

DENTAL STATISTICS AND RESEARCH SERIES

Number 38

Projected demand and supply for dental visits in Australia: analysis of the impact of changes in key inputs

Dana N Teusner

Research Officer

Australian Research Centre for Population Oral Health
The University of Adelaide

Sergio Chrisopoulos

Research Associate

Australian Research Centre for Population Oral Health
The University of Adelaide

Professor A John Spencer

Professor of Social and Preventive Dentistry

School of Dentistry

The University of Adelaide

Co-Director

Australian Research Centre for Population Oral Health
The University of Adelaide

2008

Australian Institute of Health and Welfare

Canberra

Cat. no. DEN 171

© Australian Institute of Health and Welfare 2008

This work is copyright. Apart from any use as permitted under the *Copyright Act 1968*, no part may be reproduced by any process without prior written permission from the Australian Institute of Health and Welfare. Requests and enquiries concerning reproduction and rights should be directed to the Head, Media and Communications Unit, Australian Institute of Health and Welfare, GPO Box 570, Canberra ACT 2601, or via the Institute's website.

This is a publication in the Australian Institute of Health and Welfare's dental statistics and research series. A complete list of the Institute's publications is available from the Institute's website <<http://www.aihw.gov.au>>.

The Australian Institute of Health and Welfare's Dental Statistics and Research Unit is located within the Australian Research Centre for Population Oral Health at The University of Adelaide. A complete list of the Centre's publications, including the Population oral health series and other related publications is available from ARCPOH, School of Dentistry, The University of Adelaide, South Australia 5005, or via the ARCPOH website <<http://www.arcpoh.adelaide.edu.au>>

ISSN 1321-0254

ISBN 978 1 74024 769 6

Suggested citation

Teusner DN, Chrisopoulos S & Spencer AJ 2008. Projected demand and supply for dental visits in Australia: analysis of the impact of changes in key inputs. Dental statistics and research series no.38. Cat. no. DEN 171. Canberra: AIHW.

Australian Institute of Health and Welfare

Board Chair

Hon. Peter Collins, AM, QC

Director

Penny Allbon

Published by the Australian Institute of Health and Welfare

Printed by Union Offset Printers

Contents

Abbreviations.....	v
Symbols.....	v
Acknowledgments	vi
Summary	vii
1 Introduction.....	1
1.1 Purpose of this report.....	1
1.2 Overview of previous supply and demand projections.....	2
1.3 Policy directions or shift in trends.....	2
2 Overview of supply and demand models	3
2.1 Supply model	4
2.2 Demand model.....	4
3 Supply of dental visits	6
3.1 Dentist labour force	6
Demographics.....	7
Geographic distribution.....	8
Previous growth in dentist labour force	9
Dentists' capacity to supply dental visits	10
3.2 Allied dental labour force	12
Allied dental practitioners' capacity to supply dental visits	14
3.3 Review of previous dental labour force projections, 2000 to 2010.....	15
Dentists.....	16
Allied dental practitioners	17
3.4 Refinement of supply projections.....	18
Dentists.....	18
Allied dental practitioners	20
3.4 Revised supply projections, 2003 to 2020	21
4 Demand for dental visits	26
4.1 Demand for dental care.....	26
Review of previous demand projections for dental visits, 2000 to 2010	27
Revised demand projections, 2005 to 2020.....	28
5 Reconciling supply and demand.....	31
6 Capacity to supply dental visits: impact of changes in key inputs	33
6.1 Impact of increased numbers of dental graduates	33
Increasing numbers of dentist graduates	33
Increasing numbers of allied dental practitioner graduates.....	34
6.2 Changes in numbers of successful ADC candidates.....	37

6.3	Changes in dentists' attrition and retention rates	38
	Lengthening the working life of dentists.....	38
	Decreasing attrition of female dentists	39
6.4	Shifts in productivity trends.....	40
6.5	Summary	42
7	Demand for dental visits: impact of changes in key inputs	44
7.1	Shifts in patterns of accessing dental care	44
	Access to dental care.....	44
	Impact if dentate persons not currently accessing dental care gain access	46
	Impact of increased access to dental care by dentate adults aged 18 to 54 years	46
	Impact of increased access to dental care by dentate adults aged 55 years or older	47
7.2	Changes in levels of dental insurance coverage.....	48
	Impact if dental insurance coverage decreased/increased.....	49
7.3	Increased access to dental care by regional dwellers.....	50
	Impact if access for regional dwellers increased	51
7.4	Summary	51
8	Discussion	53
8.1	Revised supply and demand projections	53
	Sensitivity of projections to changes in key inputs	54
	Overseas migration of dentists	55
	Allied dental practitioners	55
8.2	Further issues	56
9	References.....	57
10	Glossary	58
	Appendix A: Dental labour force estimates, 2003	59
	Appendix B: Methods: supply projection model	65
	Appendix C: Australian university dentistry course commencements and completions.....	76
	Appendix D: Comprehensive tables of dental labour force and supply projections	79
	Appendix E: Australian Bureau of Statistics projected estimated resident population, 2003 to 2020 (Series 8).....	88
	Appendix F: Methods: demand projection model	89
	Appendix G: Comprehensive tables of demand projections for dental visits	93
	List of tables	97
	List of figures	100

Abbreviations

ABS	Australian Bureau of Statistics
ADC	Australian Dental Council
AIHW	Australian Institute of Health and Welfare
ARCPOH	Australian Research Centre for Population Oral Health
ASGC	Australian Standard Geographical Classification
BDS	Bachelor of Dental Surgery
BOH	Bachelor of Oral Health
DEST	Department of Education Science and Training
DIMA	Department of Immigration and Multicultural Affairs
DIMIA	Department of Immigration and Multicultural and Indigenous Affairs
DSRU	Dental Statistics and Research Unit
ERP	estimated resident population
LSDPA	Longitudinal Survey of Dentists' Practice Activity
NACHO	National Advisory Committee on Oral Health
NDTIS	National Dental Telephone Interview Surveys
NOHSA	National Oral Health Survey of Australia
PCD	per capita demand
RTP	return to practice

Place abbreviations

ACT	Australian Capital Territory
Aust	Australia
NSW	New South Wales
NT	Northern Territory
Qld	Queensland
SA	South Australia
Tas	Tasmania
Vic	Victoria
WA	Western Australia

Symbols

n.a.	not available
..	not applicable
%	percentage
—	zero or rounded to zero

Acknowledgments

This report has been prepared by the AIHW Dental Statistics and Research Unit (DSRU). Data cited in this publication were sourced from ARCPOH, AIHW DSRU; the ABS; dental registers; and Brennan & Spencer, unpublished data.

External validity of estimates used in projection models were provided by the Council of Heads and Deans of Dental Schools (CHADDS), the Australian Dental Council (ADC) and Kyla MacDonald, The Dental Hygienists' Association of Australia (DHAAQ).

The writers also wish to acknowledge Knute Carter for his substantial contribution to the development of the original demand models employed in this publication and Anne Ellershaw for providing statistical analysis of the National Dental Telephone Interview (NDTIS) data.

Editorial team

Several people have contributed to the editing of this publication. The AIHW publishing unit, Dr David Brennan, Alison McLean and Lorna Lucas of ARCPOH and proofreader Jo Mason have worked to improve the consistency, layout and readability of the text.

Summary

In the early part of the current decade an emerging shortage of dental practitioners was widely recognised by the dental profession and key stakeholders. At this time, the Australian Research Centre for Population Oral Health (ARCPOH) published several reports projecting and examining supply and demand of dental visits in Australia. Since the publication of those projections in 2003, many factors influencing the supply and demand of dental visits in Australia have changed.

Revised baseline projections from the year 2003 are presented. These projections were based on the known circumstances at the time of report writing and hence the revised supply projection does not include new regional dental schools announced at the end of 2007. The sensitivity of these baseline projections are assessed by examining the impact of changes in key inputs or assumptions. The alternative scenarios examined broadly relate to dental labour force policy directions and thereby provide an analysis of their potential impact.

Revised supply projections

- The number of dentists is projected to increase by 33%, from 10,104 dentists in 2005 to 13,465 dentists in 2020.
- Numbers of dental prosthetists and dental therapists are projected to decline slightly by 2020, while numbers of hygienists are projected to increase by 138% of a low base number.
- The total aggregate supply of dental visits is projected to increase by 17% from 28.9 million visits in 2005 to 33.7 million visits in 2020.

Revised demand projections

- Under the 'no PCD growth' projection, demand for dental visits is projected to increase from 28.2 million visits in 2005 to 33.6 million visits in 2020 (an increase of 19%). Under the 'half PCD growth' and 'continued PCD growth' projections, demand in 2020 is projected to be 38.8 and 44.0 million visits respectively.

Supply projections: changes in key inputs

- Supply projections were most sensitive to differing productivity (visits supplied per year) assumptions and changes in levels of dentist recruitment from Australian universities or through migration. They were less sensitive to changes in attrition rates and increases in allied dental recruitment levels.

Demand projections: changes in key inputs

- Demand projections were very sensitive to differing assumptions of future per capita demand (PCD) growth. Conservative and potentially likely increases in percentage accessing care in a 12-month period resulted in substantial increases in projected demand. Demand projections were not very sensitive to changes in insurance coverage or changes in patterns of access by regional dwellers.

Conclusion

Of the various scenarios examined, it was contended that the 'most likely' supply scenario was that of 140 additional dentist graduates (from 2013 onwards). This scenario projected that supply in 2020 would be approximately 36.0 million visits. The most likely demand projection was argued to be that of half growth in PCD, which projected that demand would be 38.8 million visits by 2020. These 'most likely' supply and demand projections result in an estimated supply shortfall of 2.8 million dental visits. This equates to an undersupply of 1,000 to 1,100 dental practitioners (on the basis of current productivity levels).