Australian Dental Association, NSW
Michael Davies	AIHW, Dental Statistics and Research Unit, SA
Martin Dooland	South Australian Dental Service, SA
Mike Fleetwood	ACT Health, ACT
Marilyn Fogler	Department of Health, Housing, Local Government and Community Services, ACT
Bernie Homan	Queensland Health, Qld
Greg Hoskin	The University of Adelaide, SA
Fiona Howarth	Department of Health, Housing, Local Government and Community Services, ACT
Jenny Lewis	University of Melbourne, Vic
Craig Lindsay	Department of Health, Housing, Local Government and Community Services, ACT
Michelle McLeod	Department of Health, Housing, Local Government and Community Services, ACT
David Neesham	Health Department of Western Australia, WA
Kaye Roberts-Thomson	The University of Adelaide, SA
John Rogers	Dental Health Services, Vic
John Sanders	NSW Health Department, NSW
Bruce Simmons	Department of Health and Community Services, NT
Tim Skinner	Australian Institute of Health and Welfare, ACT
Gary Slade	AIHW, Dental Statistics and Research Unit/ The University of Adelaide, SA



## PARTICIPANTS *(continued)*

---

John Spencer	AIHW, Dental Statistics and Research Unit/ The University of Adelaide, SA
Judy Stewart	AIHW, Dental Statistics and Research Unit, SA
Fearnley Szuster	AIHW, Dental Statistics and Research Unit, SA
Colin Wall	Australian Dental Association, NSW
Rob Weidenhofer	NSW Health Department, NSW
Bill Westerman	University of Queensland, Qld





---

## Chapter 1 INTRODUCTION

John Spencer

---

The oral health problems of the community are far from solved. While improved oral health among children has been well documented, there have not been commensurate improvements among adults. The interaction of demographic changes, particularly the greying of the population through increased longevity, with the greater retention of natural teeth among adults is challenging the past prominence given to child oral health. The considerable past experience of oral disease among adults and the need for care and repair of their natural teeth has led to concern over meeting the oral health needs of adults in the Australian community.

Oral problems are among the most frequently experienced illness episodes. Australians spend over one and a half billion dollars in the control and treatment of oral disease, approximately five per cent of all health expenditure. Further, Australians suffer a substantial loss of productive time or optimal performance of productive work because of oral problems. The widespread prevalence and the repetitive nature of oral disease leads to a surprisingly high level of burden on the community, most frequently seen in interference with normal social functions.

While oral diseases and their consequences are widespread, there is evidence that they are not equally distributed through the community. The National Health Strategy (1992) paper *Improving Dental Health in Australia* has presented evidence of social inequalities both in oral health and access to dental care. Those most in need of care are the least likely to use dental services or receive basic dental care to maintain an acceptable, functional natural dentition. This outcome may arise both from an apparent inability of many adults to purchase private dental care and from rationing of dental care in the public sector where demand has reportedly grown rapidly to exceed available resources.

While there is a shift in the burden of disease and focus of policy from children to adults, there has not been the development and availability of information bases on adults from which decision making can be guided or achievement of targets in improved oral health and access to dental care can be evaluated. Data to document the oral health and access problems of adults are restricted in range and quality. Even less data have been available to analyse the determinants of the present situation or prescribe how oral health and access to dental care might change under new conditions.

### PURPOSE

---

The need to build a research database on dental care in Australia which could be used to document and analyse issues and prescribe aspects of policy development was recognised in 1992. The purposes of this publication are:

- to present the findings of a project to build such a research database; and
- to contribute to discussion on dental care for adults in Australia.



## BACKGROUND

---

The present concern with meeting the oral health needs of adults in the Australian community was fuelled by a National Health Strategy Workshop on Dental Services for Disadvantaged People in December 1991 and further developed in the National Health Strategy (1992) paper *Improving Dental Health in Australia* (National Health Strategy, 1992).

While the National Health Strategy paper clearly established a number of fundamental features of present dental care for Australians, it was also recognised that in the past the collection of data on the effectiveness of public dental care for adults has been *ad hoc* with little consistency between different services or over time. A substantial improvement in the monitoring and evaluation of public dental services for adults was thought to be required.

Questions which illustrate areas where insufficient detail has been available for analysis of dental care for adults in Australia include:

- Are there variations in access to basic dental care, both between public and private sectors and within the public sector?
- What is the comparative access to dental care of different client groups in the community? and
- To what extent is variation in access among existing client groups who are eligible for public services the result of variation in availability of those services?

However, it was not only at the level of documentation and analysis of inequalities in access and oral health that further national data were considered necessary. Numerous limitations in empirical evidence were evident in areas more directly tied to policy development. The National Health Strategy paper *Improving Dental Health in Australia* included a proposed dental program to improve access to dental care for low income people. It was proposed to include both an emergency dental scheme and a basic dental scheme. Questions which illustrate some of the areas where further data would be advantageous include:

- What increases in the use of dental services might reasonably be expected under programs targeted at health card holders?
- What likely balance of demand would there be for emergency *versus* basic dental care?
- What types of services would most likely be provided to people of different ages and oral health status under either emergency or basic dental care programs?

While some information, sometimes rigorous information, can be brought forward from particular States to address these sorts of questions, all too often the data are limited by the selectivity of the client groups, the location, and the scope of the particular State programs.

Recent work has given a reasonably broad view of an emerging problem and possible avenues for a solution. However, it was hoped that a more purposively created database might enable deeper analysis of the determinants of the problem and more inclusive interpretation of the appropriate directions and expectations for change inherent in new policies.

## THE RESEARCH DATABASE

---

In October 1992 the AIHW Dental Statistics and Research Unit and staff from Social and Preventive Dentistry at The University of Adelaide were contracted by the Commonwealth Department of Health, Housing and Community Services to build a research database on dental care in Australia.



The research database was built, analysed and the findings from it reported to the Department over the period October 1992 to April 1993 (Allister, Brennan, Davies *et al*, 1993).

It was important to build a research database that either directly or indirectly could contribute to the discussion and analysis of policy issues. Hence, in the development of the research database the specific aims were:

- to identify and describe the economic, public health and social justice consequences of oral disease and its care;
- to examine the availability of dental services to the Australian community through a description of the nature and distribution of both public and private dental services to different client groups;
- to examine the provision of dental care through an analysis of the type of services received in both public and private dental services;
- to examine the cost of existing dental care compared to individuals' capacity to pay; and
- to examine the nature of dental care need among adults.

## THE PUBLICATION

---

The full report (Allister, Brennan, Davies *et al*, 1993) represents the initial efforts to disseminate the findings from the research database and stimulate discussion on dental care for adults in Australia. It was followed by a Workshop on Dental Care for Adults in Australia, on July 9, 1993 in Adelaide, which presented key findings from the full report. This publication of papers presented at the Workshop begins with some general information on the data sources for the research database. The body of the publication then presents and discusses findings in eight key areas:

Social inequalities and oral health [Chapter 3]  
Dental treatment need [Chapter 4]  
Availability of dental services [Chapter 5]  
Use of dental care [Chapter 6]  
Provision of dental care to client groups [Chapter 7]  
Dental insurance [Chapter 8]  
Cost of dental care [Chapter 9]  
Affordability and hardship in purchasing dental care [Chapter 10].

These topics are followed by the identification of key problems, target groups and policy directions for dental care for adults in Australia. The publication finishes with a concluding statement. We hope you find the publication informative and stimulating.

## REFERENCES

---

National Health Strategy. *Improving dental health in Australia*. Canberra: National Health Strategy, 1992: Background Paper No.9.

Allister J, Brennan D, Davies M *et al*. *A Research Database on Dental Care in Australia*. Adelaide: AIHW Dental Statistics and Research Unit and Social and Preventive Dentistry, The University of Adelaide, 1993.



---

## Chapter 2

# METHODS

### Gary Slade

---

## INTRODUCTION

---

The aim of this chapter is to describe the methods for the five data collections which feature in following chapters. The five data collections are: the Telephone Interview Survey; the Adult Dental Programs Survey; the West Australian Subsidy Scheme; the National Oral Health Survey of Australia follow-up; and Dental Labourforce Statistics. The first two data collections represent the main new surveys which were undertaken by DSRU for the *Research Database on Dental Care in Australia* and their methods along with variations in response to those surveys are described in detail. The remaining three sources of data were either existing or supplementary studies undertaken for the research database and they are described more briefly.

## TELEPHONE INTERVIEW SURVEY

---

The Telephone Interview Survey was undertaken to gain information about a representative sample of the population in seven selected sites throughout Australia. A random sample of telephone numbers was drawn from listings in the September 1991 electronic white pages. A primary approach letter was posted to each sampled household using the address listed in the white pages. The letter explained the purpose of the survey and encouraged participation. Initial telephone contact with each household was attempted approximately one week later. At that time, interviewers selected at random one person from the household to take part in an interview. If the number was at a business or an institution such as a nursing home, it was excluded at that stage.

Interviews were conducted with persons aged five years or more using a computer assisted telephone interview system. Interviews were conducted in the first person with adults aged 16 years or more. Interviews were conducted by proxy for children aged five to 15 years, and there was capacity to conduct proxy interviews for adults who were unable to communicate themselves on the phone. During analysis, it was necessary to weight the data from the Telephone Interview Survey, since individuals from one person households have a higher probability of selection than persons from larger households. Weights were computed using the age- and sex-specific estimated resident population of each survey site.

The interviews were conducted by thirty four interviewers who were trained in the survey procedures, and who worked in a telephone interview laboratory established by DSRU at The University of Adelaide. They made up to six calls to each household, and up to six additional calls following selection of a person at any household. The computer system randomly selected persons from households and contained automatic range checks and sequence skips for the interviews. The computer program was written by DSRU staff using DBaseIV software and it operated on Acer personal computers. The system was pilot tested in November 1992 among 64 Adelaide residents.

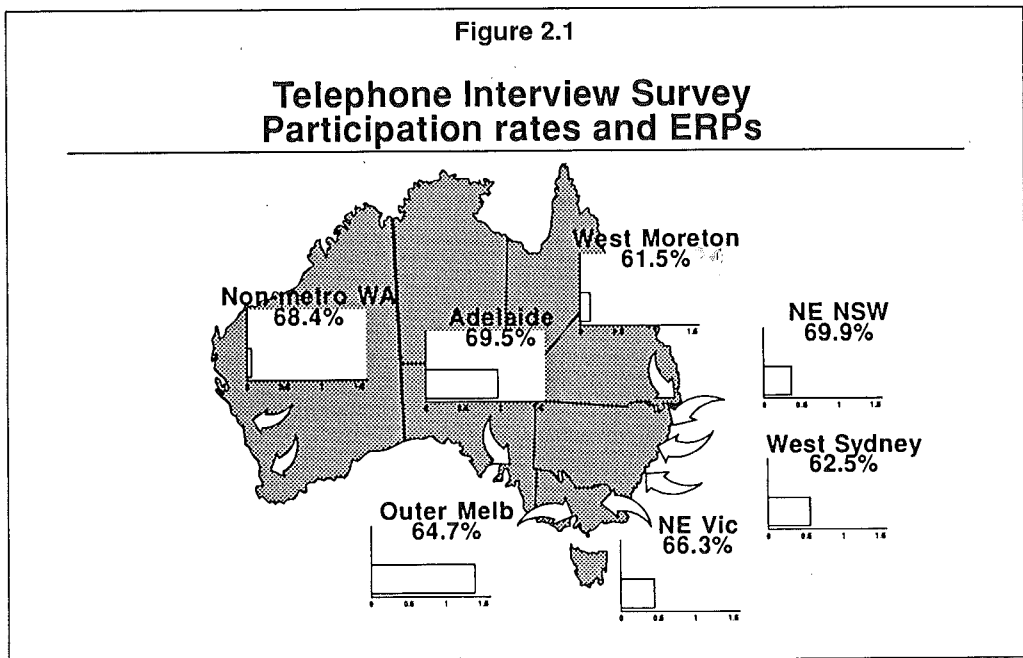


Table 2.1 presents details of participation from all seven sites involved in the Telephone Interview Survey. Of the 6,705 sampled telephone numbers, 6,134 were private dwellings and therefore in scope. No contact was made at 8.5 per cent of those dwellings and 25.5 per cent refused to participate leaving an overall response rate of 66.0 per cent.

**Table 2.1**  
**Telephone Interview Survey – participation**

	Number	% of sub-total
Sampled telephone numbers	6,705	
Excluded (non-residence)	571	
<u>Sub-total (in scope)</u>	<u>6,134</u>	
Non-contact	520	8.5
Refusal	1,564	25.5
Participants	4,050	66.0

Response rates at individual survey sites are presented in Figure 2.1. Response rates ranged from 69.9 per cent in North Eastern NSW to 61.5 per cent at West Moreton. The map also indicates that two of the survey sites consist of non-contiguous geographic localities. They occur in Western Australia at Busselton/Mandurah and Geraldton and in North Eastern NSW which encompassed Gosford/Wyong as well as the coast north of Coffs Harbour. The seven sites were selected purposefully because they contained quite different public dental care facilities and services.





The small horizontal bars in Figure 2.1 indicate the population base at each of the survey sites. The estimated resident population, obtained from the Australian Bureau of Statistics, ranged from 1.4 million in outer Melbourne to only 55,000 in Western Australia. These population bases are important when considering the combined data from all sites in subsequent chapters, since the combined statistics have been weighted using the population estimates. Hence, the findings from outer Melbourne are more influential than the findings from smaller survey sites, even though approximately equivalent numbers of persons were interviewed at each site. The weighting results in statistics which correspond in a general sense with the rural, urban and metropolitan profile of the Australian population. However, the Telephone Interview Survey has a different regional profile among States and Territories, so statistics from it cannot be regarded as representative of the Australian population.

An important methodological issue in any survey concerns the extent of bias which may arise due to non-participation. Furthermore, the sampling frame used for this survey was the electronic white pages. Even though some 94.4 per cent of Australian households have a telephone, those who are not listed or who simply decline to participate in the survey could differ in important ways from persons who do participate.

One approach used to assess non-participation bias was to compute response rates within individual postcodes and examine if those response rates differed consistently according to population characteristics of those postcodes. Among the seven sites there were 264 postcodes from among the seven sites which had at least five telephone numbers sampled for the survey. Response rates among those individual postcodes ranged from zero to 100 per cent.

Other characteristics of the 264 postcodes were obtained from the 1986 census, and also varied substantially. For example, the percentage of persons aged 20–29 years varied from 6.1 per cent to 34.4 per cent, as shown in Table 2.2. The right hand column of Table 2.2 presents the correlation between the response rate and each characteristic. For the first characteristic, the correlation coefficient was -0.13, indicating that response rates were generally lower in postcodes with larger percentages of young adults. Probably this reflects the difficulty of finding such people at home, or their general unwillingness to take part in surveys. The asterisk indicates that this correlation was statistically significant.

**Table 2.2**  
**Correlation between response rates in**  
**Telephone Interview Survey and socio-demographic**  
**characteristics of 264 postcodes**

Postcode characteristics	% range		Correlation coefficient
	Min	Max	
% persons aged 20–29 years	6.1	34.4	-0.13*
% persons aged 65+ years	0.4	35.7	-0.02
% persons Australian born	48.2	96.5	0.18*
% households single parent	0.0	5.3	0.01
% persons left school <17 years	26.6	91.6	0.04
% households income <\$15,000	1.1	67.7	0.02
% persons unemployed	1.8	67.7	-0.03

\* p<0.05

Source: ABS (CDATA86)

The other significant correlation with response rates was observed for the percentage of Australian born persons. The positive correlation coefficient indicates a greater participation rate at postcodes with higher percentages of Australian born persons. This probably reflects fewer communication barriers at households composed of Australian born persons. However the



remaining correlations were small and non-significant. In particular, there was an absence of correlation between response rates and the four socio-economic characteristics listed at the bottom of Table 2.2. This provides some reassurance that the Telephone Interview Survey provides an accurate reflection across the spectrum of socio-economic groups at the survey sites.

## ADULT DENTAL PROGRAMS SURVEY

The second main data collection, the Adult Dental Programs Survey, aimed to capture information about the clients who attend public dental clinics and the types of care that they receive. To be eligible for care at public clinics, persons must be covered by a Commonwealth health card. Public clinics from five of the sites in Western Sydney, North Eastern NSW, Outer Melbourne, North Eastern Victoria and Adelaide took part in the Survey between December 1992 and March 1993. Patients from those clinics were selected at random as they attended for dental care. This included patients attending for a single emergency visit and those needing a longer course of basic treatment. Sampling was based on the birthdate of patients, and intended to yield approximately equivalent numbers of cases at each of the five survey sites.

At their time of presentation, the oral health status of patients was recorded by examining dentists. They recorded caries experience using the DMFT index (decayed, missing and filled permanent teeth) and periodontal conditions using the CPITN index (Community Periodontal Index of Treatment Needs). As well, they recorded demographic and visit details. The data items were recorded onto optical mark sense forms and subsequently forwarded to DSRU where they were scanned and analyzed. In recording data items, dentists followed a standard written protocol prepared by DSRU. However, there were no formal calibration sessions and there were no duplicate examinations to assess reliability.

Dental services provided to sampled patients were recorded at the first and any subsequent visits in a course of care. Data forms containing 28 pre-coded items of care were marked at each visit to provide a cumulative count of services. Those forms were also forwarded to DSRU for scanning and analysis. For the analyses reported here, the items of care were categorized into ten main areas of service.

Table 2.3 presents the numbers of patients for whom data were available. There were 2,167 persons with natural teeth, referred to as dentate persons, and a further 273 without natural teeth, referred to as edentulous persons. The largest numbers came from Adelaide and North Eastern NSW.

**Table 2.3**  
**Adult Dental Programs Survey – number of subjects**

Site	Dentate persons*		Edentulous persons*	
	No of exams	% service provision	No of exams	% service provision
Western Sydney	232	90.9	9	66.7
NE NSW	590	89.5	48	79.2
Outer Melbourne	374	90.1	84	91.7
NE Victoria	176	72.7	23	47.8
Adelaide	795	82.5	109	68.8
All	2,167	85.8	273	75.8

\*Dentate – having natural teeth. Edentulous – having no natural teeth.



Table 2.3 also indicates that service provision data were available for 85.8 per cent of dentate and 75.8 per cent of edentulous persons. A lack of service provision data occurred in some instances because separate data forms were used for examination and service provision items, and they did not always link during analysis. In other instances there was a simple failure to record any service provision items.

This draws attention to an important constraint within a short-term data collection such as this, especially one which operated through the disruptive Christmas and New Year period. Undoubtedly, the Survey may fail to capture all services provided through extended courses of care. For example, a patient examined in March may continue to have treatment in later months after the Survey had stopped. This problem is likely to be exacerbated where clinics have long waiting periods between appointments.

It was possible to examine the representativeness of service provision data within South Australia by comparing sampled patients with aggregate data from non-sampled patients obtained through the existing information system of the SA Dental Service. Figure 2.2 refers to dentate patients seen for emergency visits. The vertical axis indicates the percentage of services from among eight main areas of service listed on the horizontal axis. For example, among sampled patients 27 per cent of services were diagnostic, compared with 14 per cent among non-sampled patients. This appears to represent a greater tendency to record diagnostic items when a chart was completed for the purpose of the Survey. However the remaining service mix percentages between sampled and non-sampled patients appear to be similar.

Figure 2.2

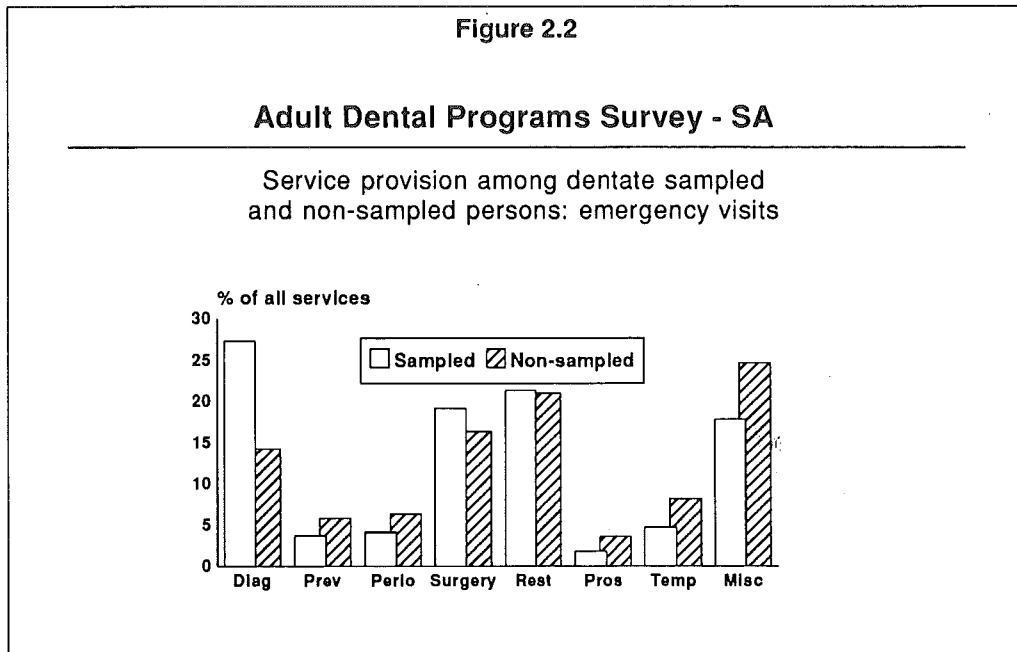


Figure 2.3 is laid out in a similar way and refers to non-emergency visits. Again, there was a greater likelihood of diagnostic services among sampled patients. Also, there was a slightly smaller percentage of restorative services among sampled patients. This effect seems to be due to the incomplete courses of treatment described earlier. However, in most areas of service the evidence from Figures 2.2 and 2.3 has indicated broad similarity between sampled and non-sampled persons.

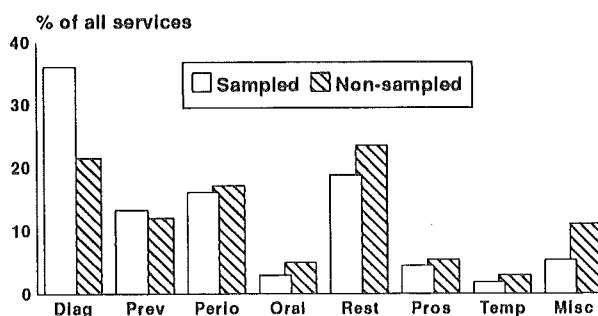




Figure 2.3

### Adult Dental Programs Survey - SA

Service provision among dentate sampled and non-sampled persons: non-emergency visits



### WEST AUSTRALIAN SUBSIDY SCHEME

A separate source of data was used to examine service provision at the West Australian Survey site. The information came from an existing computerized database belonging to the WA Dental Service. The database was established for their management of a subsidy scheme which reimburses costs for care received by eligible patients at private dental practices. Included on the database were demographic and eligibility details, codes to indicate the types of treatment and the total costs of care. Information was obtained for all claims made within the West Australian Survey site during the 1991/92 financial year. This included records from some 1,642 dentate and 176 edentulous persons:

### NATIONAL ORAL HEALTH SURVEY OF AUSTRALIA FOLLOW-UP

The fourth source of data came from an epidemiological survey which was a follow-up of the South Australian component of the National Oral Health Survey (NOHSA). The NOHSA study in South Australia was conducted in 1987/88 and involved interviews and oral examinations with some 2,448 persons aged five years or more. They were selected at that time from a random sample of households throughout South Australia. In 1992 attempts were made to contact each participant, and they were asked to complete a mail questionnaire. Eight hundred and thirty eight persons could be contacted in 1992, representing 34.2 per cent of the original sample. The main reason for non-participation was simply an inability to trace individuals. Despite follow-up letters, phone calls and tracing through the electoral roll, some 43 per cent of persons could not be contacted.

Data reported in following chapters comes from oral examinations conducted with a sub-sample of 463 persons. Examinations were conducted by five dentists who underwent prior calibration



sessions. They recorded standard oral epidemiological measures and made assessments of the nature and urgency of treatment needs.

## DENTAL LABOURFORCE STATISTICS

---

The final source of information concerned the dental labourforce. Data were used from DSRU's existing National data collection which records the details of all registered dentists throughout Australia. The data are obtained at the time of annual registration with the State and Territory registration authorities. The data collection includes the location, practice details and demographic characteristics of all dentists. Information presented in these chapters relates to the 6,815 dentists who were practising in the private or public sector during the 1991/92 period.

Information is presented about the ratio of dentists to population, and the population statistics come from two external sources. One was the Australian Bureau of Statistics survey of estimated resident population which provided information about the entire Australian population. The other source was the Department of Social Security which furnished data about the numbers of Commonwealth health card holders and their dependents. Information about dentists and populations were collected for geographic localities which allowed rates to be computed for the seven survey sites, and also for rural, urban and metropolitan localities within survey sites and within States.

## CONCLUSION

---

In conclusion, it should be re-emphasized that the research database was established to provide an integrated picture of dental care within the population and among users of existing services at seven geographic sites. The five separate data sources were necessary to reflect the range of circumstances which currently exist. The methods reflect a need to obtain comprehensive data in an efficient manner. However, the adequacy of and extent of bias in the data collections was also evaluated, and supports the view that the data collections provide an accurate picture.



---

## Chapter 3

# SOCIAL INEQUALITIES AND ORAL HEALTH

Michael Davies

---

### INTRODUCTION

---

The aim of this chapter is to document the social distribution of oral health, with a particular focus on the relationship between dental health and disability, and measures of socio-economic status.

We are all vulnerable to problems of oral ill-health. The range of oral health problems, and prevalence within the population constitute a significant public health concern. In common with other forms of health, both individual and societal factors are important in determining oral health. Discernible variations in oral health can be identified according to income, age, race, gender, geographic location, and features of individual experience and constitution. These factors are of importance in determining susceptibility to disease, assistance seeking, and the ability to afford and gain access to appropriate health care. It is because there is such consistent variability between identifiable groups of individuals for any given stage of life that the issue of social inequalities arises.

The relationship between social inequalities and oral health status is often complex, reflecting the confluence of social circumstance, individual behaviour, and organisational features which together form a nexus of social inequality in health outcomes. Defining and disrupting this nexus of inequality is central to the public health task of preventing and controlling oral diseases, and promoting oral health through organized community efforts.

Some information concerning oral disease prevalence and its variation within the Australian population has been presented in previous reports, such as the National Health Strategy. The following information builds upon, and elaborates this earlier research.

The figures in this chapter show variations in oral health status and disability for household income groups and health card holders. The data are derived from the Telephone Interview Survey. Measures of oral health outcome include reports on the mean number of missing teeth for dentate persons, denture use, the absence of any natural teeth (edentulism), and the social impact of health outcomes.

### SOCIAL INEQUALITIES AND TOOTH LOSS

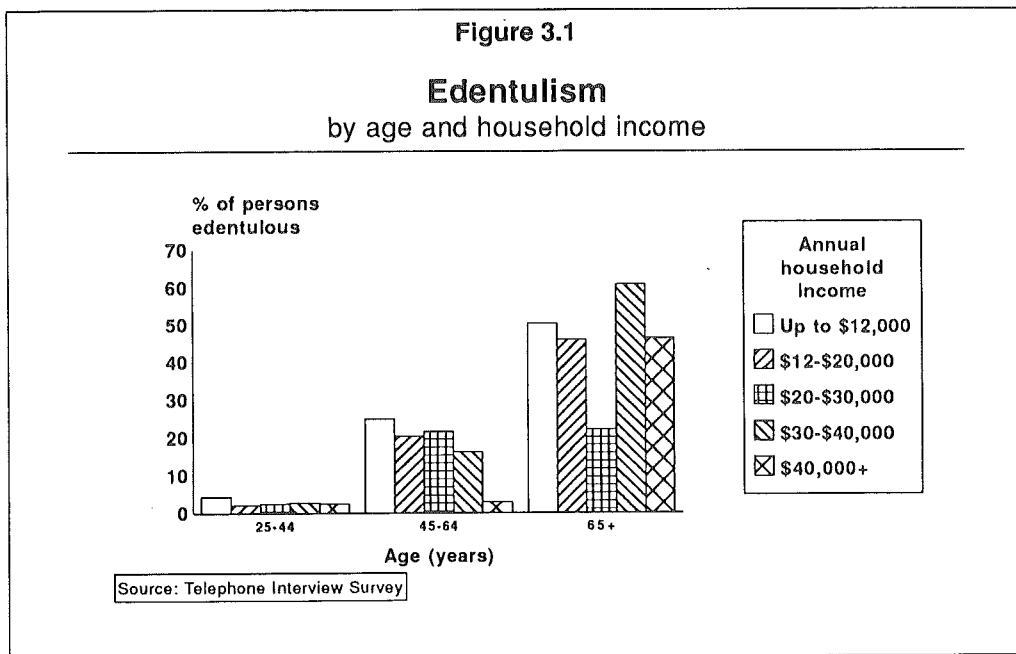
---

Edentulism represents the ultimate failure of primary and secondary preventive efforts. It constitutes, in effect, "dental mortality". Figure 3.1 presents variations in edentulism by annual household income within three age groups. Higher rates of edentulism among lower income groups were observed in the middle age range. It is important to interpret age differentials in view of historical patterns of disease, prevention and treatment. It is expected, for instance, that edentulism rates among younger adults of today will not in future decades reach the high levels observed among persons currently aged 65+. Accordingly, it should be noted that differences



between age groups are attributable to both an ageing and a substantial cohort effect, and that future cohorts of Australians aged 45 and over will reflect the rapidly declining rates of tooth loss.

It is also important to note that income as a measure of socio-economic status becomes less discriminatory with age, particularly beyond the time when most have left the workforce. For those in retirement in particular, income does not necessarily reflect wealth, nor other characteristics such as education, which are also measures of socio-economic status and positively related to health.

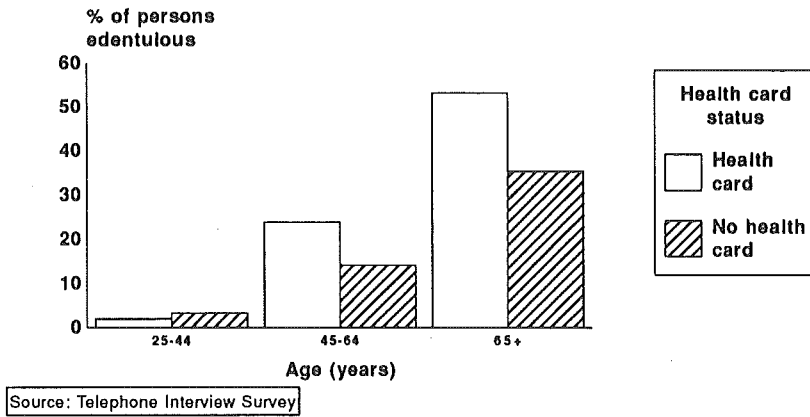


For instance, for those persons aged 45–64 years, there is an eightfold variation in the percentage of persons reporting being edentulous between the lowest income group (25.0 per cent edentulous) and highest income group (3.0 per cent).



Figure 3.2

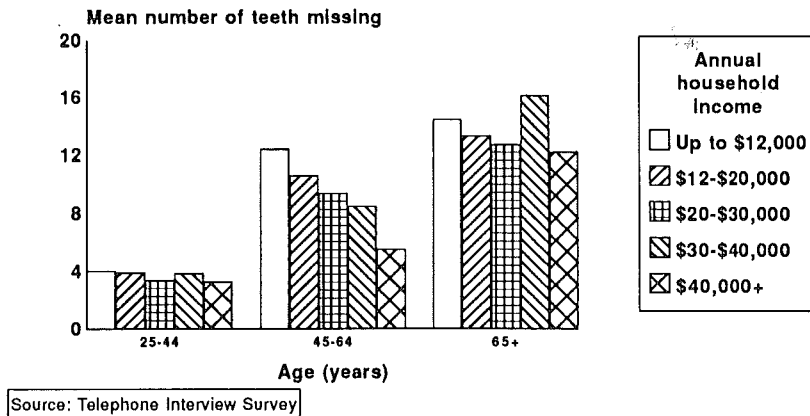
### Edentulism by age and health card status



Edentulism rates by card status are presented in Figure 3.2. The pattern of disadvantage is apparent among persons aged 45–64 years and 65+ years. Health card holders aged 45–64 years are 1.7 times more likely to have no natural teeth, and those aged 65+ years are 1.5 times more likely to be edentulous.

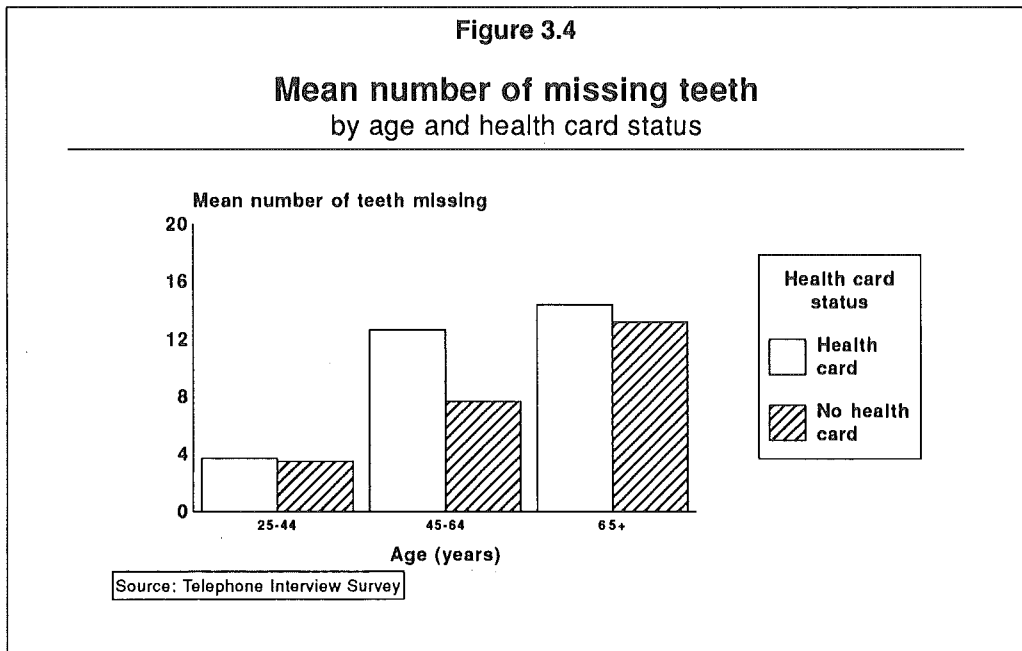
Figure 3.3

### Mean number of missing teeth by age and household income





The same pattern of analysis is repeated for the reported number of missing teeth among dentate persons in Figure 3.3. The greatest variation is found in the age group 45–64 years, where the mean difference between the lowest and highest income categories is 6.9 teeth. In the younger age groups, the cause of tooth loss is probably dominated by extraction of wisdom teeth and other teeth extracted for orthodontics. In contrast, tooth loss among the two older age groups is likely to be dominated by extractions for dental decay and periodontal diseases. Interpretation among age groups therefore is more difficult, and the gradients attributable to income less evident. As noted, the status of the oldest age group may be interpreted as reflecting both the effects of ageing and the history of dental care, when tooth extraction was a more common form of dental treatment.



The data in Figure 3.4 for card status are consistent with the results of the breakdown by household income. Health card holders in the two oldest age cohorts together demonstrate a clear disadvantage in the number of reported missing teeth. For instance, among those aged 45–64 years, health card holders report having five more missing teeth on average than non-health card holders. Again, the marginal differences in younger age groups are less simple to interpret.

## SOCIAL INEQUALITIES AND DENTURE USE

A reliance upon dentures can be interpreted in part as an oral health outcome which is undesirable.

More persons wear dentures than there are edentulous persons, which reflects the use of partial dentures by dentate persons. However, the frequency of denture wearing can be influenced by reasons of aesthetics, in addition to the restoration of function. The frequency of edentulism is therefore not fully explanatory of the use of dentures, particularly among those groups who can afford dentures for aesthetic reasons in addition to the restoration of function. Furthermore, individuals who need dentures to restore function or aesthetics may be unwilling to wear dentures



or unable to afford them. Consequently, it may be anticipated that reported denture use would provide an inexact indicator of an undesirable oral health outcome.

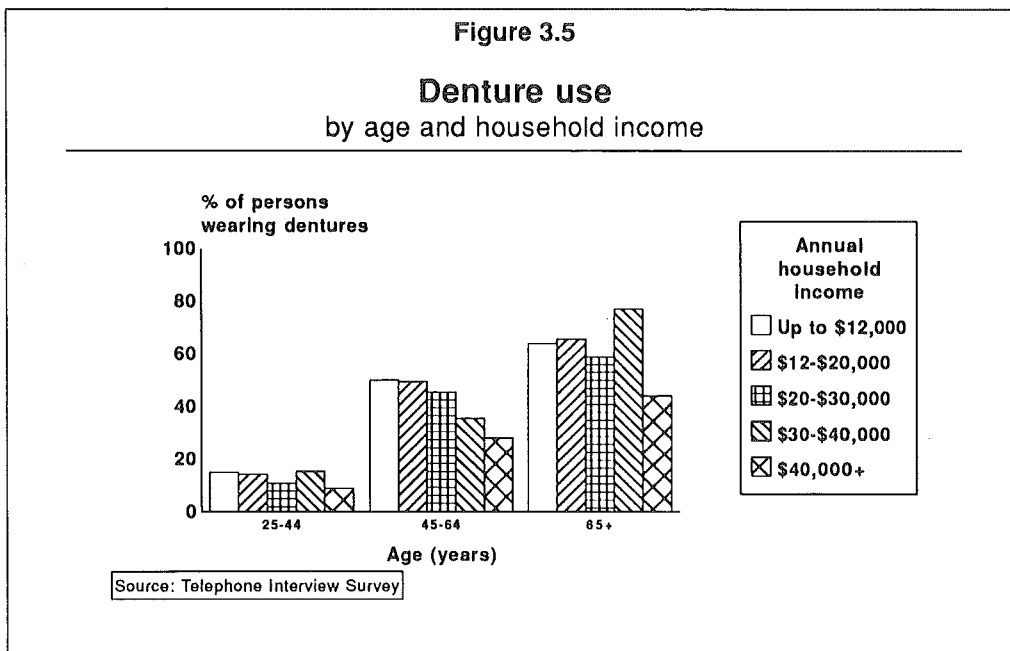
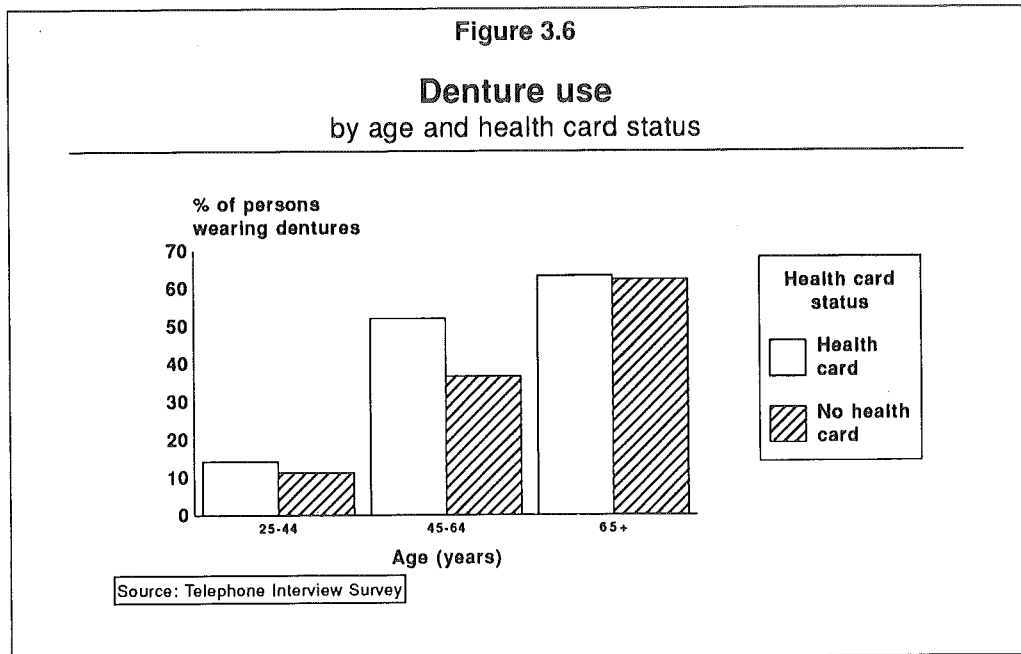


Figure 3.5 demonstrates clear differences in denture use between the highest and lowest income categories. There was a 1.8 times variation across income categories in the percentage wearing a denture for those aged 25–44 years, and a 1.7-fold variation for those aged 45–64.



A similar pattern of variation is evident in Figure 3.6 for denture use by card holder status. For instance, health card holders in the 25–44 and 45–64 age groups indicate a 1.4 times percentage of reported denture wearing than their non-health card holding counterparts. The similarity in per cent wearing dentures between health card holders and non-health card holders for the oldest group, despite the wide disparity in edentulism described previously, reflects the greater use of partial dentures among non-health card holders.

## SOCIAL IMPACT

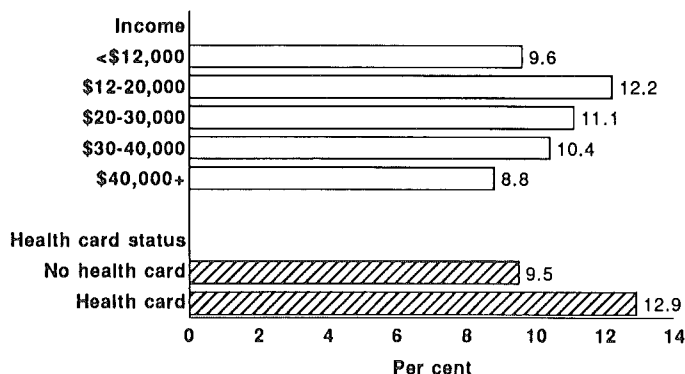
The following figures display aspects of the social variation in the social impact of oral disease. Social impact can encompass a range of adverse consequences for normal functioning and well being, and together these can diminish quality of life. The social impacts of oral disease considered here are toothache, avoidance of some foods, and reported difficulty in relaxing. They were assessed in the Telephone Interview Survey by asking respondents if, during the previous 12 months, they had experienced each impact (for example avoidance of some foods) specifically because of problems with their teeth, mouth or dentures. Reported toothache was asked of dentate persons, while information on other impacts were asked of all adults in the survey.





Figure 3.7

### Social impact - toothache by annual household income and health card status

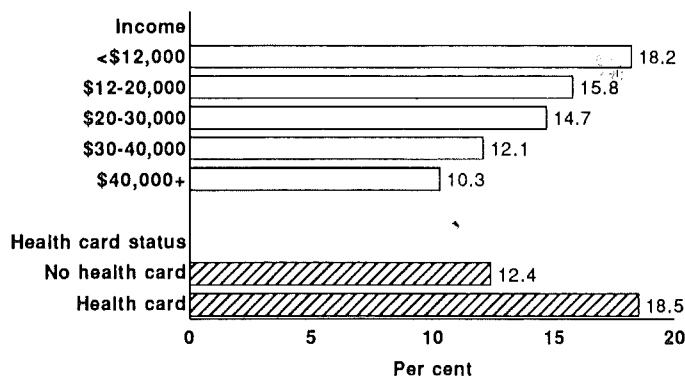


Source: Telephone Interview Survey

Figure 3.7 indicates an overall trend across income groups for reported toothache with persons from higher income households reporting a lower prevalence of toothache, and a clear differential between card holder groups.

Figure 3.8

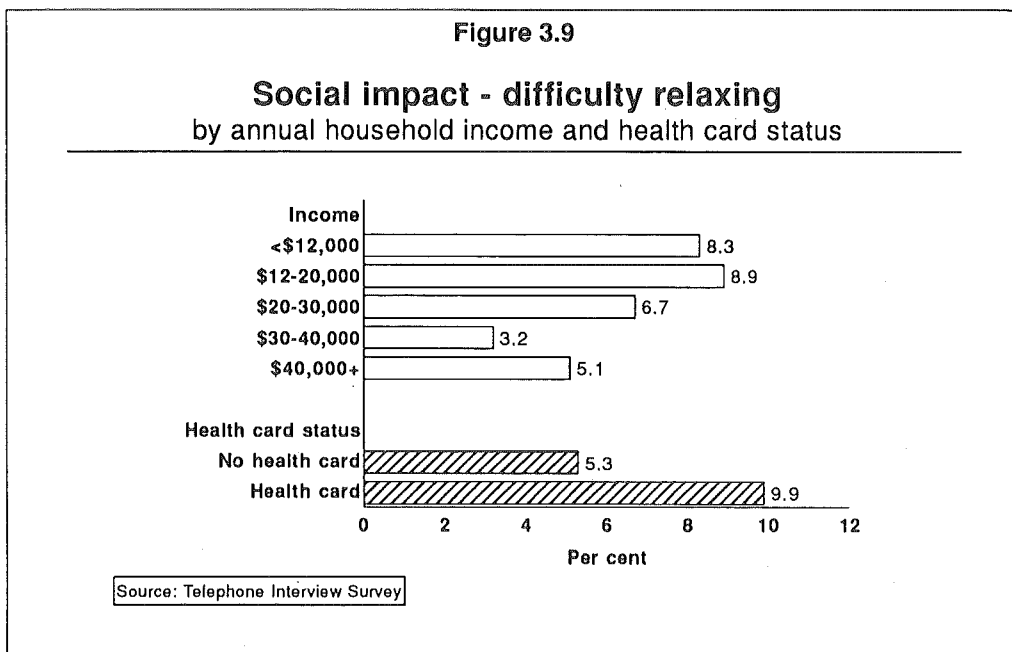
### Social impact - avoidance of some foods by annual household income and health card status



Source: Telephone Interview Survey



Figure 3.8 presents variations in avoidance of foods. Marked differences were observed for both income and health card groups. There was an approximately 1.5-fold variation across both indicators of income and health card status.



The final social impact was reported difficulty relaxing because of problems with teeth, mouth or dentures. Variations by income and health card status are displayed in Figure 3.9. There was an overall income trend and a substantial disadvantage for card holders.

The consistency in the gradients of disadvantage across the range of impacts demonstrate the pervasive effects of oral disorders among disadvantaged groups. Poor oral health among health card holders is more than a view which would be formed by an examining dentist – it is a source of social impact and diminished quality of life for significant percentages of people who suffer the ill effect of oral disease.



## SUMMARY

---

- Persons aged 45–64 with the lowest group of household income are eight times more likely to have no natural teeth, and 1.7 times as likely to wear a denture, compared to persons from the wealthiest income group.
- Health card holders aged 45 and over are more than 1.7 times more likely to be edentulous, and 1.4 times more likely to wear a denture than non-health card holders.
- Those aged 45–64 from the highest income group report having, on average, 6.9 more teeth than their age cohort from the lowest income group.
- Dentate health card holders aged 45–64 report having an average of five more missing teeth than non-health card holders.
- Health card holders are more likely than non-health card holders to report having a toothache, difficulty relaxing, or avoiding some foods.



---

## Chapter 4

### DENTAL TREATMENT NEED

Kaye Roberts-Thomson and Joan Allister

---

#### INTRODUCTION

---

Dental disease is, in the main, asymptomatic. Frequently by the time the outward manifestations of disease occur, the dental treatment required is significantly greater than it would have been had the disease been recognised early in its development and dental services utilised at that time.

Studies on the factors influencing the utilisation of dental services have reported that the most predictive factor in the use of dental services is the individual's awareness of a need for care. If an individual is aware of conditions requiring treatment or recognises a need for periodical examinations to ascertain his/her treatment needs then utilisation of dental services is likely to occur. However, the perception by an individual that a dental health problem exists is not sufficient to translate the recognition of need into the use of dental services.

Data on perceived need for dental care, collected from the Telephone Interview Survey, were analysed to determine the amount and urgency of that need and to determine variations in perceived need between socio-economic groups.

Data from the NOHSA Follow-up Study enabled comparisons between perceived and normative need. The provision of services to health card holders in South Australia obtained from the Adult Dental Program Survey was compared to the normative and perceived need of the health card holders in the NOHSA Follow-up.

#### PERCEIVED NEEDS

---

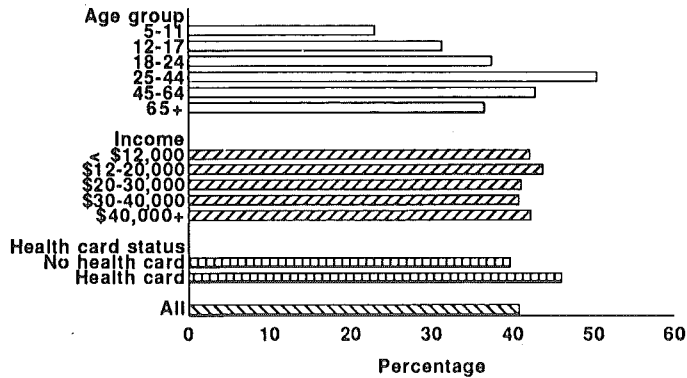
The perceived treatment needs of the dentate respondents to the Telephone Interview Survey within age, income and health card groups are shown in Figure 4.1. Some form of treatment was perceived to be needed by 40.8 per cent of respondents with considerable variation in the perceived need by age groups. The percentage of respondents perceiving treatment needs rose steadily from 23.1 per cent of the 5-11 age group to 50.5 per cent of the 25-44 age group, then steadily declined to 36.6 per cent of the group aged 65+.

An association between income categories and the perception of the need for treatment was not evident. The perceived need for treatment of the highest income group was similar to the perceived need of the lowest income group. A higher percentage of health card holders perceived a need for some form of treatment than non-card holders: 46.1 per cent compared to 39.7 per cent.



Figure 4.1

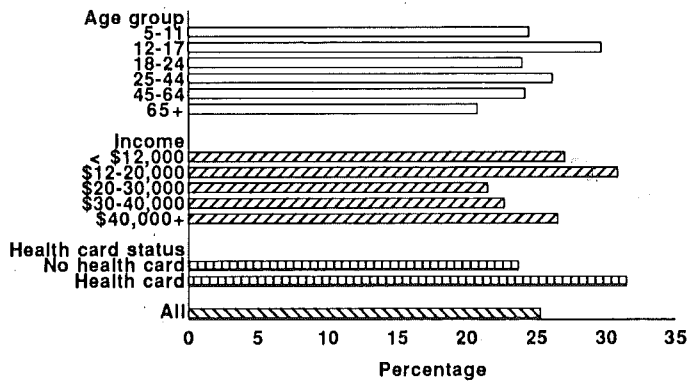
**Perceived treatment needs**  
by age, income and health card status - dentate



Source: Telephone Interview Survey

Figure 4.2

**Perceived need: within one week**  
by age, income and health card status - dentate



Source: Telephone Interview Survey



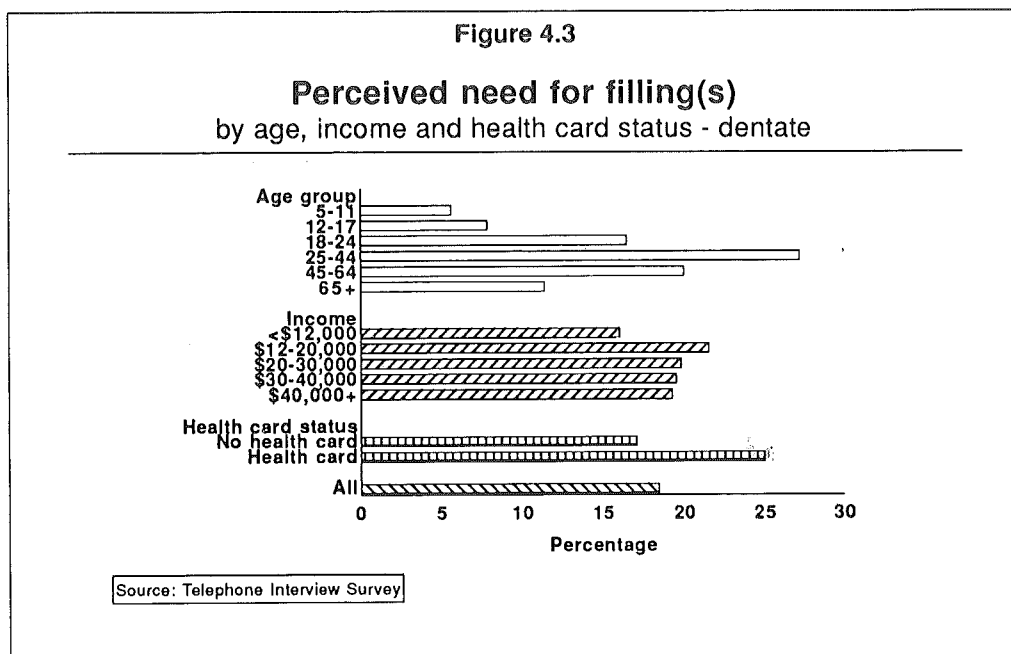
## URGENCY OF NEED

The reported urgency of treatment, that is a perceived need for treatment within one week, is shown in Figure 4.2. Higher percentages of the age groups 12-17 years (29.7 per cent) and 25-44 years (26.2 per cent) expressed a need for treatment within one week than other age groups.

Although the two lowest income groups, with 27.1 per cent and 30.9 per cent perceiving a need for treatment within one week, expressed the greatest urgency for treatment, 26.6 per cent of the income group \$40,000+ expressed a similar urgency. The urgency of treatment was significantly different by health card status with 31.5 per cent of health card holders perceiving a need for treatment within one week compared to 23.7 per cent of non-health card holders. In other words, health card holders perceived both a greater need for treatment and a greater urgency in that need.

## SPECIFIC TREATMENT NEEDS

Perception of specific treatment needs also varied by age and economic factors. The perceived need for fillings, shown in Figure 4.3, was highest at 27.1 per cent in the 25-44 year age group, declining among younger and older age groups.

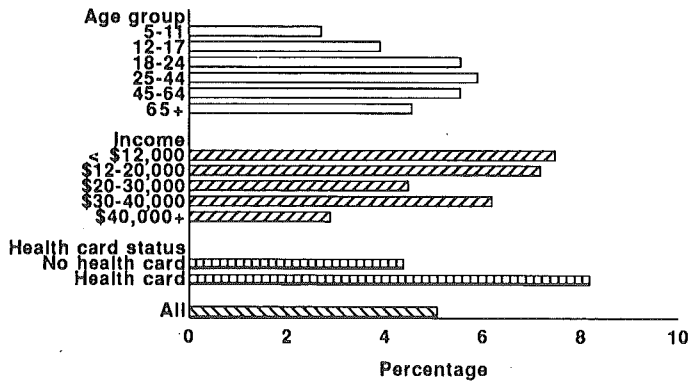


There was almost no variation in the perceived need for fillings between income groups. However 25.0 per cent of health card holders reported a need for fillings compared with 17.1 per cent of non-card holders.



Figure 4.4

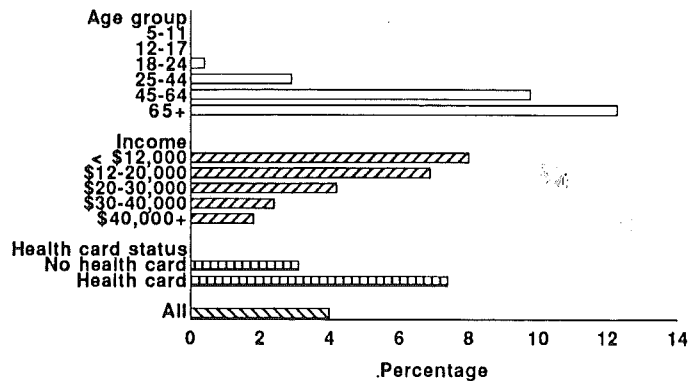
Perceived need for extraction(s)  
by age, income and health card status - dentate



Source: Telephone Interview Survey

Figure 4.5

Perceived need for denture(s)  
by age, income and health card status - dentate



Source: Telephone Interview Survey

Figure 4.4 shows that only a small percentage of the sample group, 4.5 per cent, perceived a need for extractions and, although the percentage differences in perceived need were small, there were variations within the groups. A 2.5-fold difference was evident in the perceived need for extractions between the lowest and highest income groups: 7.5 per cent compared to 2.9 per cent. There was an almost twofold difference in the perception of need for extractions between health



card holders and non-card holders. These differences in perception of need for extractions may indicate that health card holders and lower income groups more readily accept tooth mortality as a solution to dental problems. Although there were relative differences by age-group the absolute differences were minimal.

The perceived need for dentures or for denture repairs is shown in Figure 4.5. There was a fourfold difference in the perceived need for dentures between the lowest income group (8.0 per cent) and the highest (1.8 per cent). A more than twofold difference in the percentage of health card holders and non-card holders perceiving a need for dentures was apparent. The age group differential was commensurate with tooth loss rates.

## PREDICTORS OF NEED

To further investigate the perceived need for treatment, particularly extractions, the combined effects of the fore-going factors and other factors, expected to influence the use of dental services, were considered in a multivariate model. The odds of perceiving a need for treatment overall and for extractions in particular, are presented in Table 4.1.

**Table 4.1**  
**Odds ratios for perceived dental needs – dentate**

	Odds ratio	95% confidence interval
<b>Need dental treatment</b>		
Income \$30,000+	1.22	1.03 – 1.43
Last visit 2+ years ago	2.04	1.72 – 2.38
Usual reason: problem	1.59	1.35 – 1.85
<b>Need extraction</b>		
Card holder	1.69	1.12 – 2.56
Usual reason: problem	4.00	2.63 – 5.88

Source: Telephone Interview Survey

Participants with incomes over \$30,000 were 22 per cent more likely to perceive a need for treatment than those with incomes less than \$30,000. Respondents who had last attended a dental surgery more than two years ago were approximately twice as likely to consider themselves in need of some treatment than those who had attended within the last two years. Respondents who usually sought dental care for a problem were 59 per cent more likely to perceive a need for some treatment than those who attended for a check-up.

Those same people were four times more likely to perceive a need for extractions than those who attended for a check-up. Health card holders were 69 per cent more likely to perceive a need for extractions than non-card holders.

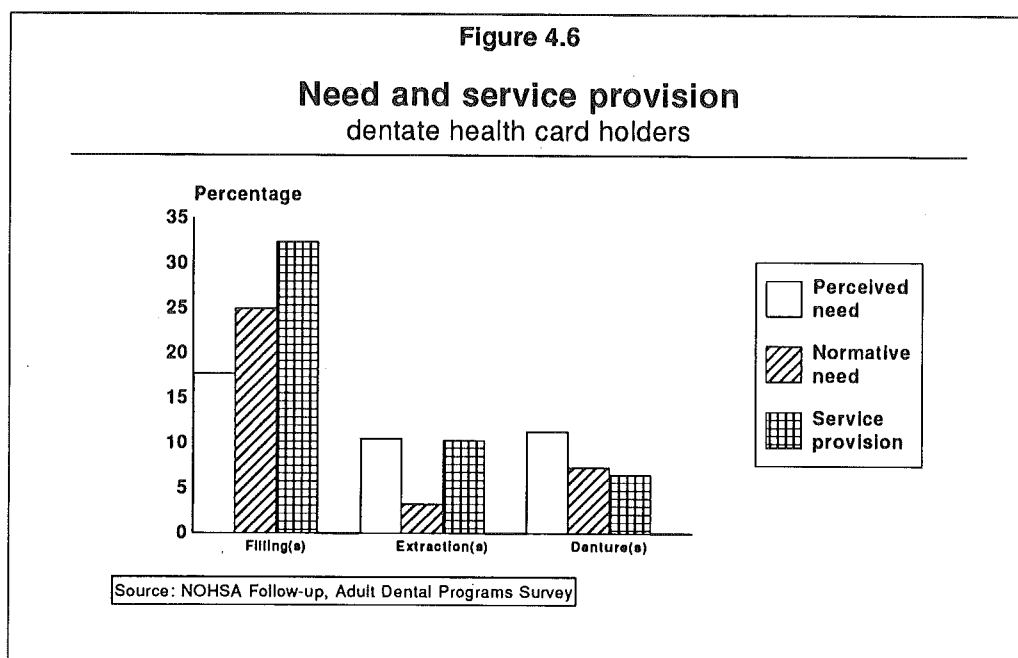
This greater likelihood of perceiving a need for an extraction may reflect a history of episodic care involving extractions. These episodes may consist of attendance for symptoms, treated by extractions, periods of no dental symptoms coupled with neglect, attendance with new symptoms, and so on. This is in contrast to a more desirable pattern of restorative treatment and self care.





## PERCEIVED NEED, NORMATIVE NEED AND SERVICE PROVISION

Data from the NOHSA follow-up study on perceived need for treatment, obtained from mailed questionnaires, and the normative need for treatment, established by clinical examinations of the same individuals, provided a comparison between perceived and normative need. A further comparison was made between the perceived and normative needs of health card holders in the NOHSA study and the provision of services to health card holders in the public sector in Adelaide, obtained from the Adult Dental Programs Survey. These comparisons are shown in Figure 4.6.



The percentage of health card holders perceiving a need for fillings was lower than the percentage of health card holders with a normative need. This low perceived need for fillings may in some part be due to the asymptomatic nature of early dental caries where the individual is not aware of a dental need.

When considering the relationship between the normative need for fillings and the provision of fillings, where provision exceeded normative need, it should be noted that these data came from different sources. The normative need data were obtained from individuals responding to a survey and who voluntarily presented for an examination, thus they may not be representative of health card holders, both users and non-users of public sector care. The service provision data were provided by public sector clinics on the treatment given to individuals attending for treatment. Those who actually utilise the public dental clinics may have more disease than those who have not presented for care. A higher provision of service may also be due to the availability and use of radiographs and to different judgements on the need to replace existing fillings.

The percentage of health card holders who perceived a need for extractions was very similar to the percentage of health card holders who received extractions in public dental clinics. Both the percentage of health card holders who perceived a need for or who actually had extractions were considerably higher than the percentage of health card holders with a normative need for extractions. This might indicate that health card holders' perceptions of need for extractions are



confirmed and may be moulded by the actual treatment they receive. Alternatively, the actual treatment may be influenced by the perceived need of the individual.

The difference between the perceived and normative need for fillings and extractions may be further examined by considering them together. The sum of the percentage of individuals perceiving a need for extractions and a need for fillings, and the sum of the percentage of individuals with a normative need for extractions and for fillings, are virtually identical, potentially indicating a good understanding of the presence of a dental problem, but variation in judgements about the appropriateness of possible treatment options. Health card holders may see extraction as the appropriate treatment option, whereas restorative treatment may be preferred by dentists.

The percentage of individuals who perceived a need for dentures was higher than the percentage who were judged normatively to need dentures and both perceived and normative need percentages were higher than the percentage of health card holders who received dentures in public clinics. These differences may be due to the assessment, made by dentists during epidemiological examinations, that some causes of dissatisfaction with dentures are extremely difficult to treat and unlikely to be beneficial. Dentists in public clinics may concur with this view and also ration the provision of dentures.

## SUMMARY

---

- Health card holders perceived a greater need for dental treatment than non-health card holders.
- Nearly one third of health card holders reported that their dental care was urgent.
- Health card holders reported a 45 per cent greater perceived need for fillings and nearly twice the perceived need for extractions and dentures than non-health card holders.
- Those who usually attended for a problem were 59 per cent more likely to perceive a need for some treatment, and four times more likely to consider that an extraction was needed than those who attended for check-ups.
- Marked discrepancies existed in perceived need, normative need and the provision of dental care to health card holders.
  - Perceived need for fillings was less than the normative need.
  - Perceived need for extractions was greater than the normative need.
  - Provision of extractions in public dental service exceeded the normative need for extractions of a sample group of health card holders.



---

## Chapter 5

# AVAILABILITY OF DENTAL SERVICES

Fearnley Szuster

---

### INTRODUCTION

---

The availability of dental services is a determinant of the use of dental care and oral health. In particular, the community will not receive appropriate dental care if dental practitioners are either not available or are in limited supply.

This chapter concentrates on the pool of dentists as the most significant resource determining availability of dental services. The number and distribution of other dental health workers is not included, but clearly dental therapists provide significant amounts of services for school children. In addition, the much lower numbers of dental hygienists within Australia influence availability of periodontal, orthodontic and preventive services. However, therapists and hygienists have only marginal influences on the availability of the bulk of dental services for adults in Australia.

Availability is examined across three dimensions: geographic location (section of state), sector (private/public), and population base – namely estimated resident population and health card holders (and dependent spouses). The information used in this chapter was obtained about all dentists registered with State/Territory Dental Boards from the DSRU's National Dental Labourforce Data Collection. Data on the postcode of the principal dental practice has been used to assign each dentist (including both general practitioners and specialists) to one of three localities (in accordance with the ABS Census classification) defined as:

- Major urban:** all urban centres with a population of 100,000 and over;
- Other urban:** all urban centres with a population of 1,000 to 99,999, and known holiday resorts of less population if they contain 250 or more dwellings, of which at least 100 are occupied;
- Rural:** combining all population clusters of 200 to 999 persons, the rural balance, off-shore and migratory.

This has been done within each State and Territory, each of which maintains registers of dentists and collects dental practice activity data to be passed on to the AIHW Dental Statistics and Research Unit. The sector of practice describes whether the principal practice of each dentist is within the public sector (operated through government agencies) or the private sector. Public sector excludes dentists who are employed within the tertiary education institutions. The population base is described using the entire estimated resident population (ERP) determined by the Australian Bureau of Statistics (June 1991) and using the number of persons (and dependent spouses) who hold Commonwealth health care concession cards (June 1992).

In this chapter, rates of dentists per 100,000 population (rather than measures of population per dentist) have been used so that changes in availability can be immediately obvious. Therefore a lower rate means a lower level of availability and a higher rate means a higher level of availability.



## PRIVATE DENTAL PRACTITIONERS

The data in Figures 5.1 and 5.2 are presented as the number of private practitioners per 100,000 ERP. There are considerable differences in the geographic distribution of private dental practitioners for both of these rates. Historically there has been a difference in the supply of dentists between the rural and urban areas. These differences have long been identified and documented in, among other sources, the 1970 Department of Labour and National Service report on dentists in Australia. It can be seen that there are also variations between the major urban and other urban areas.

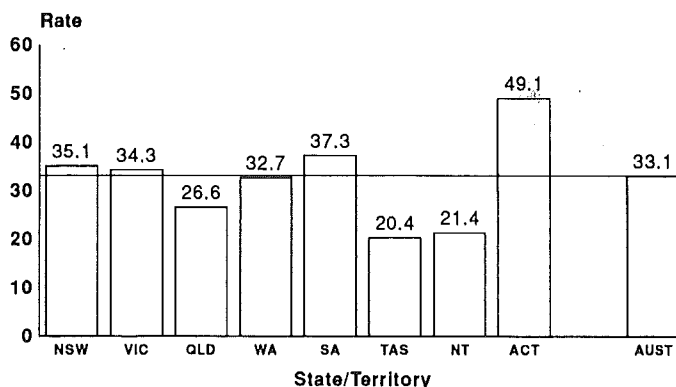
When comparing States/Territories for private dental practitioners, it can be seen in Figure 5.1 that the Australian Capital Territory and South Australia appear as the highest rates per 100,000 ERP. Then comes New South Wales, Victoria and Western Australia close to the national rate. Queensland is next, with the Northern Territory and Tasmania considerably below the other States and Territories.

Figure 5.2 provides a comparison of the private dental practitioners in Australia across the Sections of State. In this figure the columns in the front row present the rural rates, the centre row presents the other urban rates and the back row presents the major urban rates. From this figure it can be readily identified that there are obvious similarities across the States and Territories of the rates in rural, other urban and major urban localities. Therefore the overall State/Territory rates (Figure 5.1) could be considered to be largely a function of the level of urbanisation within the State/Territory.

The overall national rate of 33.1 private dental practitioners per 100,000 estimated resident population, was comprised of 41.6 for the major urban areas, 27.0 for the other urban areas and 6.1 for the rural areas. This amounts to a more than fourfold difference in the rates between rural and other urban, and major urban is over one and a half times the per capita rate for other urban.

Figure 5.1

### Private dental practitioners - 1991/92 rates per 100,000 ERP population

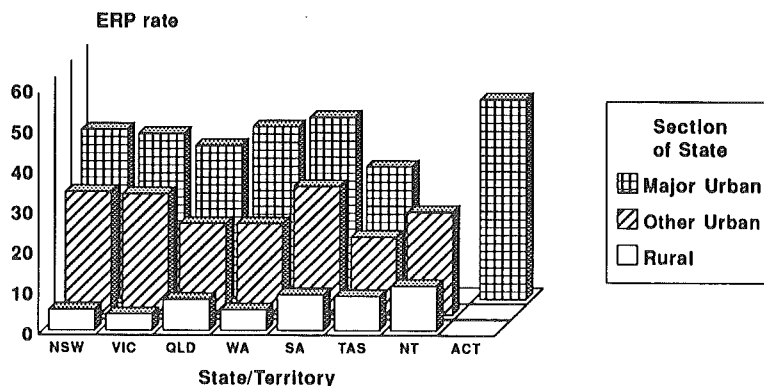


Source: Dental Labourforce Statistics



Figure 5.2

**Private dental practitioners - 1991/92**  
rates: state/territory by section of state



Source: Dental Labourforce Statistics

**PUBLIC DENTAL PRACTITIONERS**

The data in Figures 5.3 and 5.4 presents the number of public practitioners per 100,000 ERP and the number of public dental practitioners per 100,000 health card holders (and dependent spouses).

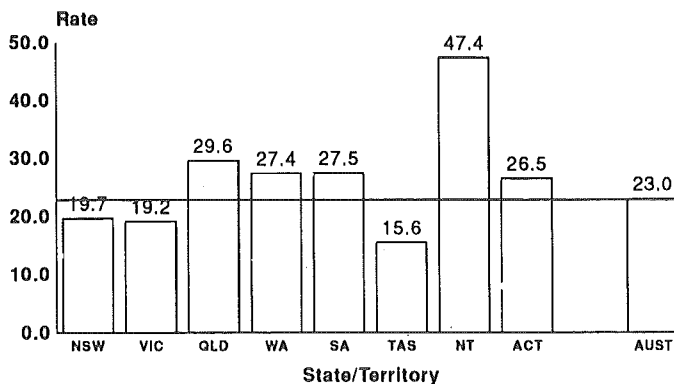
Figure 5.3 presents a comparison of the rates of the number of public dental practitioners per 100,000 health card holders and their dependent spouses for the States and Territories, against the overall national rate. The relativities between the States and Territories are well known but the magnitude of differences may not be so familiar. Clearly the Northern Territory rate is well above the rest of the country. Queensland, South Australia, Western Australia and the Australian Capital Territory are all above the national rate. Then comes New South Wales, Victoria and finally Tasmania.

The 1970 Department of Labour and National Service report states that the earliest State Government financed dental services commenced before or around the time of the 1st World War and a number of States have a substantial history of public sector service delivery. However it is clear that the overall rates of public dental practitioners at present are a function of current State and Territory Government funding to support the level of service provision developed during this century.



Figure 5.3

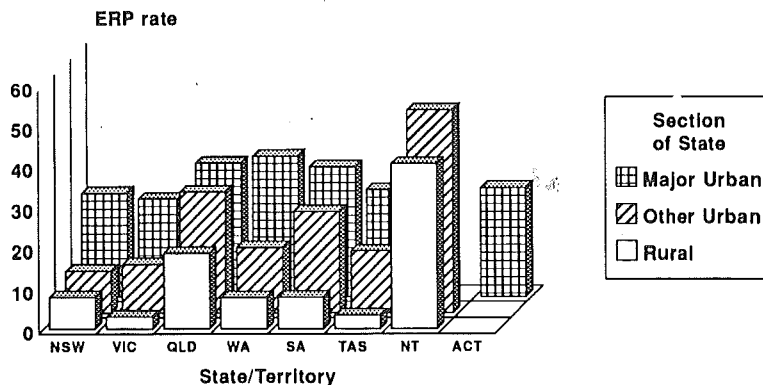
Public dental practitioners - 1991/92  
rates per 100,000 health card holders & dep. spouses



Source: Dental Labourforce Statistics

Figure 5.4

Public dental practitioners - 1991/92  
rates: state/territory by section of state



Source: Dental Labourforce Statistics



Figure 5.4 presents the rates by section of state. There is a similar pattern between States/Territories compared with Figure 5.3. The availability of dentists is far less (with the exception of the Northern Territory) in the rural areas compared to the urban areas, and other urban is lower than major urban. However, this last difference is less than was observed for the private dental practitioners. Of the mainland States/Territories there is a clear separation between the two most populous States and the remainder for each section of state. This difference is not explained by the varying levels of urbanisation between the States, as was evident earlier for private dental practitioners.

The overall national rate of 23.0 public dental practitioners per 100,000 health card holders and their dependent spouses, is comprised of 27.6 for the major urban areas, 17.9 for the other urban areas and 10.3 for the rural areas. Here rural is a bit over half the rate for other urban and major urban is again over one and a half times the rate for other urban.

## DENTAL PRACTITIONERS AT THE STUDY SITES

As part of the *Research Database on Dental Care in Australia* the availability of dental practitioners for the seven survey sites has been examined and are presented in Table 5.1. By and large these rates approximately agree with the rates by section of state presented above, although for the private practitioners rates, Western Sydney is below the major urban rate for New South Wales. For the public practitioner rates there is considerable variation, with the predominantly non-metropolitan sites having extremely low rates while the rates for metropolitan sites were above the national rate.

**Table 5.1**  
Study site availability – dentate persons  
attending last year

	Private practitioner ERP rate	Public practitioner Card rate (non-SDS)
Western Sydney	22.7	38.2
North East NSW	24.5	5.4
Outer Melbourne	41.4	29.6
North East Victoria	19.0	5.3
Adelaide	44.3	23.9
Non-metropolitan WA	20.0	na
West Moreton Qld	12.7	na

Source: Telephone Interview Survey



## DISCUSSION

---

There are clear differences in the rates by section of state and between private and public dentists. It can be seen from Figures 5.1 and 5.3 that, although rural is the lowest for both private and public rates, availability in the public sector is above the private sector. Both private and public dental practitioners are predominantly located in the urban areas of Australia and in particular in the major urban centres. It is clear that dental services are not equally available across Australia either when looking at the estimated resident population or at the location of health card holders (and dependent spouses).

Examination of the card and estimated resident population rates for public and private dental practitioners shows that health card holders (who might be expected to use public dental services) are disadvantaged in their access to dental care. The ERP rate for private dental practitioners was 33.1. However, if the ERP rate for public dental practitioners (6.2) is included then the combined public and private practitioners rate is 39.3. In comparison the availability (rate) of public dental practitioners to health card holders was 23.0. This can therefore be considered to demonstrate approximately 60% availability of services to health card holders (and dependent spouses) compared to the total population.

## SUMMARY

---

- Major urban areas have 41.6 private and 7.2 public practitioners per 100,000 ERP.
- Other urban areas have 27.0 and 6.4 rates respectively.
- Rural areas have 6.1 and 1.8 rates respectively.
- New South Wales, Victoria and Tasmania have the lowest rates of public practitioner supply.
- The lower dentist to health card holder rates within the public sector (23.0 per 100,000 health card holders (and dependent spouses)) compared to a combined rate of 39.3 per 100,000 ERP clearly shows that there are restrictions to the availability of dental care for health card holders (and their dependent spouses).





## Chapter 6

### USE OF DENTAL CARE

David Brennan and Judy Stewart

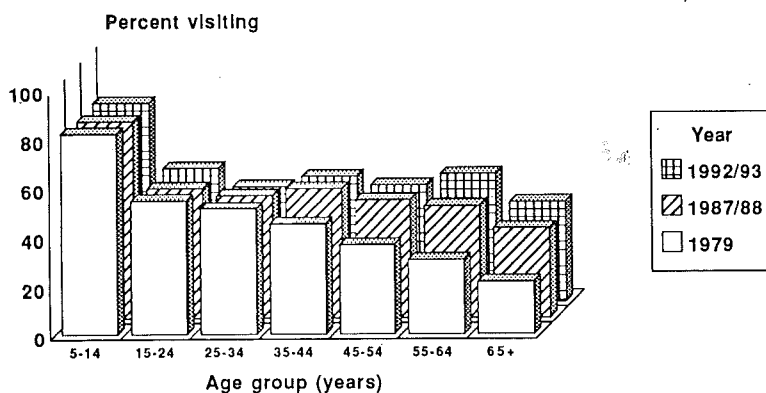
#### INTRODUCTION

Factors such as the changing demography of the population and improved oral health of children and adolescents have led to a transfer of the burden of disease and the need for dental care from children to adults. However, national level research on the use of dental services among adults has been limited.

#### TRENDS IN THE USE OF DENTAL SERVICES

Figure 6.1

### Persons visiting in last 12 months by age and year



Source: ABS SSS1 1979, NOHSA 1987/88, Telephone Interview Survey 1992/93

Despite these limitations in the data available on use of dental services, there are now several waves of data collection over the last 14 years describing time since last visit, which are presented in Figure 6.1. The percentage of persons who visited a dental provider in the last 12 months remained reasonably stable among children aged 5-14 years and young adults aged 15-24 years



although there has been a marked gap between the high use by children and the level of use by all other ages. A small decrease has occurred among young adults aged 25–34 years while the percentage of persons visiting increased and held at higher levels among adults aged 35–44 years and 45–54 years, and continued to increase among those aged 55–64 years and older adults 65+ years old. This later group showed the most substantial increases, nearly twofold, in the percentage who visited a dental provider in the last 12 months.

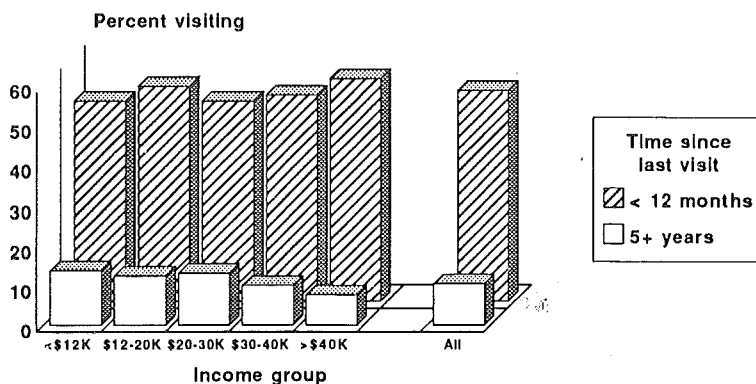
Decreased tooth loss, associated with lower levels of edentulism, would seem to be a major influence on the trends in the use of dental services among adults. As edentulism is projected to continue to decline, increased levels of use of dental services might be expected among adults.

For the analysis presented in the remainder of this chapter, children and adolescents have been excluded because of the varying influence of the School Dental Services on the use and receipt of dental care. Those 65+ years old have also been excluded. The data presented in the remainder of the chapter will be based on dentate adults, aged 18–64 years, who provided self-reported data from the 1992/93 Telephone Interview Survey.

### USE OF SERVICES BY ADULTS

Figure 6.2

#### Persons visiting a dental provider by income and time since last visit



Source: Telephone Interview Survey

Data on time since last visit by household income among dentate adults aged 18–64 years is presented in Figure 6.2. There was little variation in the percentage of persons who visited in the last 12 months, approximately half of the persons in all household income groups had made a visit within this time period. While there was little variation in the percentage having made a visit in the last 12 months by household income, there was an almost twofold difference between lowest and highest household income group in the percentage who last visited five years ago or more.

From these data, it might be proposed that the percentage of persons who visited in the last 12 months was similar across all income groups, and was unacceptably low in all income groups. Also, low income earners are at a disadvantage with the time interval since last dental visit,



mainly through higher percentages of persons having visited a dentist five years ago or more. However, time since last visit reveals little about a person's last dental encounter. The reason for visiting and type of dental services received tell more about the use of services.

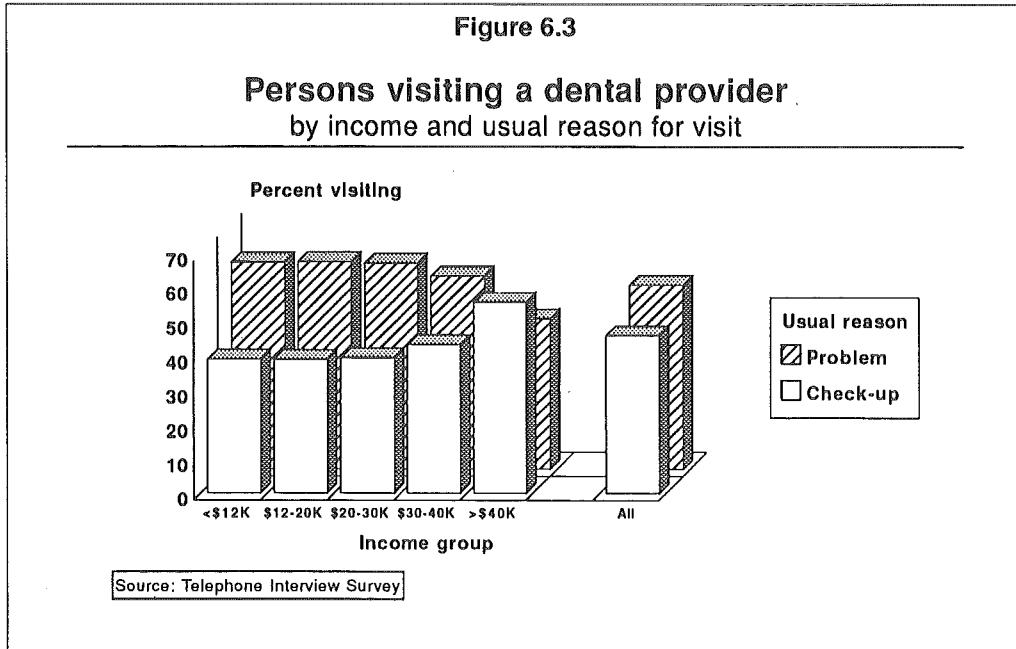


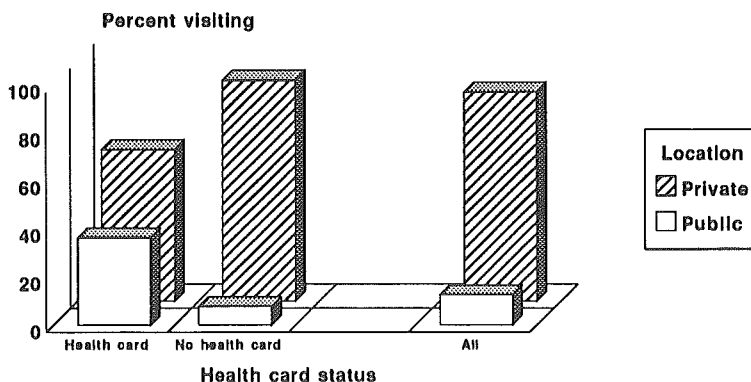
Figure 6.3 presents the percentage of persons visiting a dental provider by income and usual reason for visiting. The majority of adults, 54.1 per cent, visit because of a dental problem. In all three lowest income groups approximately 60 per cent of persons usually visit because of a problem. Over the higher income groups the predominant usual reason for visiting reverses with 56 per cent of the highest income group usually visiting for a check-up. From these data it might be proposed that reason for visiting is more sensitive than the percentage visiting within 12 months to household income.

While income provides one way of assessing inequality in use of services, the pattern of use by health card holders is also relevant. Figure 6.4 shows the percentage of persons visiting a dental provider by health card status and location of visit. The dominance of the private dental services in the provision of dental care is substantial. Among dentate adults with no card 92.2 per cent had their last visit in the private dental service. However, more surprising is the finding that almost two-thirds of dentate adults who held a card also had their last visit in the private dental service. Only 36.4 per cent of health card holders made their last visit to the public dental services.



Figure 6.4

**Persons visiting a dental provider  
by health card status and location of last visit**



Source: Telephone Interview Survey

**VARIATIONS IN THE RECEIPT OF DENTAL SERVICES**

Having looked at use of services by dentate adults, the following section presents information on variations in dental services received by persons who had visited in the last 12 months. This will focus on self-reported data on receipt of extractions and restorations.

Figure 6.5 shows extractions and restorations received for persons visiting in the last 12 months by usual reason for visit and location of last visit. The percentage of dentate adults receiving restorations was higher among those who usually visit for a problem compared with those who usually visit for a check-up. Among those who usually visit for a check-up the percentage of dentate adults receiving restorations was higher among those whose last visit was to a private compared to a public dental service; 42.0 compared to 28.9 per cent. The percentage receiving restorations was especially low among those attending public dental services at their last visit and who usually visit for a check-up. Adults who usually visit for a problem presumably are more likely to have active disease and to need restorations.

The percentage of dentate adults receiving an extraction is almost the same for those using public dental services regardless of whether they visit for a check-up or for a problem, and among those whose last visit was to private dental services and who usually visit for a problem. For all three groups approximately one quarter of dentate adults received an extraction in their last course of dental treatment.

It would appear that usually visiting for a problem creates a higher likelihood of extraction, compared to check-up visits in private practice, but that little difference exists in the public dental services in the likelihood of extraction irrespective of the usual reason for visiting. Some of this variation will be linked to cost of dental care, which may be captured through examination of whether persons have had to forego treatment which was recommended or which they wanted.



Figure 6.5

### Extractions and Restorations by usual reason for visit and location

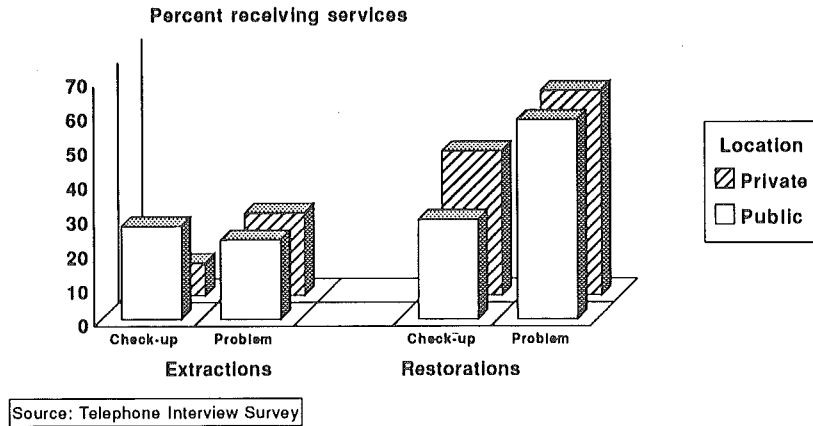


Figure 6.6

### Extractions and Restorations by foregone/not foregone treatment and usual reason

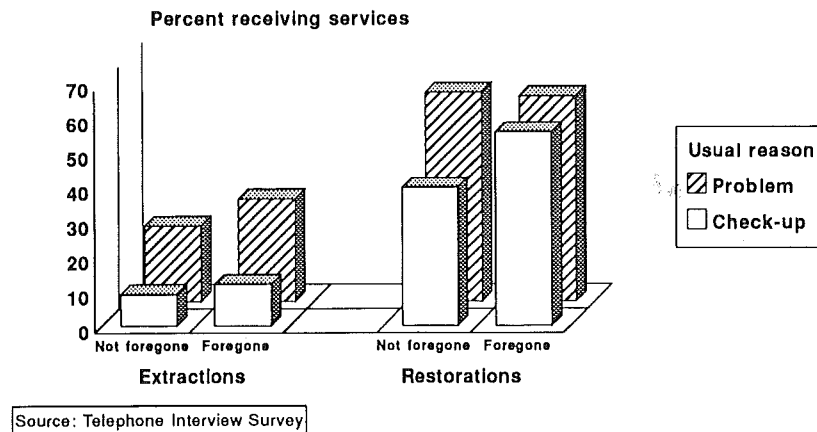


Figure 6.6 shows extractions and restorations received for persons visiting in the last 12 months whose last visit was at a Private location by whether they had to forego treatment due to cost, and usual reason for visit. Among those who usually visit because of a problem, the percentage receiving an extraction was high. However, the percentage was highest, 29.5 per cent, among those who both usually visit because of a problem and had foregone treatment because of cost.



The percentage receiving an extraction in the last course of treatment was lowest, 9 per cent, among those who both usually visit for a check-up and had not forgone any treatment.

A combined influence of usual reason for visiting and whether treatment had been foregone was also found for the provision of restorations, but only among those usually visiting for a check-up, shown in the front row of Figure 6.6. The likelihood of receiving a restoration was similar among those who had foregone treatment and those who usually visit for a problem, ranging from 55.9 to 60.5 per cent. The group who had not foregone any treatment and who usually visit for a check-up had a lower likelihood of reporting a restoration in their last course of treatment, 39.8 per cent.

## DISCUSSION

---

Social inequalities exist in the use of services and in the dental care received by Australian adults. These are most clearly seen in the reason for visiting, and the provision of extractions. While availability of services and their affordability are issues that policy-makers can address, it appears that attention is also required to change cultural and structural barriers to tooth retention in the public dental services, and the reason for visiting in both the private and public dental services. These areas could be addressed with a new emphasis on oral health promotion among Australian adults.

## SUMMARY

---

- There was a marked gap between the high use of dental services by children (81.3 per cent in 5–14 year olds) and the level of use by all other ages (ranging from 54.5 to 40.4 per cent).
- The majority of adults, 54.1 per cent, visit because of a dental problem, rather than a check-up.
- Only 36.4 per cent of health card holders made their last visit to a public location.
- At private locations higher levels of extractions were provided for problem visits, 23.4 per cent, compared to check-up visits, 9.5 per cent.
- At public locations there was less difference in the level of extractions provided for problem and check-up visits, 23.2 and 27.1 per cent.
- At private locations the highest level of extractions were provided for problem visits where persons had foregone treatment which was recommended or wanted due to cost, 29.5 per cent.
- The lowest level of extractions at private locations were provided for check-up visits where persons had not foregone recommended or wanted treatment, 9.0 per cent.



---

## Chapter 7

# PROVISION OF DENTAL CARE TO CLIENT GROUPS

Gary Slade and Greg Hoskin

---

### INTRODUCTION

---

This chapter examines findings from the Adult Dental Programs Survey, conducted in Western Sydney, North Eastern NSW, Outer Melbourne, North Eastern Victoria and Adelaide. To be eligible for care, patients of dental services at those sites must hold Commonwealth government health cards. There are a number of key questions about services provided in public clinics, which are addressed in this chapter: what are the characteristics of patients, what services are provided, who attends for emergency care and who gets extractions?

### CHARACTERISTICS OF PATIENTS

---

The age and sex composition of the sample is presented in Table 7.1. For comparison, the percentages for the estimated resident population aged 15 years or more from the combined sites are displayed in the right hand column. Public patients have an older age distribution and are more likely female. The distributions differ for two basic reasons: firstly the patient group consists of health card holders, and secondly they have attended for care at a public clinic.

**Table 7.1**  
**Socio-demographic characteristics**

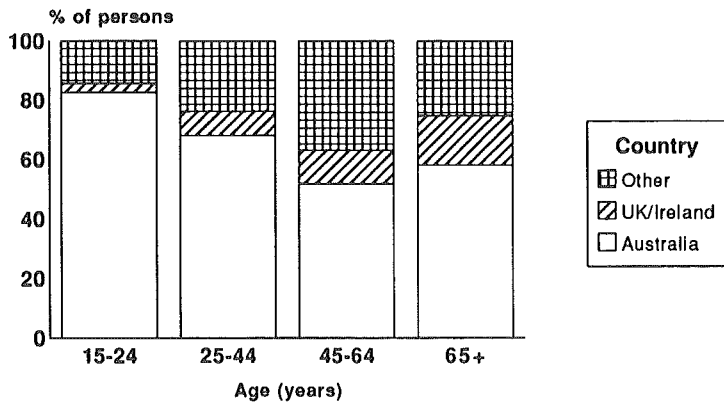
		Sampled persons		
		No.	%	ERP %
Age	15-24 years	270	11.1	20.9
	25-44 years	863	35.6	40.9
	45-64 years	657	27.1	24.0
	65+ years	633	26.1	14.3
Sex	Male	978	40.4	49.3
	Female	1442	59.6	50.7

Figure 7.1 indicates the percentages of patients born in Australia, the United Kingdom or Ireland and other places. Eighty three per cent of the youngest group was Australian born, compared with just over one half in the older two age groups. Figure 7.2 indicates the percentage dentate and edentulous. As expected, the percentage edentulous increases with age. However even the 26 per cent edentulous in the older age group is less than would be expected among all health card holders of that age. The finding in part reflects the lower likelihood of dental visits by edentulous persons.



Figure 7.1

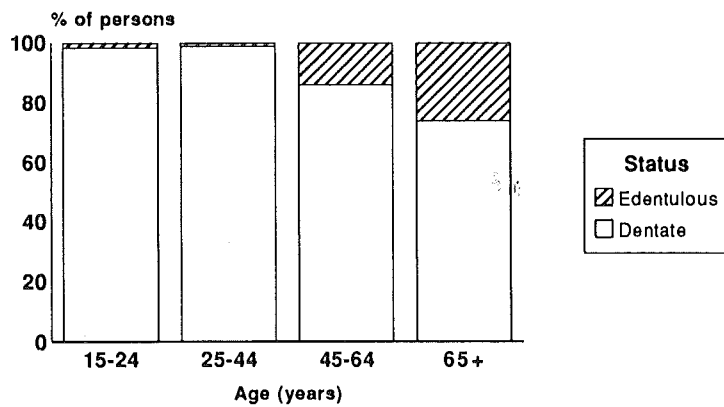
### Country of birth



Source: Adult Dental Programs Survey

Figure 7.2

### Dentate status



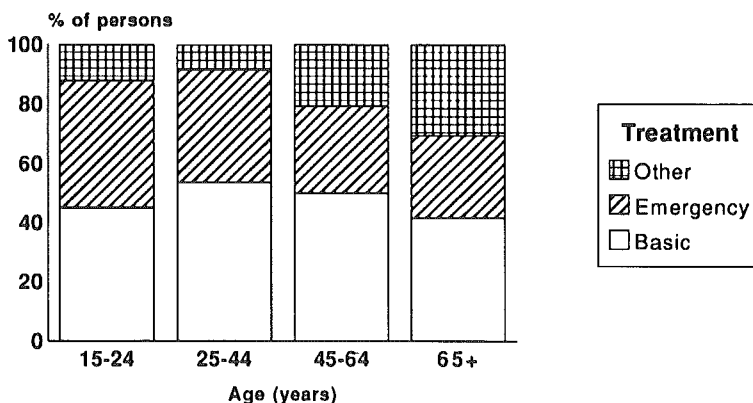
Source: Adult Dental Programs Survey





Figure 7.3

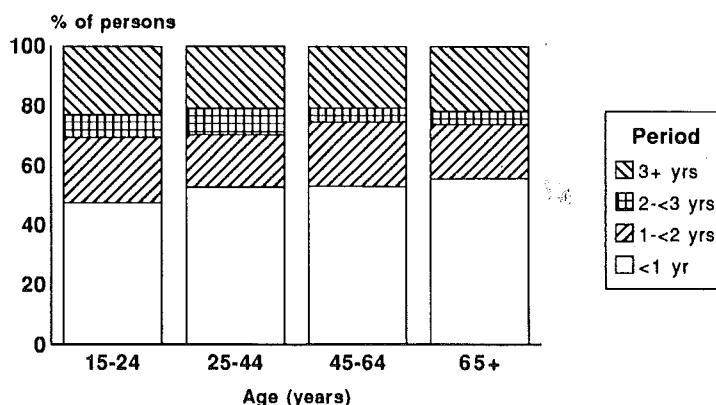
Nature of treatment



Source: Adult Dental Programs Survey

Figure 7.4

Period since last visit



Source: Adult Dental Programs Survey

Figure 7.3 examines the type of the visit which was categorized by clinics as: basic for patients who attended after being on the waiting list; or as emergency; or as any other type of visit such as a screening examination. Emergency visits were more frequent in younger age groups, accounting for 43 per cent of persons aged 15 to 24 years. The period since the last visit to a public dental clinic is shown in Figure 7.4. Approximately one half of patients in all age groups



had attended within the previous 12 months. The other time periods also did not vary substantially by age. The relatively high frequency of visits within a 12 month period may be surprising in view of long waiting lists at almost all clinics. In part, it can be attributed to attendance for emergency visits prior to reaching the top of a waiting list, or attendance for emergency visits after a course of basic care.

Additional oral health characteristics were examined for the dentate group. Figure 7.5 presents the mean number of missing, filled and decayed teeth among age groups. The height of each bar is therefore equivalent to the DMFT index. The bars are arranged in pairs within each age group. Those attending for basic care are indicated by the letter B to the left, and those attending for emergency care are indicated by the letter E to the right. Mean DMFT levels increase from 8.4 among the youngest basic care group to approximately 24 among persons aged 65 years or more. Emergency patients in the three youngest age groups tend to have more decayed teeth, with the highest mean number of decayed teeth observed for emergency patients aged 15 to 24 years.

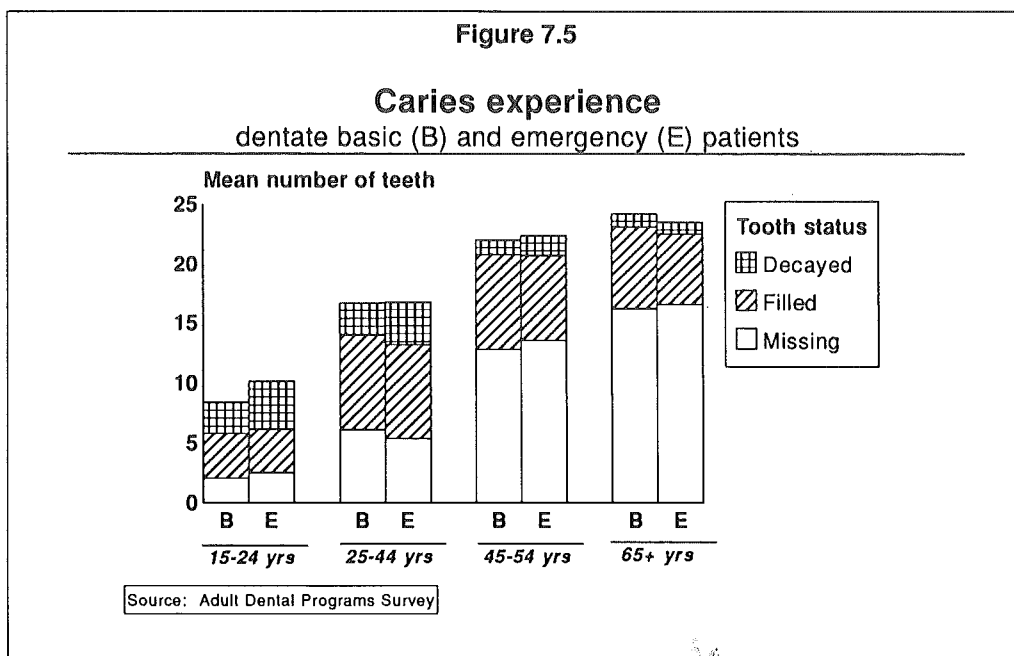
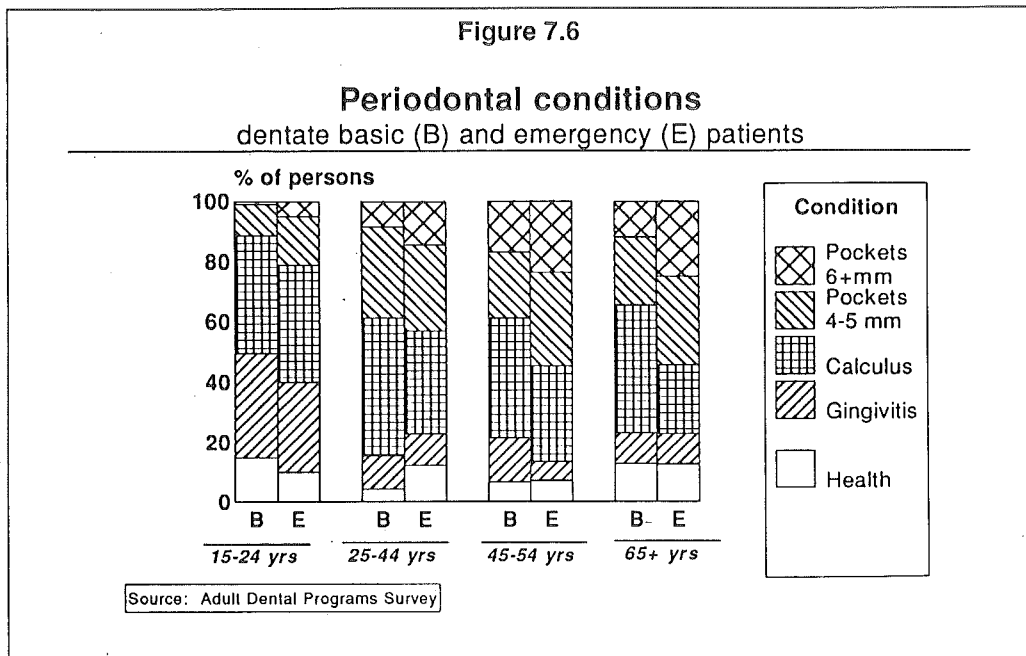


Figure 7.6 is laid out in a similar manner, and presents the percentage of individuals categorized according to their most severe periodontal condition on the CPITN index. The percentage of persons with periodontal pocketing of 6mm or more tends to increase with age to a maximum of 25 per cent in emergency patients aged 65 years or more. Within all age groups, emergency patients have more severe periodontal conditions than basic care patients.



Figure 7.6



## SERVICE PROVISION

Figure 7.7 presents service provision among dentate patients. The vertical axis represents the percentage of persons receiving one or more items of care within each main area of service. Eighty five per cent of basic care patients received diagnostic services compared with only sixty per cent of emergency patients. Basic care patients were also more likely to receive preventive or periodontic services. However one third of emergency patients received oral surgery compared with less than ten per cent of basic care patients. Oral surgery is dominated by dental extractions.

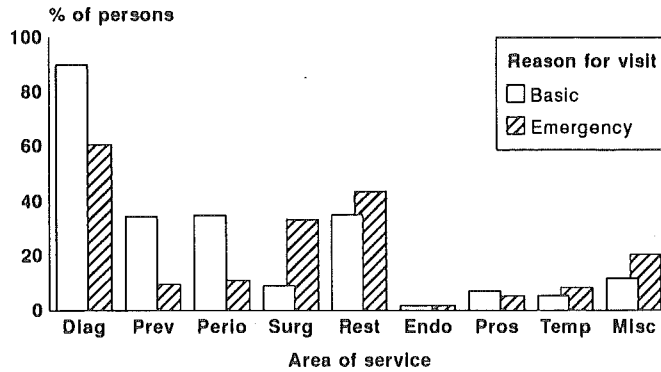
The next part of the analysis examined two related questions about this existing pattern of dental care. First, to examine the characteristics of persons who attend for emergency care, and second to examine the characteristics of those who receive extractions. The focus on these questions stems from a recognition of the importance of timely access to care and the desire to avoid the long term functional and psycho-social impacts which arise from premature tooth loss.

Figure 7.8 presents the percentage of dentate persons making emergency visits among groups defined by various socio-demographic characteristics listed on the left. A greater percentage of emergency visits was observed among persons who were: aged less than 30 years; Australian born; male; new patients; and who were from rural or other urban areas. The largest differential existed for geographic locality with some 65 per cent of persons in rural or other urban areas making emergency visits. Oral health characteristics associated with emergency visits are presented in Figure 7.9. Higher rates of emergency visits occurred for those who: had two or more decayed teeth; zero to four missing teeth; or periodontal pockets of 6mm or more.



Figure 7.7

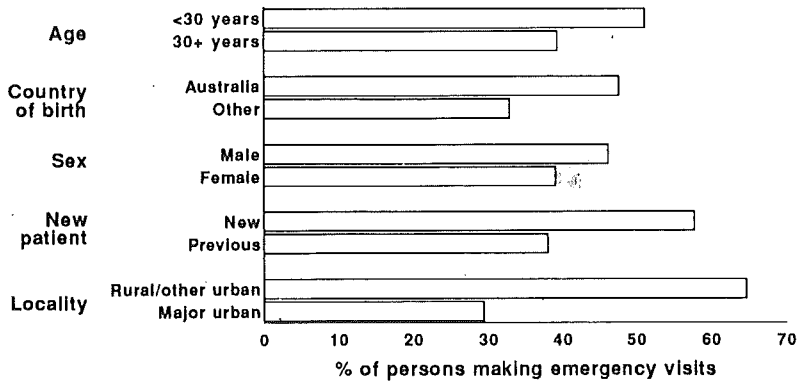
### Service provision Percentage of persons receiving services



Source: Adult Dental Programs Survey

Figure 7.8

### Emergency dental visits by socio-demographic factors - dentate persons

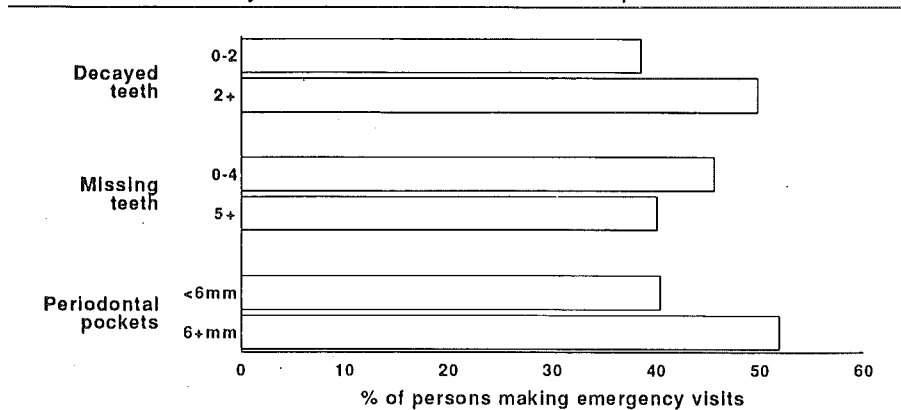


Source: Adult Dental Programs Survey



Figure 7.9

**Emergency dental visits**  
by oral health status - dentate persons



Source: Adult Dental Programs Survey

The separate effects from this and the previous figure were analysed in further detail by using logistic regression analysis. The aim was to determine which of the effects had an independent association with emergency visits after considering all the other effects. The findings are summarized in Table 7.2. Age, sex, locality, new patient and periodontal conditions all had independent effects. The odds ratios indicated that emergency visits were 64 per cent more likely among persons aged less than 30 years; 30 per cent more likely among males; over four times as likely in rural or other urban areas; ninety four per cent more likely among new patients; and just over twice as likely among those with periodontal pockets of 6mm or more. The relevance of these findings is that emergency visits are much more frequent for example in rural or other urban areas, even after controlling for the demographic characteristics and disease status of patients who attend for care.

**Table 7.2**  
**Emergency visits**  
Odds ratios from logistic regression model

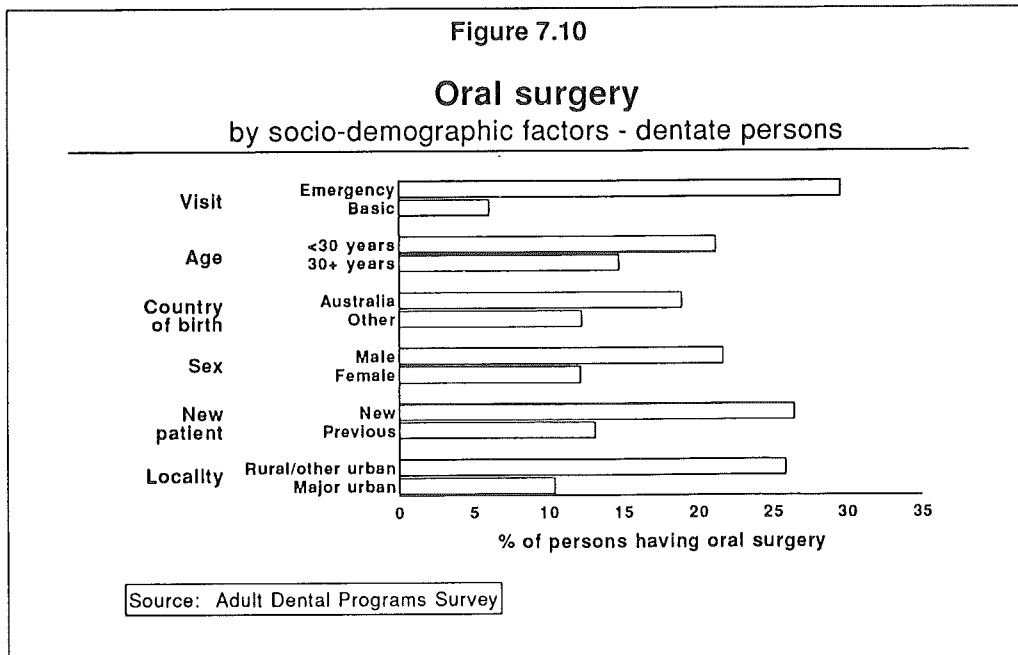
Characteristic	Odds ratio
Age <30 years	1.64
Males	1.30
Rural/other urban	4.17
New patient	1.94
Perio pocket 6mm+	2.05

Source: Adult Dental Programs Survey

Figure 7.10 examines receipt of oral surgery and socio-demographic characteristics. Again, the horizontal bars represent the percentage of persons receiving oral surgery within groups listed at



the left. The type of visit had the most pronounced effect, with some 30 per cent of emergency patients having extractions compared with only six per cent of basic care patients. Other differences existed by age, country of birth, sex, new patient, and geographic locality.



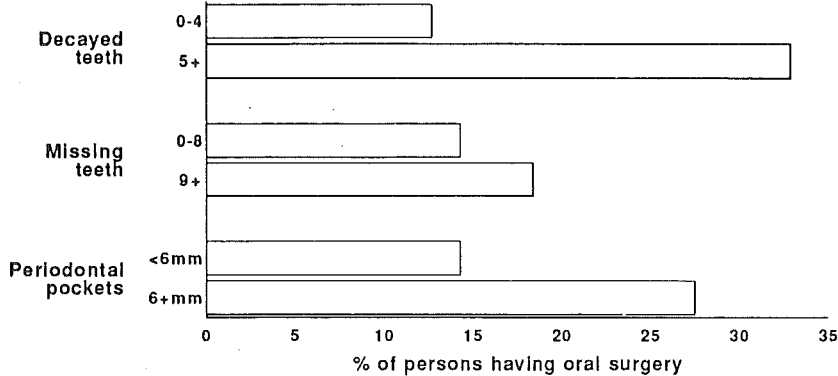
Oral health variables and their associations with receipt of oral surgery are presented in Figure 7.11. Missing teeth, decayed teeth and periodontal pockets were associated with a greater percentage of persons receiving oral surgery. The effect of missing teeth is interesting. Persons with nine or more missing teeth were more likely to receive oral surgery. In contrast, Figure 7.9 indicated that those with more missing teeth were less likely to have emergency visits. This probably reflects one of the hazards of progressive tooth loss. Although fewer teeth seem to be associated with reductions in some symptoms, extraction appears more likely to become the preferred mode of treatment for persons with fewer teeth, presumably even for non-symptomatic conditions.

Some of the associations between patient characteristics and receipt of oral surgery could be anticipated in view of the strong effect of emergency visits observed in Figure 7.10, coupled with the earlier observations about the characteristics of emergency patients. For example, males were more likely to be emergency patients. Hence, their high rate of extraction may be due primarily to their more frequent attendance for emergencies. Therefore, a logistic regression analysis of these data was also undertaken to ascertain the factors which were independently associated with the receipt of oral surgery.



Figure 7.11

**Oral surgery**  
by oral health status - dentate persons



Source: Adult Dental Programs Survey

The findings are summarized in Table 7.3. Emergency visits had the strongest effect, with such patients having more than four times the likelihood of receiving oral surgery. Age, sex and new patient status persisted as independent effects. Also, persons from rural or other urban areas had a 65 per cent greater likelihood of extractions. The three oral disease parameters also had significant independent effects. Persons with five or more decayed teeth had more than twice the likelihood of extractions compared with persons with fewer decayed teeth. Nine or more missing teeth and periodontal pockets of 6mm or more were both associated with nearly twice the likelihood of extractions.

**Table 7.3**  
**Oral surgery**  
**Odds ratios from logistic regression model**

Characteristic	Odds ratio
Emergency visit	4.47
Age <30 years	1.66
Males	1.79
New patient	1.90
Rural/other urban	1.65
5+ decayed teeth	2.89
9+ missing teeth	1.98
Perio pocket 6mm+	1.98

Source: Adult Dental Programs Survey



## DISCUSSION

---

When considering the implications of these findings it is important to recall that the data were derived from clinics operating in quite different environments throughout three States. While they can be grouped together as public dental services, in reality there is considerable variation in the resources, philosophy and scope of care among sites and even within sites.

This is quite important when interpreting the strong effect of locality where a high rate of emergency visits and extractions was observed in non-metropolitan clinics. One likely explanation for this effect, although not the only one, relates to the earlier findings in Chapter 5 about lower rates of practitioner supply in non-metropolitan areas.

To recap, in the rural and other urban sites, some 25 per cent of patients received oral surgery. In Chapter 5, it was revealed that North Eastern NSW and North Eastern Victoria sites had approximately five public dentists per 100,000 health card holders (where public excludes the school dental services). This compares with major urban sites where 10 per cent of patients received oral surgery. Rates in excess of 20 public dentists per 100,000 health card holders were observed at those sites in Western Sydney, outer Melbourne and Adelaide. Public dental clinics which cover comparatively large numbers of eligible persons frequently need to offer a greater proportion of emergency sessions. For example, many clinics in rural areas devote more than one half of each working day to emergency appointments. Staff at those clinics report great pressure in their efforts to deal equitably and efficiently with such demand. When faced with a decision about extended treatment to restore a severely decayed tooth (which might entail several visits for endodontic care as well as complex restoration), those pressures may contribute to a decision, by both patient and dentist, to extract the tooth. In contrast, clinics which have relatively less demand for services are more likely to be able to devote resources to restorative and preventive care.

## SUMMARY

---

- One third of patients attended public dental clinics for emergency care.
- Emergency care patients had higher levels of decay and more severe periodontal conditions, although they were less likely to receive periodontal or preventive services, and they were more likely to receive oral surgery.
- Other factors were independently associated with a greater likelihood of oral surgery:
  - age less than 30 years;
  - male;
  - new patient;
  - five or more decayed teeth;
  - nine or more missing teeth;
  - periodontal pockets of 6mm or more; and
  - rural/other urban location.
- In rural/other urban survey sites, 25 per cent of patients received oral surgery and there were five public dentists per 100,000 health card holders.
- In major urban survey sites, ten per cent of patients received oral surgery and there were more than 20 public dentists per 100,000 health card holders.





## Chapter 8 DENTAL INSURANCE

Gary Slade

### INTRODUCTION

This chapter examines private dental insurance within the population using the information reported in the Telephone Interview Survey. Dental insurance is relevant in the current context primarily because it constitutes a resource which can be used to enable use of dental services. Hence, it is valuable to understand the distribution of such a resource by obtaining a picture of who does have and who does not have dental insurance. There is also a temptation to view existing patterns of dental care among insured and non-insured persons as an indicator of the consequences of financial barriers. However, it is important to note that correlation is not the same as causation. Consequently, the features of dental care among insured persons may not be attributable to financial benefits of insurance as such, but rather to some other attitudes or behaviours of insured persons.

This chapter aims to answer the following questions: who has dental insurance; what are dental utilization patterns of insured and non-insured; what dental services are received by insured and non-insured; what financial barriers exist among insured and non-insured?

### FREQUENCY OF INSURANCE

**Table 8.1**  
**Percentage of persons with dental insurance**

Group		All persons	Dentate	Edentulous
Age	5-11 years	45.7	45.7	na
	12-17 years	50.3	50.3	na
	18-24 years	32.6	32.6	na
	25-44 years	42.9	43.6	21.9
	45-64 years	43.3	46.8	25.0
	65+ years	21.6	27.5	14.2
Sex	Male	39.8	41.5	18.4
	Female	40.4	43.3	18.9
Locality	Metropolitan	41.3	43.4	19.1
	Rural/other	35.2	38.0	17.6
All		40.1	42.4	18.7

Source: Telephone Interview Survey



The percentage of persons who said that they are covered by private dental insurance is listed in Table 8.1. Some 40.1 per cent of all persons had insurance. The figure was slightly higher among the dentate but much lower among edentulous persons. Insurance was most frequent for persons aged 12 to 17 years and declined to the lowest level among persons aged 65 years or more. Even among dentate persons, the oldest age group was least likely to have insurance. There was only small variation among the sexes and in metropolitan and rural or other urban localities. Because of the low insurance coverage among the edentulous and the confounding effects of age, edentulism, and insurance, the remaining analyses have been confined to dentate persons.

Dental insurance has been declining in recent years. Figure 8.1 presents the percentage of insured dentate persons five years ago in the 1987/88 National Oral Health Survey, and in the current Telephone Interview Survey. Reductions can be observed in all age groups, ranging from just 1 per cent among 12 to 17 year olds through to seven per cent reductions among adults in the three age groups from 18 to 64 years old. It should be re-emphasized that the earlier National Oral Health Survey was representative of Australia as a whole, while the Telephone Interview survey relates only to seven survey areas. However the reductions here are consistent in general with reported industry estimates of declines in private health insurance.

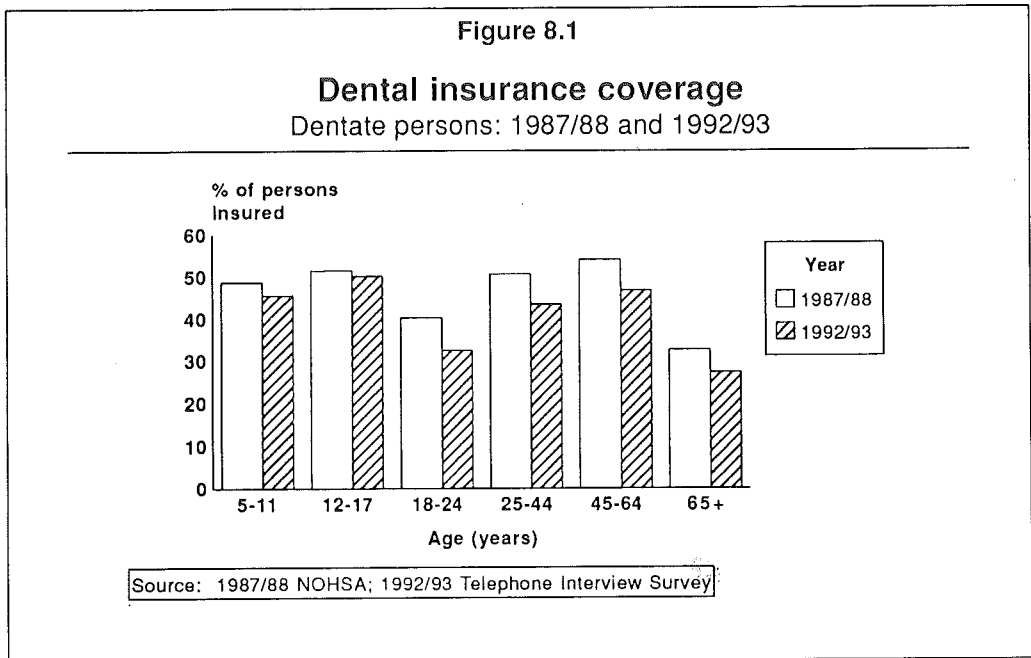


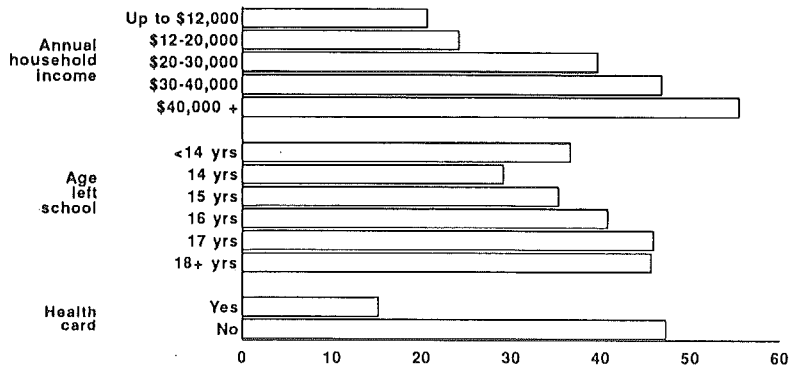
Figure 8.2 returns to the current Telephone Interview Survey to examine socio-economic group variations in insurance among dentate adults. Each horizontal bar represents the percentage of persons insured among groups listed at the left. There was a more than twofold variation in the frequency of insurance between the lowest and highest household income groups, with quite a linear relationship in the intermediate groups. Variations by educational attainment were not as linear, although persons who left school at older ages tended to have a higher frequency of insurance. Fifteen per cent of health card holders had insurance, compared with 47 per cent of non-health card holders. Although not shown in Figure 8.2, only 5 per cent of insured health card holders attended a public clinic for their last dental visit.



Figure 8.2

### Insurance among socio-economic groups

Dentate persons 18+ years



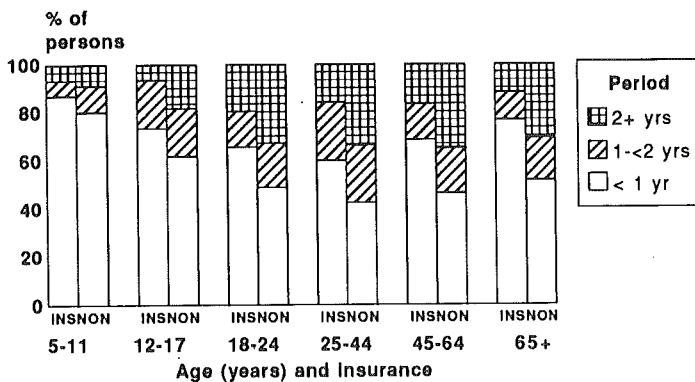
Source: Telephone Interview Survey

### USE/RECEIPT OF DENTAL CARE

Figure 8.3 describes the period since the last dental visit among insured and non-insured dentate persons in different age groups. Age groups are shown on the horizontal axis, and within each age insured persons are represented to the left and non-insured to the right of each pair of bars. Differentials between insured and non-insured in the percentage visiting during the last 12 months were smallest in younger age groups and largest among persons aged 65 years or more. There were corresponding differentials in the percentage whose last visit was greater than two years ago. Approximately one third of non-insured persons in each of the four adult age groups had their last visit more than two years ago, compared with less than 20 per cent among the insured.



Figure 8.3  
Period since last visit  
Dentate persons



Source: Telephone Interview Survey

Figure 8.4 also refers to the time since the last dental visit. In this case the groups on the horizontal axis are categorized by health card and insurance status. Again the non-insured groups are less likely to have visited during the last 12 months than the insured. Furthermore, the non-insured are more likely to have visited more than two years ago. Interestingly it is health card holders with insurance who are most likely to have attended within the last 12 months. The figures in the lower box refer to the reported reason for dental visits. The percentage visiting for a checkup was greatest among health card holders with insurance, where 62.3 per cent said that they usually visit for check-ups. In contrast, only 30.3 per cent of non-insured health card holders attended for check-ups.



Figure 8.4

### Visit Patterns Health Card and Insurance Groups

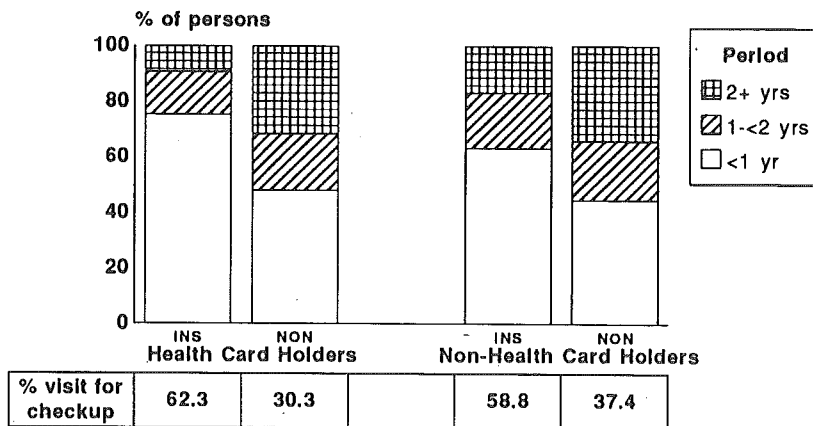


Table 8.2 examines the types of dental treatment reported by dentate persons who attended in the last 12 months. The four groups are again categorized according to health card and insurance status. There was little variation in the percentage of persons reporting fillings, and only small differences in the mean number of fillings. However health card holders without insurance were approximately twice as likely to report having an extraction, and they reported a mean of 2.58 extractions per person having at least one extraction. Those figures were substantially higher than the other three groups in Table 8.2.

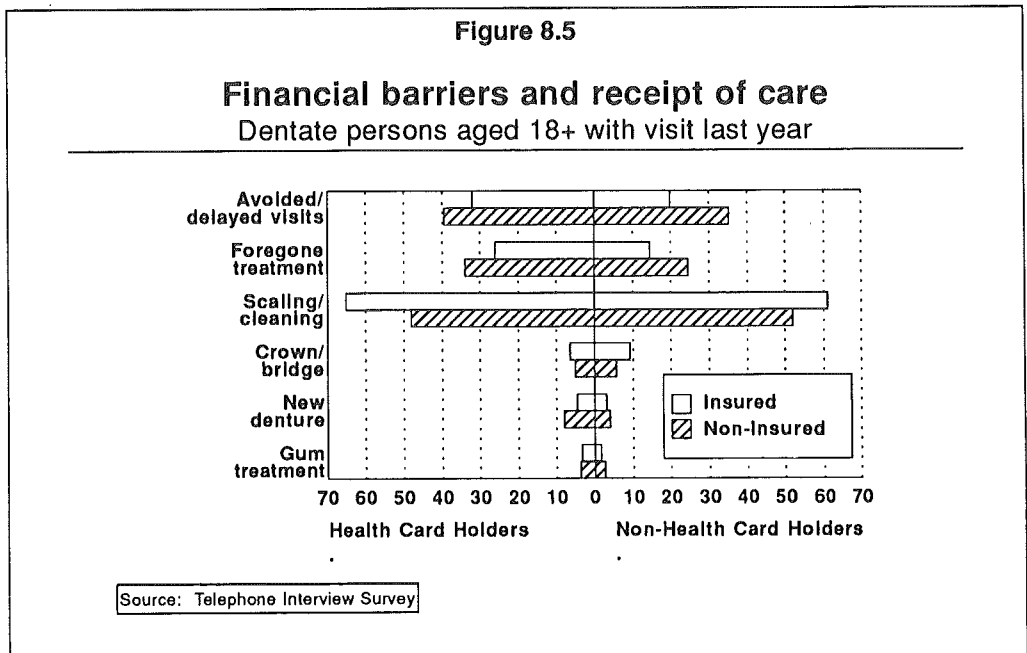
**Table 8.2**  
Fillings and extractions – dentate persons  
attending during last year

Group		Fillings		Extractions	
		% of persons	Mean teeth	% of persons	Mean teeth
Health card	Insured	47.1	2.49	13.2	1.94
	Non-insured	47.1	2.33	26.0	2.58
No health card	Insured	48.7	2.12	12.1	1.95
	Non-insured	46.7	1.85	16.0	1.96

Source: Telephone Interview Survey



Figure 8.5 presents other features of dental care among health card holders (illustrated to the left) and non-health card holders (illustrated to the right). Each group is further sub-divided by insurance status. The top two sets of bars represent the percentage of persons who said that they avoided or delayed dental treatment because of costs. A greater percentage of health card holders reported that barrier compared with non-health card holders. It was also reported more frequently by non-insured compared with insured persons. The differential between insured and non-insured was greater among non-health card holders than among health card holders. However, it is noteworthy that despite their eligibility for free or reduced cost treatment in public clinics, an association persists between reported barriers and insurance among health card holders. It reinforces the point that a large amount of dental care received by health card holders needs to be purchased out of pocket, and therefore is constrained by financial barriers.



A similar effect exists for the next two sets of bars which refer to the percentage of persons who, because of cost, have foregone treatment which was recommended or which was wanted. Foregone treatment was more likely among health card holders and among non-insured persons. Again the insurance differential existed, but was somewhat smaller among health card holders.

The remaining sets of bars refer to the percentage of persons receiving various forms of dental treatment, and is confined to those who attended within the last 12 months. Cleaning and scaling was strongly associated with insurance, and was about as frequent among health card holders and non-health card holders. Crown and bridge treatment varied by insurance to a small extent, but predominantly among non-health card holders. In contrast, new dentures varied by insurance predominantly among the health card holders. Reported gum treatment was rare in all groups.



## DISCUSSION

---

As indicated in the introduction, cross-sectional surveys of this kind can be used most reliably to document the frequency of insurance, rather than furnish evidence about any causal effects of insurance. Dental insurance is least frequent among edentulous persons; older age groups and lower socio-economic groups. Only 15 per cent of dentate health card holders have insurance, and this is nearly one third of the level reported by non-health card holders. During the last five years, dental insurance coverage has declined by five per cent or more in all adult age groups.

In comparison with insured adults, non-insured adults have quite different and unfavourable patterns of dental utilization. One third of them visited a dentist more than two years ago, and two thirds of them visit for dental problems. These comments apply to adults. The differences in utilization among insured and non-insured children or adolescents were much smaller. No doubt that is partly related to the effects of school dental services. However that raises an interesting irony, since children have very high levels of insurance, and there is relatively widespread availability of universal school dental care. No doubt some insurance is taken out in anticipation of orthodontic treatment. However, it is also the case that dental insurance is purchased in a package along with several other ancillary benefits which may be the primary reason for purchasing the package. In any event, this reiterates the point that it is very difficult to draw out any causal linkages from cross-sectional surveys of this type.

For that reason it is necessary to reconsider the implications of the other findings which focus on the outcomes among health card and insurance groups. One quarter of non-insured health card holders report extractions which was approximately twice the rate compared with other insurance and health card groups. Barriers, in the form of avoided or delayed visits or foregone treatment, were more common among non-insured than insured. The relationship between those barriers and insurance was apparent among health card holders, even though they are eligible for free or reduced cost care. Taken together, these observations can be used simply to document apparent adverse consequences of financial barriers within the existing target group of adults who are eligible for public care. The findings suggest that a large amount of care received by health card holders must be purchased out-of-pocket, and therefore is constrained by financial barriers.

## SUMMARY

---

- There was lower dental insurance coverage among edentulous, persons aged 65+ years, health card holders and lower socio-economic groups.
- Coverage has declined in all dentate, adult age groups since 1987/88.
- One third of non-insured dentate adults visited 2 or more years ago, compared with less than 20 per cent of insured dentate adults.
- Two thirds of non-insured health card holders visit for dental problems.
- One quarter of non-insured health card holders reported extractions, approximately twice the rate compared with other insurance/health card groups.
- Despite being eligible for low cost or free public care, over one third of non-insured health card holders delay, avoid or forego treatment because of costs.
- The findings suggest that a large amount of care received by health card holders must be purchased out of pocket and therefore is constrained by financial barriers.



---

## Chapter 9 COST OF DENTAL CARE

John Spencer

---

Cost is an often cited reason for why individuals have not visited a dentist or have foregone recommended dental treatment. It is a prominent factor in patient satisfaction among those who do make dental visits. Cost also assumes a central role in policy change because the burden of cost is amenable to shift from individuals to the community.

This chapter will examine:

- the cost of dental care to the individual;
- the imputed cost of dental care in public dental services; and
- comparisons of these cost estimates.

### COST OF DENTAL CARE TO THE INDIVIDUAL

---

The cost of dental care to the individual was reported in the Telephone Interview Survey and includes direct out-of-pocket expenditure on personal dental services, indirect expenses in seeking dental care and intangible costs, such as the effects on function, comfort and ability to perform everyday activities. Intangible costs indicated by the social impact of oral disease have been described in Chapter 3.

Direct out-of-pocket expenditure on personal dental treatment among dentate individuals is presented in Figure 9.1. These data reflect gross expenditure, without consideration of any rebates under dental insurance.

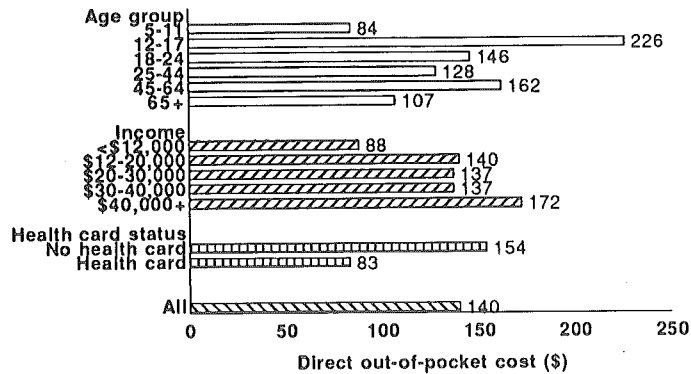
Expenditure was highest among adolescents (possibly because of orthodontic care), individuals with a high annual household income and those without a health card. Surprisingly, many individuals with a low annual household income or with a health card still paid for dental care. Health card holders spent over \$80 per year on personal dental services. This expenditure by individuals with low annual household incomes or who hold health cards is clearly a higher proportion of disposable income directed to dental care than among individuals with high annual household incomes or those who do not hold a health card.





Figure 9.1

### Direct out-of-pocket expenditure dentate - all individuals

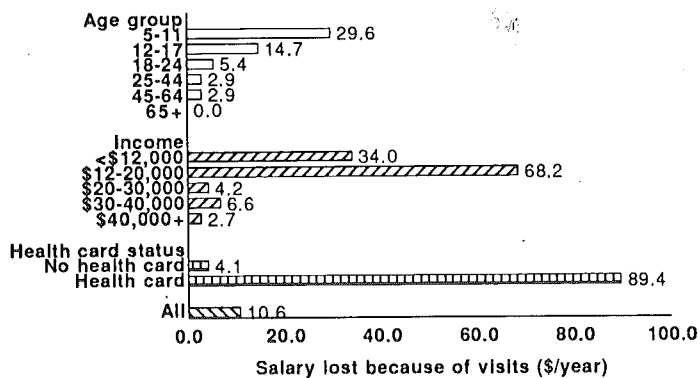


Source: Telephone Interview Survey

The disproportionate burden of cost which falls on individuals with a low annual household income and health card holders is exacerbated by the high indirect costs they also face. Indirect costs include time lost from work for dental visits or dental problems, time of restricted activity for dental problems, and salary lost because of dental visits. Salary lost because of dental visits for the individual, or accompanying a child, is presented in Figure 9.2.

Figure 9.2

### Salary loss because of dental visits dentate - visited in last 12 months



Source: Telephone Interview Survey



The pattern of salary lost by age emphasizes the importance of parents accompanying children on their dental visits and its impact on salary loss. Individuals with low annual household incomes, particularly between \$12–20,000 and health card holders lose many times the salary lost because of dental visits among individuals with higher annual household incomes. This seemed to be linked to a few individuals who lost considerable salary. In responding these individuals may have included an entire period of a major dental problem associated with many dental visits, *e.g.* a facial trauma. However, other factors may also contribute. There may also be a higher number of hours per year lost from work for their own routine dental visits and the loss of salary while accompanying children for dental visits. Loss of salary for dental visits may fall predominantly among low income, part-time, or casual sections of the workforce.

## IMPUTED COST OF DENTAL CARE

---

From a description of the course of dental care provided to individuals receiving dental care in public dental services it is possible to impute the dollar value of that care. Mean numbers of individual services within a course of treatment provided by public dental services can be multiplied up by a fee for each service such as the Department of Veterans Affairs, Licensed Dental Officer (LDO) fee schedule. The imputed cost of dental care has particular relevance for program planning as well as offering a comparison against direct out-of-pocket expenditure for dental care in private dental services. Figures 9.3 and 9.4 present the cost of basic dental care and emergency dental care in public dental services imputed using the LDO schedule. The imputed cost of basic dental care (Figure 9.3) totalled \$146 and was dominated by prosthodontic and restorative areas of services, then followed by the block of periodontic, preventive and diagnostic areas of service. This would seem consistent with a "replacement" and "care and repair" pattern of treatment. Oral surgery (extractions) was limited, as were specialty areas of service such as endodontics and crown and bridge dentistry.

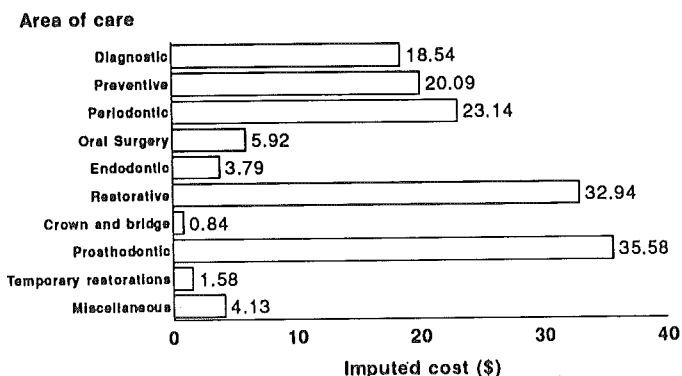
Although not shown in Figure 9.3, a twofold variation in the imputed cost of basic dental care was found among different sites. Underlying oral disease patterns, levels of untreated disease, selection procedures into basic dental care and the quantity and mix of services made available (particularly restrictions on specialist services) may all influence the imputed cost of basic dental care.

The imputed cost of emergency dental care (Figure 9.4) totalled \$80 and was dominated by restorative and oral surgery areas of service. This would seem consistent with a mixed pattern of treatment, including some "care and repair" and "resignation and extraction" patterns of treatment. Again, although not shown in Figure 9.4, the imputed cost of emergency dental care was found to be relatively stable across different sites.



Figure 9.3

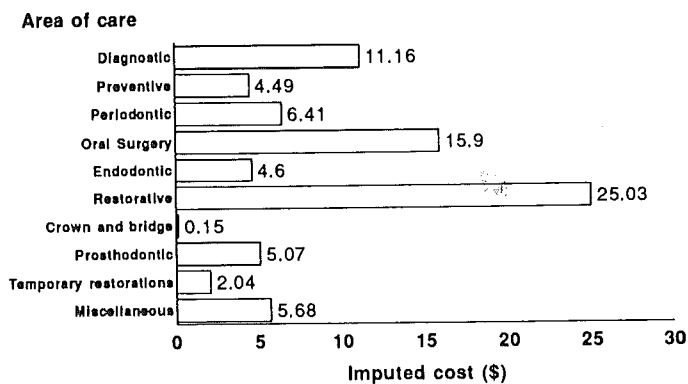
### Imputed cost in public dental services for basic dental care by areas of care



Source: Adult Dental Programs Survey

Figure 9.4

### Imputed cost in public dental services for emergency care by area of care



Source: Adult Dental Programs Survey

The imputed cost of dental care in public dental services can be compared with the actual costs of publicly subsidized dental care in private practice. The actual cost of publicly subsidized dental care is drawn from a non-metropolitan sample of eligible adults in the Western Australia subsidy scheme. The costs listed in Table 9.1 are the imputed cost of public dental services, and three



different costs within the publicly subsidized dental care in private practice: the total cost of the dental care, total cost minus prosthodontic care, and total subsidy paid by the public dental program.

**Table 9.1**  
**Imputed cost of dental care (\$) – public dental programs**

	Public dental services	Publicly subsidized care in private practice		
		Total cost	Total cost minus pros.	Total subsidy
	(\$)	(\$)	(\$)	(\$)
Basic dental care	146	356	244	211
Emergency dental care	80	85	77	46
All patients	119	256	180	150

Source: Adult Dental Programs Survey, WA Subsidy Scheme

The costs across basic dental care varied considerably. It appeared that public subsidy was associated with higher total costs than public dental services, with the gap somewhat narrower if only the subsidy cost is compared. While it was apparent that prosthodontic care added a considerable portion of the public subsidy cost, other contributing factors were higher numbers of restorative, periodontic and oral surgery services in the subsidy scheme. These data tend to highlight issues in the scope of benefits and cost controls through limitations on the type and amount of care. For example, the subsidy scheme places fewer limitations on the type and amount of care than is the case for the publicly delivered services.

The total costs of emergency dental care were similar for the publicly provided and publicly subsidized dental care. However, because of a patient co-payment and other procedural factors in the publicly subsidized dental care, the total subsidy paid was less than the imputed cost of emergency dental care in public dental services.

## COMPARISON OF COSTS

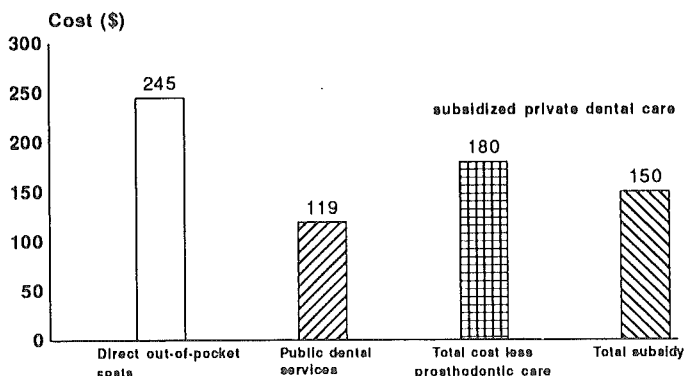
The three estimates of cost presented so far (direct out-of-pocket expenditure; imputed cost of public dental services; and actual cost of publicly subsidized care) give a range within which the cost of any new dental care programs should lie. Figure 9.5 illustrates the range of those cost estimates.

The lowest cost of dental care was the imputed cost of care within public dental services, followed by the actual subsidy paid and actual cost of publicly subsidized care, then the reported expenditure of individuals on dental care. The finding that the mean expenditure was higher in the community than the cost of care in public programs reflects variation in mix between emergency and basic dental care, backlog of untreated disease, tendencies toward extraction or care and repair; limitations on the scope of benefits (particularly specialist services); and many other possible factors.



Figure 9.5

**Comparison of reported costs  
visited in the last 12 months and public programs**



Source: Telephone Interview Survey, Adult Dental Programs Survey & WA Subsidy Scheme

However, these types of explanations for the differences observed in these comparisons give emphasis to a possible consequence on costs of decisions on program structure. It is desirable, from the perspective of individuals' dental health, to move dental services provision from:

- emergency to basic dental care;
- restoration rather than extraction; and
- prevention rather than treatment.

However the preceding analysis suggests that those changes will increase the cost of dental care. This creates a situation in which there is conflict between patterns of dental care thought to be desirable for improving oral health of individuals and the desire to maximize the number of beneficiaries of public programs through appropriate mechanisms for control of the cost of dental care provided.



## SUMMARY

---

- Direct out-of-pocket costs were highest among
  - adolescents
  - individuals with high annual household income
  - those without a health card.
- Surprisingly, about 40 per cent of individuals with a health card purchased dental care in the last 12 months. On average health card holders spent over \$80/year on dental care, while this amount was \$150/year among those who actually made a visit in the last 12 months.
- Health card holders lose many times the salary lost among non-health card holders because of dental visits.
- The imputed cost of emergency dental care is relatively stable across sites and is dominated by a mix of "care and repair" and "resignation and extraction" treatment.
- The imputed cost of basic dental care is more variable, reflecting different levels of the dominant "care and repair" and prosthodontic services.
- Public dental services had the lowest cost, followed by publicly subsidized dental care, then the reported expenditure of individuals on private dental care.



---

## Chapter 10

# AFFORDABILITY AND HARDSHIP IN PURCHASING DENTAL CARE

John Spencer

---

Surprisingly high percentages of low income individuals and health card holders faced direct out-of-pocket costs in the use of dental services. It was therefore anticipated that affordability of dental care and hardship in paying for dental care would be associated with access to dental care and oral health outcomes.

This chapter will examine:

- the distribution of affordability and hardship;
- their association with access to dental care; and
- their association with oral health outcomes.

### AFFORDABILITY AND HARDSHIP

---

Affordability was assessed in the Telephone Interview Survey by asking whether individuals had avoided or delayed visiting a dentist because of cost and whether cost had prevented them accepting dental treatment which was recommended or wanted. Hardship was assessed by asking about the financial burden of dental visits in the last 12 months and the difficulty an individual faced in paying a \$100 dental bill.

### DISTRIBUTION OF AFFORDABILITY AND HARDSHIP

---

Figure 10.1 presents the distribution of avoiding or delaying visiting because of cost. Over one quarter of individuals avoided or delayed visiting because of cost. Avoidance or delay was most frequent among 25–44 year-old adults, all those with annual household incomes between \$12–30,000 and health card holders. Health card holders were nearly half as likely again to avoid or delay visiting because of cost compared to non-health card holders. Although not shown in Figure 10.1, a similar per cent of individuals and distribution by age, annual household income and health card status was found for cost preventing dental treatment which was recommended or wanted. Fewer individuals reported a large financial burden for dental visits in the last 12 months. It appeared that most individuals reduced their effective financial burden of dental care by avoiding, delaying or foregoing recommended dental treatment.

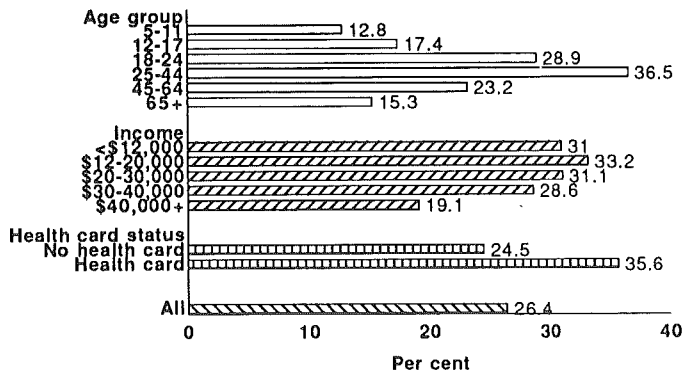
This was supported by the finding in Figure 10.2 that higher percentages of individuals would have a lot of difficulty in paying a \$100 dental bill. Figure 10.2 also presents the distribution of difficulty in paying a \$100 dental bill. Almost one in five individuals would have such a difficulty. This hardship was found more frequently among younger age groups, those with annual household incomes less than \$12,000 and health card holders. There was a strong gradient in the percentage of individuals facing hardship in purchasing dental care across annual household income levels, with a sixfold difference in the percentage of individuals facing hardship between



the lowest and highest income levels. There was a threefold difference in the percentage of individuals facing hardship between those who held a health care card and those without a health card.

Figure 10.1

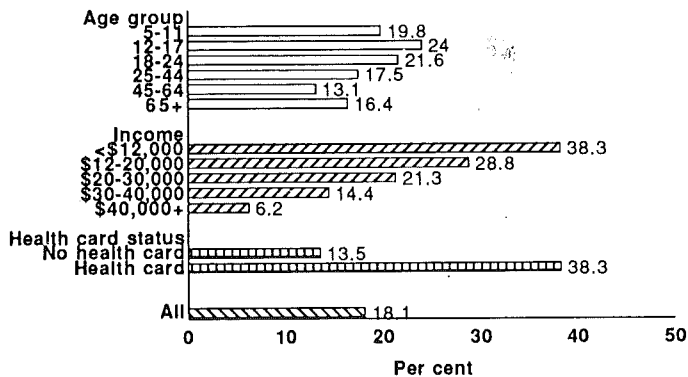
### Affordability of dental care avoiding or delaying visiting because of cost



Source: Telephone Interview Survey

Figure 10.2

### Hardship in purchasing dental care a lot of difficulty paying a \$100 dental bill



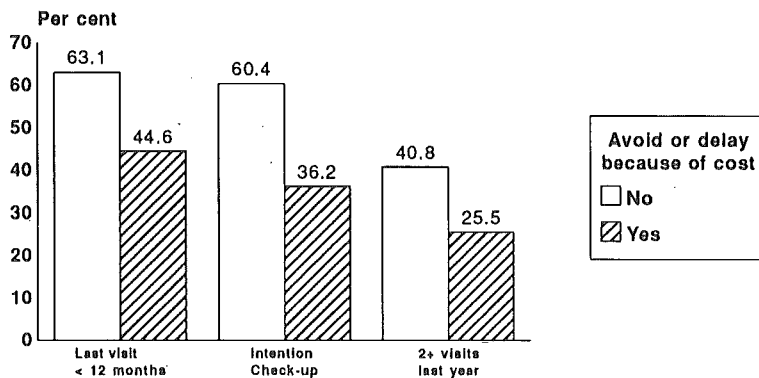
Source: Telephone Interview Survey





Figure 10.3

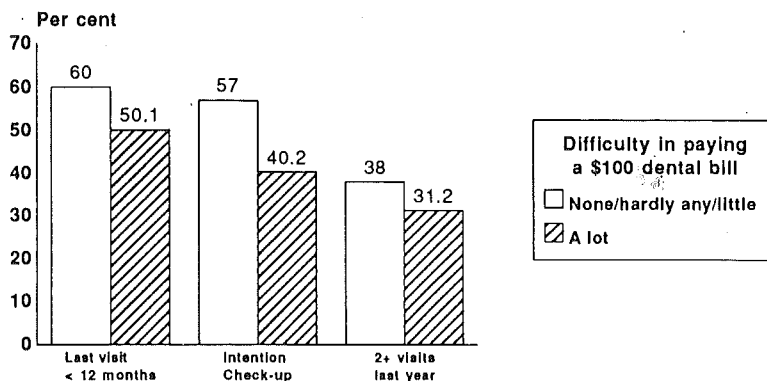
### Use of services by affordability avoided or delayed visiting because of cost



Source: Telephone Interview Survey

Figure 10.4

### Use of services by hardship difficulty in paying a \$100 dental bill



Source: Telephone Interview Survey



## ASSOCIATION WITH ACCESS TO DENTAL CARE

Individuals who had avoided or delayed visiting because of cost, for whom cost had prevented dental treatment which was recommended or wanted, or who would have a lot of difficulty paying a \$100 dental bill had reduced access to dental care. Figure 10.3 presents the association between use of dental services and affordability. Those individuals who avoided or delayed visiting because of cost were less likely to have visited within the last 12 months, less likely to visit for a check-up and less likely to have had two or more visits in the last 12 months.

A similar pattern was observed for hardship, presented in Figure 10.4. Those individuals who faced difficulty in paying a \$100 dental bill were also less likely to have visited recently, less likely to have visited for a check-up, and less likely to have had two or more visits in the last 12 months. These associations describe a pattern of reduced use of dental services, with occasional use dominated by problem oriented visits, involving short courses of treatment among those for whom affordability or hardship are difficulties.

Individuals who face affordability and hardship in accessing dental care not only have a less desirable pattern of use of dental services, but also received different dental treatment in their courses of dental care. Figure 10.5 presents the association between treatment received and affordability. A higher percentage of individuals who had avoided or delayed visiting because of cost received restorations and extractions in the last 12 months.

This trend was repeated for hardship, as illustrated in Figure 10.6. A higher percentage of individuals who would have a lot of difficulty in paying a \$100 dental bill had received restorations and extractions in their last course of dental care. The higher percentage of individuals who receive restorations may reflect a higher incidence of disease, or a backlog of untreated disease. The higher percentage of individuals receiving extractions may reflect these same factors, plus the presence of more advanced disease, or a rationing of resources resulting in extraction rather than restoration.

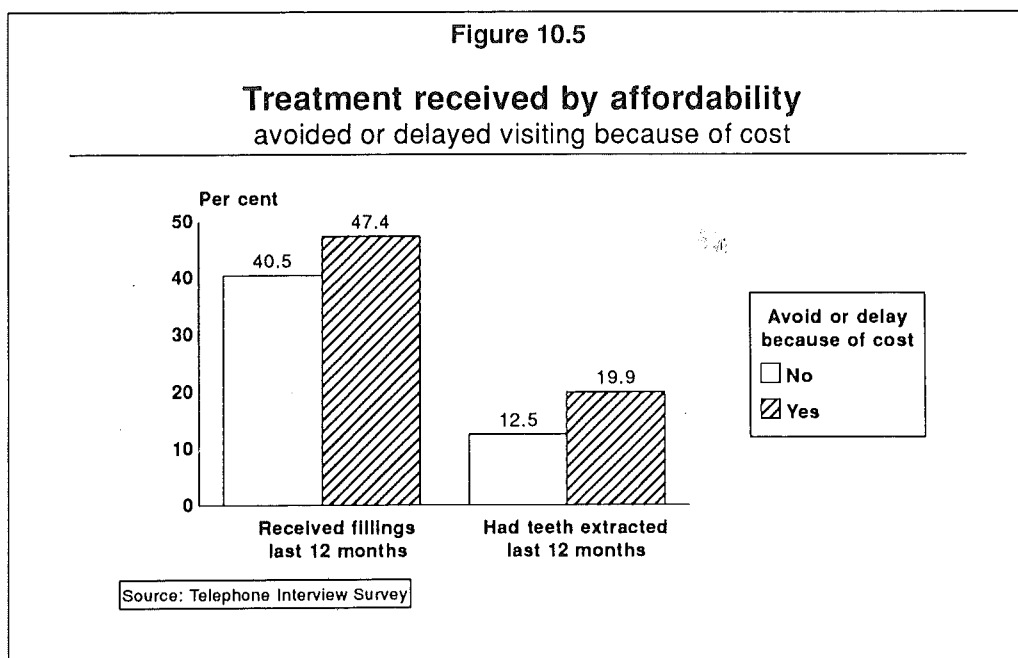
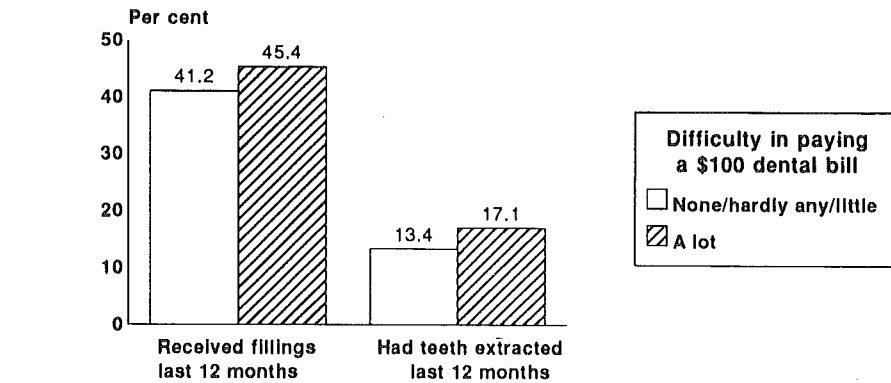




Figure 10.6

### Treatment received by hardship difficulty in paying a \$100 dental bill



Source: Telephone Interview Survey

## ASSOCIATION WITH ORAL HEALTH OUTCOMES

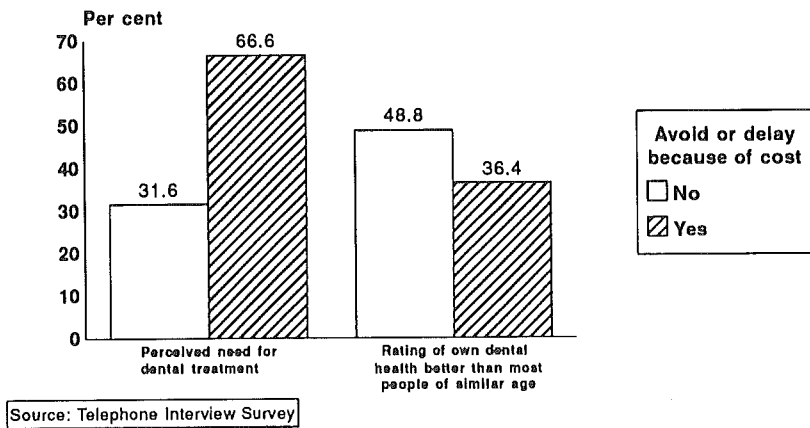
Affordability and hardship were also associated with perceived need for dental treatment and individuals' rating of their own dental health in comparison to other people of a similar age.

The association of perceived need and ratings of own dental health and affordability is presented in Figure 10.7. More than twice the percentage of individuals who avoided or delayed visits than those who didn't had a perceived need for dental treatment. Fewer individuals who had avoided or delayed visiting rated their own dental health better compared to most other individuals of similar age. Two to three times the percentage of individuals who faced affordability difficulties rated their own dental health worse in comparison to other people of similar age.



Figure 10.7

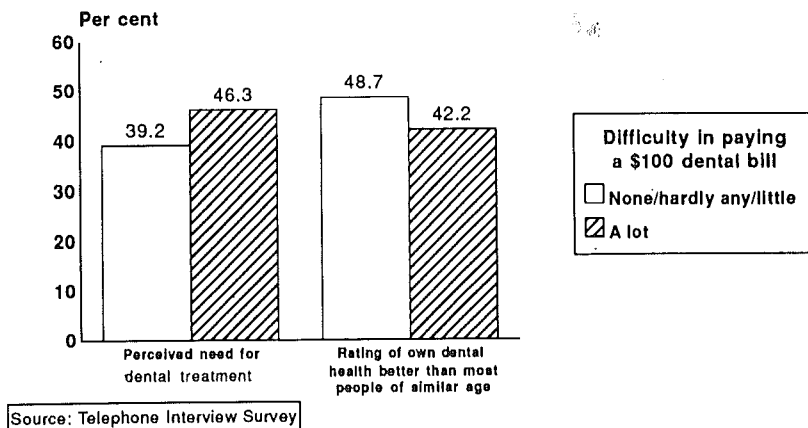
### Oral health outcome by affordability avoided or delayed visiting because of cost



A consistent, but less marked trend was found between perceived need and ratings of own dental health with hardship, presented in Figure 10.8. A higher percentage of those who would have a lot of difficulty paying a \$100 dental bill perceived a need for dental treatment. A lower percentage of individuals who faced a lot of difficulty in paying a \$100 dental bill rated their own dental health worse in comparison to other people of similar age.

Figure 10.8

### Oral health outcome by hardship difficulty in paying a \$100 dental bill





## SUMMARY

---

- Approximately one in four of individuals avoided or delayed visiting or had to forego recommended or wanted treatment because of cost. Almost one in five of individuals would have a lot of difficulty in paying a \$100 dental bill.
- Affordability and hardship were associated with
  - age
  - annual household income
  - health card status.
- Individuals with affordability or hardship difficulties were
  - less likely to have visited recently
  - less likely to visit for a check-up
  - likely to have had fewer visits in the last 12 months.
- Individuals with affordability or hardship difficulties were more likely to receive restorations and extractions.
- Individuals with affordability or hardship difficulties were
  - more likely to perceive currently a need for dental treatment
  - less likely to rate their own dental health better than most other people of similar age.

Affordability and hardship would seem to contribute to a situation analogous to that observed for health care in the United States. There affordability and hardship interfere "with continuity, preventive appraisals and interventions and health care maintenance". The resulting care "typically involves long wait times, little follow-up and poor co-ordination of care" (Mechanic, 1993).

## REFERENCES

---

- Mechanic D. America's health care system and its future: the view of a despairing optimist. *Med Care Rev* 1993; 50:21.



---

## Chapter 11

# KEY PROBLEMS, TARGET GROUPS AND POLICY DIRECTIONS

John Spencer

---

### INTRODUCTION

---

At this stage of the analysis of the research database and interpretation of the findings, it was thought useful to identify the perceived key problems in dental care for adults in Australia, particularly among potential beneficiaries of government funded dental care. If this could not be achieved readily from the research database at present, it would help identify further analyses that would better document those problems.

Following the identification of key problems, a range of intervention strategies should be identified. Reasonable commonality in the strategies proposed by various groups was expected, but also some variation to reflect different priorities given to particular groups of potential beneficiaries of government funded dental care was likely.

Finally, as the research database is considered to be a baseline for future research on dental care for adults, it was thought to be useful to identify ways in which changes in dental care for adults might be monitored in the future.

### PROCEDURE

---

At the Workshop on Dental Care for Adults in Australia in Adelaide in July 1993 some time was devoted to small groups addressing key problems, target groups and policy directions emerging from the research database.

So as to generate some variation in the deliberations five small working groups assumed slightly different situations.

These were:

1. a moderate sized (*e.g.* 1.25 million) metropolitan city;
2. a region comprised of rapidly growing cities and towns, in a previously rural area;
3. a rural area with a declining service sector and decreasing population;
4. an inner city region/sector of a major metropolitan city with a high number of individuals from disadvantaged groups; and
5. an outer region of a major metropolitan city with a depressed industrial base, but rapidly growing low cost residential housing.



**Table 11.1**  
**Key dental care problems, target groups and interventions**

Situation	Dental Care Problem	Problem groups	Further analysis	Intervention strategies	Future monitoring
1. Moderate sized metropolitan area	Access to services Lack of treatment choice Quality of care	Socially disadvantaged Non-English speakers	Rural/urban/metropolitan location Ethnicity Aboriginality	Increase availability - increase public resources - decentralization Promote use by low users Promote "oral care"	Mix emergency/basic dental care Mix of services Waiting lists
2. Rapidly growing cities and towns in previously rural area	Access to services Indirect costs of dental care Lack of preventive and specialist services	Longer-term, elderly residents School children		Primary prevention, including water fluoridation Co-ordination of public and private services Demonstration projects	Economic evaluations of cost effectiveness
3. Declining rural area with decreasing population	Access to services -questionable viability of private practice - professional isolation - limited specialist services Indirect costs including travel	Those with transportation difficulties	Identification of characteristics of higher risk individuals or groups	Increase availability - combined public/private services - involvement of auxiliaries and other health workers	Dental service provision Career expectations and pathways of dental graduates
4. Inner region of a major metropolitan area	Access to services through - lack of knowledge - episodic visiting Backlog of unmet needs	Health card holders Others - working poor - secondary school student - homeless - Non-English speakers - students - homebound - Aboriginals	Non-financial barriers - cultural - educational	Altered hours public services Transport Oral health promotion Emergency dental care Incremental basic dental care Promotion acceptable dental care	Dental service provision e.g. Adult Dental Programs Survey
5. Outer region of major metropolitan area	Backlog of unmet needs in adults and children Poor self-care among children	Health card holders Single parents Migrants	Identification of characteristics of high risk individuals or groups	Increase availability to public care e.g. community health centres Oral health promotion	Longitudinal monitoring of treatment and oral health outcomes Demonstration projects



Each working group listed two or more key points against:

1. the dental care problems;
2. groups experiencing those problems;
3. further analysis that may help document the problems or groups experiencing them;
4. intervention strategies; and
5. types of research for future monitoring of changes in dental care.

These points became the basis of a short plenary session.

## PROBLEMS, TARGET GROUPS AND POLICY DIRECTIONS

---

A matrix of the key points identified by each group is presented in Table 11.1

Although the working groups had only a short time and terminology varied, a great deal of commonality emerged. The variation that existed seemed to reflect the special characteristics of the situation which each group was asked to assume.

The key dental care problem was access to services. However the contributing issues varied from limited availability of either public dental services (in cities) or private dental services (in rural areas), transportation or its cost and lack of client knowledge of available services. Further problems were lack of treatment choice and quality (interpersonal aspects) of care. This situation frequently results in a considerable backlog of dental care and poor self-care which accentuate the difficulties faced, setting up the inverse care law of those most in need being least likely to obtain 'best practice' dental care.

The groups in the community experiencing these key dental care problems are the socially disadvantaged, including health card holders and particular sub-groups such as the working poor, single parents, homeless, non-English speakers, Aborigines and the homebound. Others who face different barriers include those with transportation difficulties, especially among the elderly, and school children.

While the research database and analyses conducted have identified most problems and target groups, more specific analysis was thought to be required in a number of areas. These included cultural (including Aboriginality and ethnic), educational and geographic barriers and identification of the characteristics of high risk individuals or groups. The research database will support further analysis in these areas.

Intervention strategies focused predominantly on increasing the availability of dental services by expanding the supply of public or private dental services. Public dental services could be expanded by increasing their number, convenience (hours of operation or location), improving transportation to public dental services and involving auxiliaries or other health workers. Demonstration projects were favoured, possibly in areas such as oral health promotion. Private dental services could be utilized, especially in rural areas. Support of private dental services in rural areas through greater co-operation with public dental services was proposed. Once dental services are made more available the interventions need to focus on promoting more appropriate use of services, possibly by conversion of emergency dental visitors to seekers of basic dental care, and promotion of oral health.

Finally, the themes for future monitoring centred on the provision of dental services to emergency or basic dental care patients, and the outcomes. Attention should be given to the evaluation of demonstration projects, including economic evaluations of cost effectiveness. Finally, there was a need to monitor career expectations and pathways of dental graduates with a view to contributing to a more equitable distribution of dental services.





---

## Chapter 12

### SUMMARY

Martin Dooland

---

The aim of these closing words is to attempt to draw together the range of ideas presented by Professor Spencer's team today and to comment on some of the policy issues these findings raise for any possible dental program.

Today we heard that dental disease is leading to a substantial burden of disability which is particularly severe for health card holders.

These same health card holders see a dentist less frequently than the wider community and, when they do attend, it is far more likely to be for a dental emergency rather than for a dental check-up.

It also appears that individuals who attend for a specific problem are more likely to receive an extraction than a restorative solution for their problem, further adding to their level of disadvantage.

Health card holders clearly cannot afford regular private dental care and it should be no surprise that they delay treatment until they have a problem.

In the face of significant direct costs in the private sector, and public dental services with long waiting lists, the patient and the dentist together have been choosing the extraction of teeth as a cheap, fast "solution". Our patients come expecting extractions and, in a sense, we are co-operating.

If a central part of our task is to reduce the degree to which health card holders are having teeth extracted, how might this be achieved?

The fact is that most health card holders go to the dentist at some stage within a five year period, commonly to receive an extraction to "resolve" their dental problem. If a restorative solution for the problem is provided for these emergency episodes, then we have taken one step forward.

However, a restorative solution may only be attractive to the patient and the dentist if there is a realistic possibility that the patient will have adequate access to affordable maintenance care. So improved access to emergency dental care may only reduce the number of dental extractions if patients and dentists feel that ongoing care is possible. There needs to be a mechanism for patients with dental emergencies to be retained to receive ongoing dental maintenance care.

This ongoing care would need to include regular dental examinations and basic restorative and preventive services.

The most appropriate balance of basic restorative and preventive dental services should be the subject of extensive discussion and ongoing evaluation. However, motivational theory suggests that people are more likely to change their behaviour if they feel that this change will achieve something. Most dentate health card holders have a significant amount of untreated dental decay and the fact is that changes in personal preventive behaviour are not likely to be enough to restore them to health.



However, once they feel that there is realistic access to ongoing care, then I believe that they will be far more likely to respond to preventive messages.

It is also important to understand that the task is not to provide cheap dental care to reduce waiting lists. It is quite possible to treat large numbers of patients but increase the socially based inequalities described to us today. However, it is equally true that, unless we get to a large proportion of the eligible group we are unlikely to have a significant effect on their dental health.

This balance between the amount (and profile) of dental care provided and the number of patients treated will require thoughtful dental programs and ongoing evaluation. For example, a nationwide dental health promotion program could spend a great deal of money and have no effect on dental health. Similarly, a treatment profile with an emphasis on clinical prevention and dental health education might result in greater or poorer dental health outcomes than programs with a focus on simple restorative care in the first instance.

I would argue that specific questions such as these should be addressed by ongoing program evaluation and by establishing and evaluating demonstration programs, as was suggested by a couple of the discussion groups today.

One issue that has not been addressed today is the efficiency of any programs which might be considered. Much of any dental program could be provided through the private sector. However, there is a considerable body of opinion that a salaried service will result in a more targeted and economical program. Similarly, many argue that a far greater use of dental auxiliaries would be the only way in which a substantial public dental service can attract sufficient staff. These issues are also probably best addressed using demonstration programs within a broader nationwide scheme.

I also feel it is important to recognise how much we owe to Professor Spencer's team. The initial summary of the severe socially based inequalities in dental health in Australia, described in the National Health Strategy paper, was largely based on the work of the AIHW team. Today's presentation of data, collected within impossible deadlines, has provided us a far richer picture of this issue and is the first part of ensuring that we target the real "problems" efficiently and effectively. We owe them a great deal.