



Dental Statistics and Research Unit

There are about 446 million teeth in Australia, an average of more than 20 for each man, woman and child in the nation. Based on those numbers, you might think that quantifying the country's state of dental health would call for at least 20 organisations equivalent in size to the Australian Institute of Health and Welfare. Miraculously, the task is achieved by a dedicated group of 11 people who work in AIHW's collaborating unit, the Dental Statistics and Research Unit (DSRU).

Established in 1988, DSRU is housed in South Australia at The University of Adelaide. 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. There are numerous features of population oral health and dental care that challenge the dedicated crew at DSRU. Following are three examples of the spirited conversations going on around the corridors in Adelaide. (To learn more, check out DSRU's publications at <http://www.arcpoh.adelaide.edu.au>)

Conversation stopper no. 1

Dental enamel is the hardest tissue in the human body, but it can be destroyed within a matter of months by decay.

To keep track of this destructive process, DSRU manages the Child Dental Health Survey which collects information about decayed, missing and filled teeth among 80,000 school children annually. Data have been collected annually since 1977 during which time children's decay rates have halved in the deciduous dentition ('baby teeth') and reduced by 80% in permanent teeth.

Conversation stopper no. 2

So you need a dental visit?

Dentistry has never been included in Medicare. Consequently, more than 60% of the \$2.6 billion spent annually on dental care is paid out of pocket and 16% is funded by governments, predominantly the states and territories. About 60% of Australians visit a dentist for a check-up; the remaining 40% go only when they have symptoms. State/territory public dental programs for adults limit eligibility to those who have a health care card or

pensioner health care card and have lengthy waiting lists. In South Australia, for example, it takes three years to get an examination for general dental care. Forty-one per cent of adults who attend public clinics with symptoms receive an extraction, compared with 5% of adults who attend a private dentist for a check-up. The problems are worsening, in part because of a growing shortage of dentists in both the private and public sector. Within the capital cities, there are nearly 60 practising dentists per 100,000 population; outside capital cities, the ratio is almost halved.

DSRU has tracked trends in the practice of dentistry, especially productivity and service-mix in private general practice, for 15 years. These data, along with registration data on dental providers, inform projection models on dentistry's capacity to supply services to the Australian population in an effective and efficient manner. DSRU monitors dental visits through its biennial National Dental Telephone Interview Survey. Since 1994, five surveys of approximately 6,000 people per survey have been conducted from DSRU's Computer Assisted Telephone Interview laboratory at The University of Adelaide.

Conversation stopper no. 3

Water fluoridation is one of the five greatest public health achievements of the 20th century.

This year celebrates the 50th anniversary of Australia's first venture into community water fluoridation in Beaconsfield, Tasmania. Today, two-thirds of the Australian population lives in communities served by fluoridated water. DSRU has been at the forefront, internationally, of studies evaluating the effects of fluoridation nowadays in child populations where decay rates are dramatically lower than the levels found half a century ago. In a 1992-93 study of 20,000 children in Queensland and South Australia, DSRU researchers demonstrated clear benefits of community water fluoridation in reducing levels of decay and in reducing socioeconomic inequalities in dental decay. A new study is now underway to update those findings, and will involve 50,000 children in Victoria, Queensland, South Australia and Tasmania.

Aside from these research interests, DSRU conversations have been buzzing with a new acronym: ARCPH. The Australian Research Centre for Population Oral Health

(ARCPOH) is a research centre formed within the University of Adelaide in 2002. ARCPOH is an umbrella for four main research endeavours, the most prominent of which is DSRU. Alongside DSRU are two academic areas (Oral Epidemiology and Social and Preventive Dentistry) and the Dental Practice Education Research Unit. This administrative arrangement creates new opportunities for collaboration (for example, by offering a broader range of research participation in surveillance activities) while also permitting differentiation between DSRU reporting activities and broader policy analyses that fall outside the DSRU workplan.

Who's who at DSRU

In 2003, Gary Slade became head of DSRU. He has returned to Adelaide as Professor of Oral Epidemiology following eight years at the University of North Carolina in the United States, prior to which he was consultant oral epidemiologist to DSRU from 1988–94. Gary undertook dental training at The University of Melbourne and completed a postgraduate Diploma in Dental Public Health at The University of Toronto, Canada. He obtained a PhD in dentistry at The University of Adelaide studying oral health related quality of life among elderly South Australians. Gary teaches oral epidemiology and dental public health in undergraduate courses and he supervises graduate students in Master of Public Health (MPH) and PhD programs at the university. He provides dental treatment to patients in the South Australian Dental Service.

John Spencer is the Professor of Social and Preventive Dentistry at The University of Adelaide and Director of ARCPOH. John established DSRU in 1988, at which time it comprised two staff. In the following 15 years it grew to become a leader among the handful of dental statistics units around the world. John trained in dentistry at The University of Melbourne and completed a Master of Public Health degree at the University of Michigan, USA. He obtained a PhD from The University of Melbourne, studying contribution of fluorides to dental health in the Australian population. He is Associate Editor of Community Dentistry Oral Epidemiology, International Adviser to Community Dental Health and on the Editorial Advisory Board of the Australian Dental Journal. John teaches dental public health and dental health services research in undergraduate courses, and supervises graduate students in MPH and PhD programs at the university.

David Brennan, who joined DSRU in 1988, has worked on a range of projects involving both cross-sectional and

The Dental Statistics and Research Unit (L to R)
 Loc Do, Kaye Roberts-Thomson, David Brennan, Lorna Lucas,
 Dana Teusner, Gary Slade, Anne Sanders, John Spencer,
 Jane Harford, Judy Stewart (absent), Jason Armfield (absent)



longitudinal analysis of dental service provision such as the Longitudinal Study of Dentists' Practice Activity. Trained as a biologist, his PhD research involved investigating the influence of provider, practice and patient factors on variation in rates of service provision. More recently he has been investigating burden of disease estimates in dentistry, and trends in oral health among adult public dental patients.

Judy Stewart has worked with DSRU since 1991 on issues involved with access to dental care among special target groups compared with the general population. She has been closely involved in the National Dental Telephone Interview Surveys and the Dental Satisfaction Surveys. Her research interests are oral health and access to dental services of young adults, rural and remote dwellers and migrants.

Lorna Lucas provides administrative support to the research and academic staff of DSRU where she has worked since 1992. She is involved in the production of reports and in maintaining DSRU and ARCPOH projects. Lorna has the most prominent face and voice in DSRU, serving as first point of contact for all DSRU and ARCPOH enquiries.

Since 1997, Jason Armfield has been responsible for the analysis and reporting of the Child Dental Health Survey. He has also been involved in the Child Fluoride Study, a large multi-site study into the effectiveness of fluoridated water consumption in reducing dental caries in children. Jason has an undergraduate degree in psychology and currently he is undertaking a PhD investigating the aetiology of dental fear.

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spotlight

on Fadwa Al-Yaman



A love of challenges and intellectual 'restlessness' have driven Fadwa Al-Yaman's career since her graduation from Kuwait University. These qualities have also helped her gather first-hand experience in an extensive number of fields—an excellent foundation for her recent appointment as Head of the AIHW's new Aboriginal and Torres Strait Islander Health and Welfare Unit.

Born in East Jerusalem in Palestine, Fadwa did her schooling in Kuwait. After graduating with a BSc in zoology from Kuwait University, then a new institution with many American and British lecturers, she was encouraged by her teachers and her father to apply for overseas scholarships.

'My father was my biggest mentor, always encouraging me to do further studies. There is a big emphasis on education among Palestinian people who cannot return to the country they were born in.'

An Australian National University scholarship brought Fadwa to far-away Australia, to do a PhD in immunology, a particular interest of hers, at the John Curtin School of Medical Research. Fadwa's work focused on skin cancer in sheep. It is not well known that large numbers of Australian sheep suffer from skin cancer on the face and on more delicate parts of their bodies. Fadwa's research was to try to find if sheep's immune systems can respond by producing antibodies. When offered the opportunity to work on sheep, Fadwa was unaware that it involved wrestling with large merino wethers that were about a metre tall at the shoulder — she regularly had crushed toes as she struggled with the sheep to gain control!

With her PhD completed, Fadwa took up a position as a lecturer in Yarmouk University near the Syrian border. A number of fascinating projects followed, including research on the immunological aspects of hydatids that involved spells of fieldwork in Kenya and a visit to the Tropen

Institute in Hamburg, and the development of an anti venom to stonefish venom in the Gulf of Aqaba.

Unable to continue her work on cancer in Jordan, Fadwa won a fellowship to work in the UK, where she again worked on cancer and carcinogenesis at Patterson Laboratories, Christie Hospital, in Manchester. She returned to Jordan for further lecturing, the establishment of an immunology laboratory and a Masters program.

Conscious that she had to get experience in the rapidly developing field of molecular biology, Fadwa travelled to the USA on a one-year Fulbright scholarship to work on bovine cysticercosis (a type of parasitic worm infection), where a team at the US Department of Agriculture in Maryland developed diagnostic tests using recombinant DNA technology.

'We actually applied for a patent, but I'm not sure if it was ever given because I can't find it on the US Patent Office's web site. For a while I thought I might make my fortune, but no such luck.'

At the end of the Fulbright scholarship an excellent opportunity presented itself. This was to work on a malaria vaccine in Papua New Guinea—the PNG Institute of Medical research had received a US\$7 million grant to set up a site for testing a malaria vaccine for children, with 10,000 local residents in a survey population. Fadwa established a field laboratory in Maprik and was involved in large sero-epidemiological surveys among children and adults in villages in the heavily populated Wosera area, where malaria was endemic. She and other team members carried out the safety and immunogenicity work that had to be done on adults, before the vaccine could be trialled on young children.

Fadwa stayed in PNG for four years.

'It was a life-changing experience I would recommend to anyone. Working with people who have so little in terms of material possessions, and yet are so happy with their lives, certainly made me reconsider my life values.'

'It was a very exciting time dodging hold-ups on the main road, and putting four-wheel-drives through bridges or into bogs along the village tracks.'

'There was also the opportunity to work with scientists from the Swiss Tropical Institute, the Walter and Eliza Hall Institute of Medical Research and the Queensland Institute

of Medical Research. The first vaccine was going to be an American one, but in the end we trialled an Australian vaccine for children, rather than one for American soldiers.'

While in PNG, Fadwa met her Australian husband, who was doing fieldwork for the ANU and came to the Institute at Madang to present a seminar. Fadwa was running the seminar program at the time. After some time commuting in both directions, and two children later, Fadwa came to Australia in 1995 and applied for an NHMRC grant to continue work on the PNG material.

'I did that for three years, but the best work on malaria in Australia was not being done in Canberra, and to get further grants I needed to be in Melbourne or Brisbane. I made several return visits to PNG during the vaccine trial on the children, including one visit that the whole family went on for three months, to complete the last stage of the trial in 1998. So I decided to change direction and enrolled in a Masters in Demography at the ANU.'

Shortly after graduating, Fadwa joined the Population Health Unit at the AIHW. 'I was familiar with the work of the Institute before I came to work here, and I always thought that the AIHW was making a difference in a variety of health and welfare fields, so I was excited about the opportunity to participate in its work. I felt that my medical background, infectious disease and epidemiological experience, statistical skills, and the demography course, would help me in doing that.'

Fadwa worked briefly on diabetes before moving to the then Children and Families Unit. Her first project there was to develop a questionnaire to collect data on childcare and preschool services for the National Minimum Data Set. When the Unit acquired responsibility for youth health, Fadwa concentrated on child and youth health indicators and produced two AIHW reports on child and youth health and welfare.

'After working on these projects for two-and-a-half years, I was ready for a new challenge. I am full of enthusiasm about heading the new Unit, because so much needs to be done in the Indigenous health and welfare areas.'

'The goal is to improve the health and welfare of Aboriginal and Torres Strait Islander peoples. To this end we need to engage both Indigenous and non-Indigenous Australians in an effort to improve the

quality of data on the health and welfare of Indigenous Australians and use best practice from other areas.'

'Accurate and timely data can provide the evidence to inform policy and can be an advocacy tool for Indigenous people to influence and shape policy outcomes. The AIHW can play a central role in this process and can become a clearing house for Indigenous data, providing advice on the data and its usage, and identifying trends.'

'One of our immediate priorities, however, is to establish and maintain relationships with our major stakeholders, including the National Aboriginal Community Controlled Health Organisations, the Aboriginal and Torres Strait Islander Commission, the Australian Institute of Aboriginal and Torres Strait Islander Studies, and the Office of Aboriginal and Torres Strait Islander Health in the Department of Health and Ageing. There are also the state and territory governments, the Commonwealth Department of Family and Community Services, the Australian Bureau of Statistics, and many research and academic groups.'

The Unit will also play a central role in coordinating the Indigenous work across the AIHW and its collaborating units. Regular reports are planned, including bulletins on selected topics, and the 29 August launch, with the ABS, of the latest biennial reports on the health and welfare of Aboriginal and Torres Strait Islander peoples (see article on page 1).

Fadwa says it is clear to her that the loss of land and livelihood that Aboriginal people have suffered in the past are important determinants of their health status today.

'I have personally experienced loss of my home and my country, and I know how frustrating and angry that situation can make you. I was lucky to get a good education and to get out, but many Palestinians remain trapped in the refugee camps in Lebanon and Jordan, with serious implications for their physical and mental health, and their wellbeing.'

'My new position has a very steep learning curve. It involves working with the many existing interest groups at the national and state and territory levels, as well as with the bodies that represent Aboriginal and Torres Strait Islander people.'

'Meetings are held all over Australia so I have the opportunity to read as much as I can on the long plane journeys. I've started with Stuart Harris's little book on an Aboriginal treaty that I found in a second-hand bookshop at Belconnen. It was written in 1979!'

'We have a way to go yet. I hope I can help to move things along a bit.'