

The findings from the five-year follow-up data collection for The South Australian Dental Longitudinal Study (SADLS) indicated that:

- over the five-year period 66.9% of older adults experienced new dental caries (*decay*) on tooth crowns and 59.3% new decay on tooth roots;
- the two dimensions of *dry mouth*, that is, (1) a person's perceived dry mouth (*xerostomia*) and (2) their actual low salivary flow (*salivary gland hypofunction (SGH)*), were largely discrete conditions, supporting the assertion that low salivary flow was not the key factor in the aetiology of perceived dry mouth;
- the relationship between medication history and the two dimensions of dry mouth, that is xerostomia and SGH, was complex;
- the long-term use of some medications over time, such as antidepressants, antiasthma drugs and anti-anginals, were related to the occurrence of xerostomia and/or SGH;
- there was no strong evidence to indicate that the taking of any particular medications were risk factors for the development over time of dental caries; and
- the use of a simple medication recording system greatly facilitated the analysis of complex multiple medication history in older adults.

The South Australian Dental Longitudinal Study (SADLS) was initiated by the AIHW Dental Statistics and Research Unit (DSRU), The University of Adelaide, in the early 1990s to collect information concerning the oral health status of older South Australians living in Adelaide and Mt Gambier. SADLS was the first study of its kind to be conducted in Australia, and one of only a few similar international studies. Baseline data were collected during 1991–1992, two-year follow-up data collected during 1993–1994, and five-year follow-up data collected during 1996–1997. The baseline and two-year data collections focused on the social impact of oral diseases on older adults' lives, and the

development of the Oral Health Impact Profile (OHIP). The focus of the 5-year follow-up was on the investigation of medications as risk factors for the development of dental caries and xerostomia and/or SGH, and results from this five-year data collection are presented in this report.

Dental examiners in the study have been Professor John Spencer, Professor Gary Slade, Dr Kaye Roberts-Thomson, Dr Jane Chalmers, and Dr Murray Thomson. Administrative and interviewing assistance has been provided throughout SADLS by Mrs Lorna Lucas and Mrs Leonie Jeffery. A final 11-year follow-up data collection is being conducted during 2002–2003, coordinated by Dr Chalmers and Mrs Jeffery. The focus of the 11-year follow-up will be on the relationships between general health, cognitive status, functional status, social impact of oral diseases, dry mouth, and oral health, and also on the predictive modelling of risk factors for the development of oral diseases.

Five-year follow-up

At baseline, clinical dental inspections were completed for 1,226 participants, 313 of whom had no teeth (they were edentulous), and 913 of whom had some natural teeth (they were dentate). At five-years, clinical dental inspections were completed for 704 participants, 176 of whom were edentulous, and 528 of whom were dentate.

The aims of the five-year follow-up were to:

- develop a simple system for the recording and analysis of medication use over time;
- develop a method of measuring the self-perceived symptoms of xerostomia;
- investigate the concurrence between the two dimensions of dry mouth, that is, xerostomia and SGH;
- examine the association between medications and severity of both xerostomia and SGH; and
- examine the relationship between medication history and the five-year incidence and increment of tooth loss and dental caries.

Results

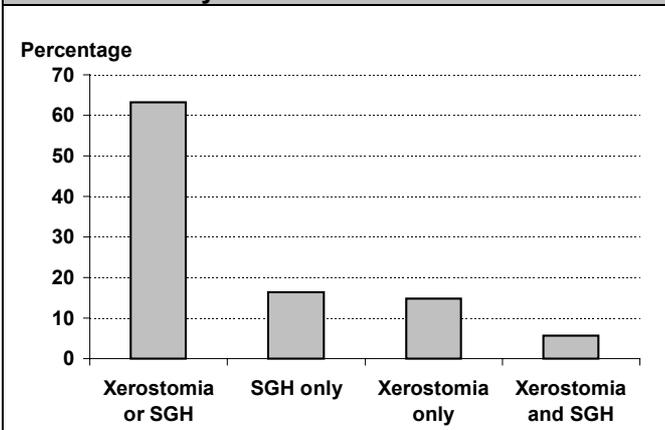
Dental caries (*dental decay*) did occur in older adults over the five-year period, on both the tooth crowns and tooth roots. For the 528 dentate participants, the incidence of tooth loss over the five-year period was 32.6%, that is, nearly one-third of participants who had some natural teeth remaining at baseline had lost one or more teeth by the five-year follow-up. The incidence of coronal caries was 66.9%, that is, two-thirds of participants with some natural teeth had new tooth decay occur on the crowns of one or more teeth between baseline and five-years. The incidence of root caries was 59.3%, that is, over half of participants with some natural teeth had new tooth decay occur on the root of the tooth between baseline and five-years. The five-year increment of new carious surfaces developed was 2.65 for coronal surfaces and 2.21 for root surfaces.

In these dentate participants, the mean unstimulated salivary flow-rate was 0.27 ml/min. Only 5.7% of participants had both xerostomia and SGH (Figure 1). Xerostomia was reported at five-years by 20.5% of these participants (14.8% with xerostomia only + 5.7% with both xerostomia and SGH), and SGH evident from the salivary samples of 22.1% of these participants (16.4% with SGH only + 5.7% with both xerostomia and SGH). More severe xerostomia was reported by participants who were: (a) taking anti-anginal drugs without a concomitant beta-blocker drug at five-years; (b) taking thyroxine and a diuretic drug at five-years; (c) taking antiasthma drugs at both baseline and five-years; and (d) taking antidepressants at both baseline and five-years. SGH (lower salivary flow rate) was evident among participants who were female, or taking antidepressant drugs at both baseline and five-years.

There were no medications that were predictive of tooth loss from baseline to five-years. Neither were there any medications that were predictive of the development of new caries on the tooth crowns over the five-year period. Participants who were continually taking aspirin medication between baseline and five-years were lower odds of having caries develop on the tooth roots over the five-year period. Participants who were taking hypolipidaemic drugs to manage high cholesterol had a lower increment of new caries on the root surfaces. These findings were most

likely related to the positive, preventive lifestyles of participants taking these medications, although the hypolipidaemics may have exerted their effect via their beneficial action to improve saliva flow.

Figure 1: Prevalence of xerostomia and SGH at five-years



References

- Thomson WM, Chalmers JM, Spencer AJ, Ketabi M. The occurrence of xerostomia and salivary gland hypofunction in a population-based sample of older South Australians. *Spec Care Dent* 1999;19(1):20-23.
- Thomson WM, Spencer AJ, Slade GD, Chalmers JM. Is medication a risk factor for dental caries among older people? *Comm Dent Oral Epidemiol* 2002;30:224-32.

Acknowledgements

This information was provided by Dr Murray Thomson's PhD thesis. This research was supported by the AIHW DSRU, a grant from the US National Institute of Health, and several grants from the Australian National Health and Medical Research Council. Many thanks to the participants who have so enthusiastically assisted us with this study over the years.

The AIHW Dental Statistics and Research Unit (DSRU) is a collaborating unit of the Australian Institute of Health and Welfare established in 1988 at The University of Adelaide. The DSRU aims to improve the oral health of Australians through the collection, analysis and reporting of information on oral health and access to dental care, the practice of dentistry and the dental labour force in Australia.

Published by: AIHW Dental Statistics and Research Unit
The University of Adelaide
SOUTH AUSTRALIA 5005

Email: aihw.dsrु@adelaide.edu.au

Phone: 61 8/(08) 8303 4051
Fax: 61 8/(08) 8303 4858
www.adelaide.edu.au/socprev-dent/dsrु

© AIHW Dental Statistics and Research Unit, June 2002
AIHW Catalogue No. DEN 102
ISSN 1445-7441 (Print) ISSN 1445-775X (Online)