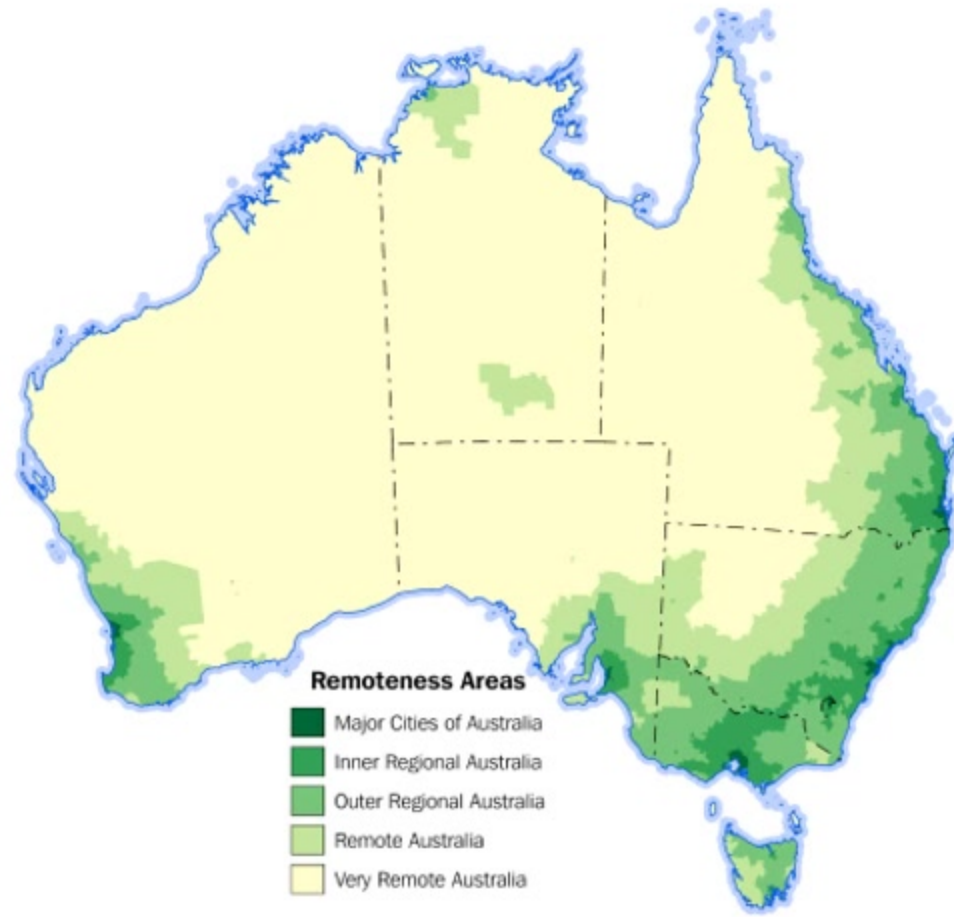




Burden of oral disease among Rural and Remote Populations

Australian Bureau of Statistics (Jul2021-Jun2026), [Remoteness Areas](https://www.abs.gov.au/remoteness-areas), ABS Website, accessed 28 July 2024.

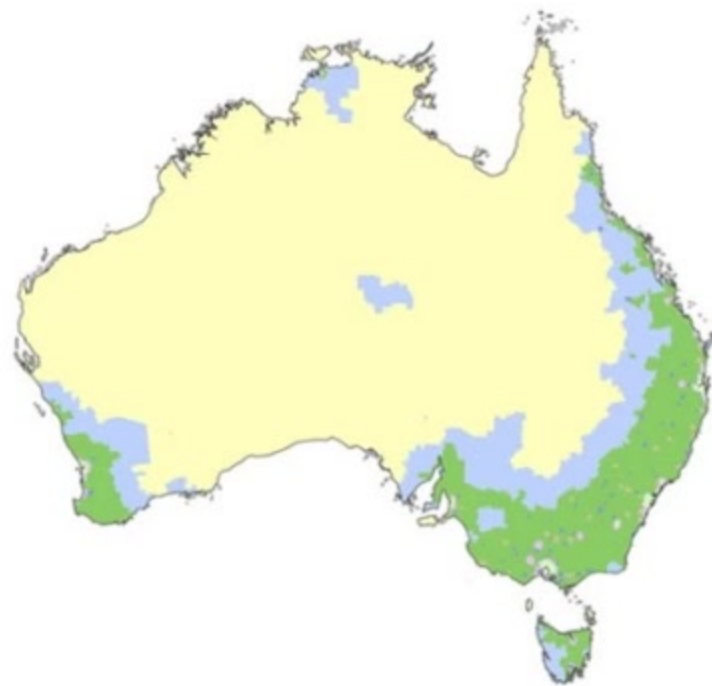
Image source: <https://tgn.anu.edu.au/resource/rural-remote/>

How do we define rural and remote communities? – Modified Monash Category

Modified Monash Model

The Modified Monash Model (MMM) 2019 has been updated to align with the latest available census data (2016).

The model was developed to better target health workforce programs to attract health professionals to more remote and smaller communities. The MMM classifies metropolitan, regional, rural and remote areas according to geographical remoteness, as defined by the Australian Bureau of Statistics (ABS), and town size.



Health programs will begin transitioning to the new MMM 2019 from 1 January 2020.

The MMM is used to determine eligibility for a range of health workforce programs, such as rural Bulk Billing Incentives, Workforce Incentive Program, Bonded Medical Program.

MM1	Metropolitan
MM2	Regional centres
MM3	Large rural towns
MM4	Medium rural towns
MM5	Small rural towns
MM6	Remote communities
MM7	Very remote communities

Modified Monash Category (MMM 2019)	Description (including the Australian Statistical Geography Standard – Remoteness Area (2016))
MM 1	Metropolitan areas: Major cities accounting for 70% of Australia's population. All areas categorised ASGS-RA1.
MM 2	Regional centres: Inner (ASGS-RA 2) and Outer Regional (ASGS-RA 3) areas that are in, or within a 20km drive of a town with over 50,000 residents. For example: Ballarat, Mackay, Toowoomba, Kiama, Albury, Bunbury.
MM 3	Large rural towns: Inner (ASGS-RA 2) and Outer Regional (ASGS-RA 3) areas that are not MM 2 and are in, or within a 15km drive of a town between 15,000 to 50,000 residents. For example: Dubbo, Lismore, Yeppoon, Busselton.
MM 4	Medium rural towns: Inner (ASGS-RA 2) and Outer Regional (ASGS-RA 3) areas that are not MM 2 or MM 3, and are in, or within a 10km drive of a town with between 5,000 to 15,000 residents. For example: Port Augusta, Charters Towers, Moree.
MM 5	Small rural towns: All remaining Inner (ASGS-RA 2) and Outer Regional (ASGS-RA 3) areas. For example: Mount Buller, Moruya, Renmark, Condamine.
MM 6	Remote communities: Remote mainland areas (ASGS-RA 4) AND remote islands less than 5kms offshore. For example: Cape Tribulation, Lightning Ridge, Alice Springs, Mallacoota, Port Hedland. Additionally, islands that have an MM 5 classification with a population of less than 1,000 without bridges to the mainland will now be classified as MM 6 for example: Bruny Island.
MM 7	Very remote communities: Very remote areas (ASGS-RA 5). For example: Longreach, Coober Pedy, Thursday Island and all other remote island areas more than 5kms offshore.

Oral health challenges for those living rural and remote



fewer dental practitioners in regional and remote areas per head of population than in metropolitan areas



higher costs of providing services in regional and remote areas



a lack of affordable or accessible transport. (There is a complex mix of non-emergency health transport funders, providers and programs that lack a consistent overarching framework approach.)



reduced access to fluoridated water in regional and remote communities



increased cost of healthy food choices and oral hygiene products (including fluoride toothpaste).



inadequate clinical infrastructure.

Oral burden of disease in remote and rural Australia

Australian Burden of Disease Study 2018

Select from the following:

Measure: Year: Sex: Disease group:

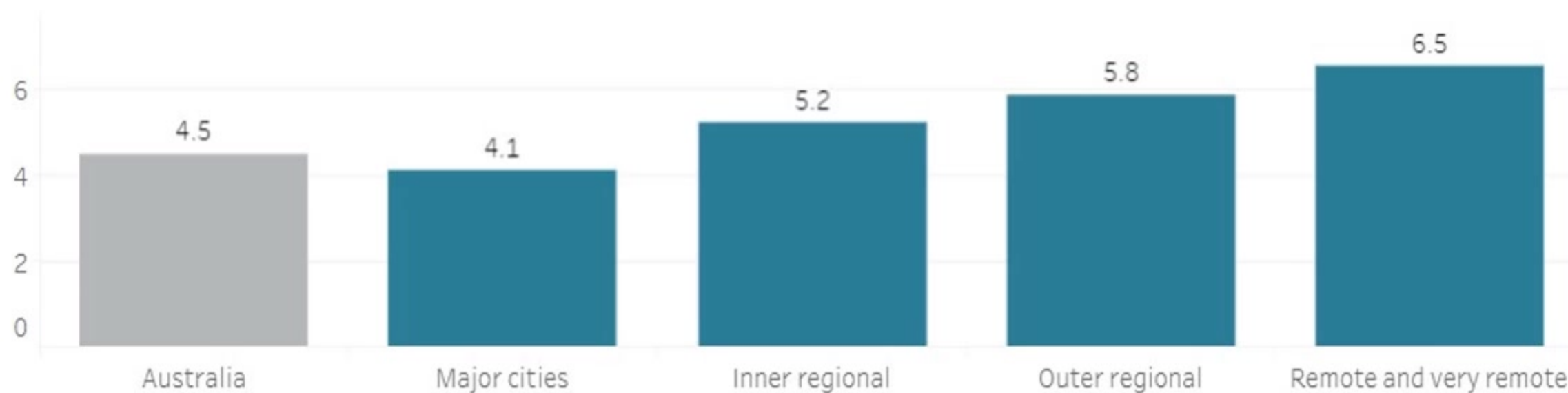
DALY= Disability-adjusted life years; YLD= Years lived with disability; YLL= Years of life lost

The DALY rate in *Remote and very remote* areas was
1.6
times as high as *Major Cities*.

34.9% of
in *Remote and very remote areas* could have been avoided
if the rate was the same as *Major cities*.

Comparison of age-standardised DALY rate: Persons, 2018, selected disease group

Age-standardised rate



Oral burden of disease in remote and rural Australia

Remoteness area

Comparison of age-standardised DALY rate by disease: Persons, 2018

Rate difference compared to national average (AUS)



Hover over boxes for more information and scroll for more diseases/injuries.

Disease group	Disease/Injury	Australia	Major cities	Inner regional	Outer regional	Remote and very remote
Oral disorders	Dental caries	2.0	1.8	2.4	2.6	3.0
	Periodontal disease	1.6	1.5	1.6	2.1	3.0
	Severe tooth loss	0.9	0.9	1.2	1.1	0.6
	Other oral disorders	0.0	0.0	0.0	0.0	0.0
	Lip and oral cavity cancer	0.4	0.3	0.4	0.6	0.7

People with additional and/or specialised oral care needs

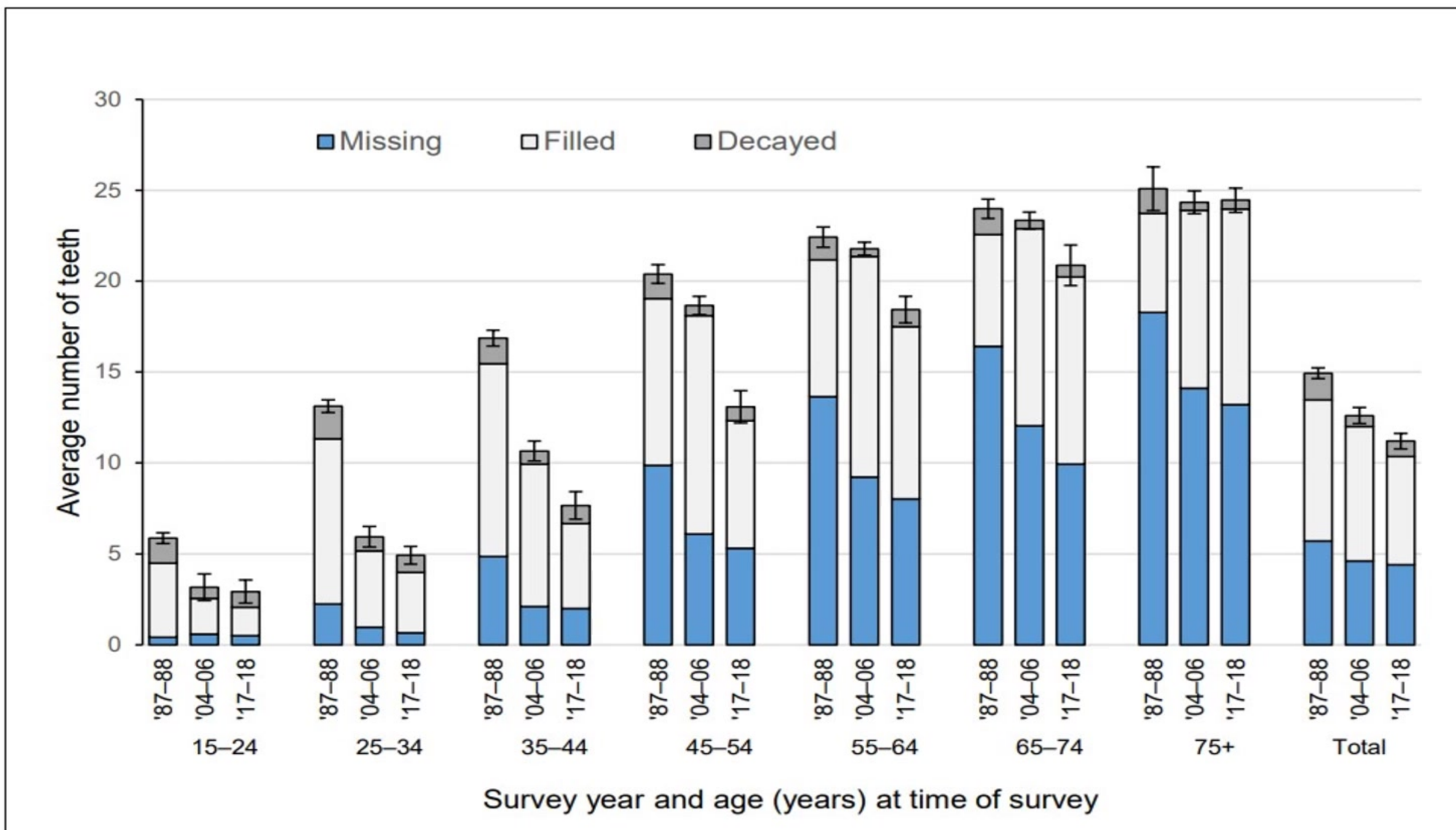


Composition of this priority population and related challenges

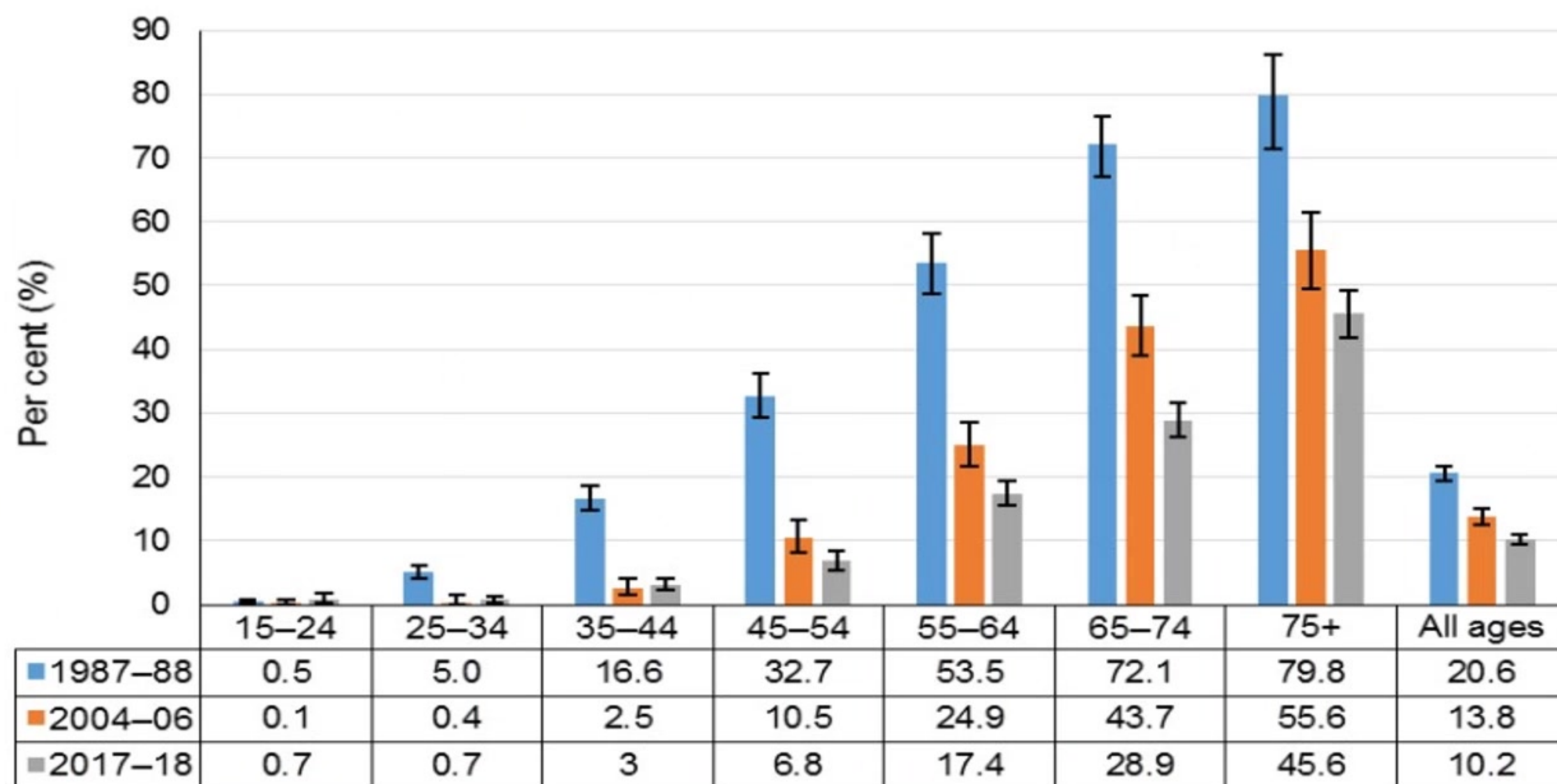
Priority Population	Challenge to oral care/service
People living with mental illness	1. Live in unstable accommodation (severe illness) 2. A lifestyle that contributes to co-morbidities. 3. Multiple risk factors for poor oral health, including mouth dryness. 4. increased risk of excessive alcohol consumption, drug use and smoking.
People with disabilities	1. May not perceive or express the need for oral health care. 2. Ambivalent attitudes of disability carers. 3. Costs: Disability schemes do not cover most dental care
People with complex medical conditions	1. Complex needs requiring specialist services. 2. Higher costs of care.
Frail old people	1. Complex needs including dementia. 2. insufficient oral health resources within aged care settings; 3. inherent unaddressed structural workforce challenges related to policy, staffing models, changing workforce demographics, and workplace culture, 4. inadequate access to oral care services (WAITLIST).

Some findings – Elder population – NOHS 2017-18

Some findings – Elder population – NOHS 2017-18



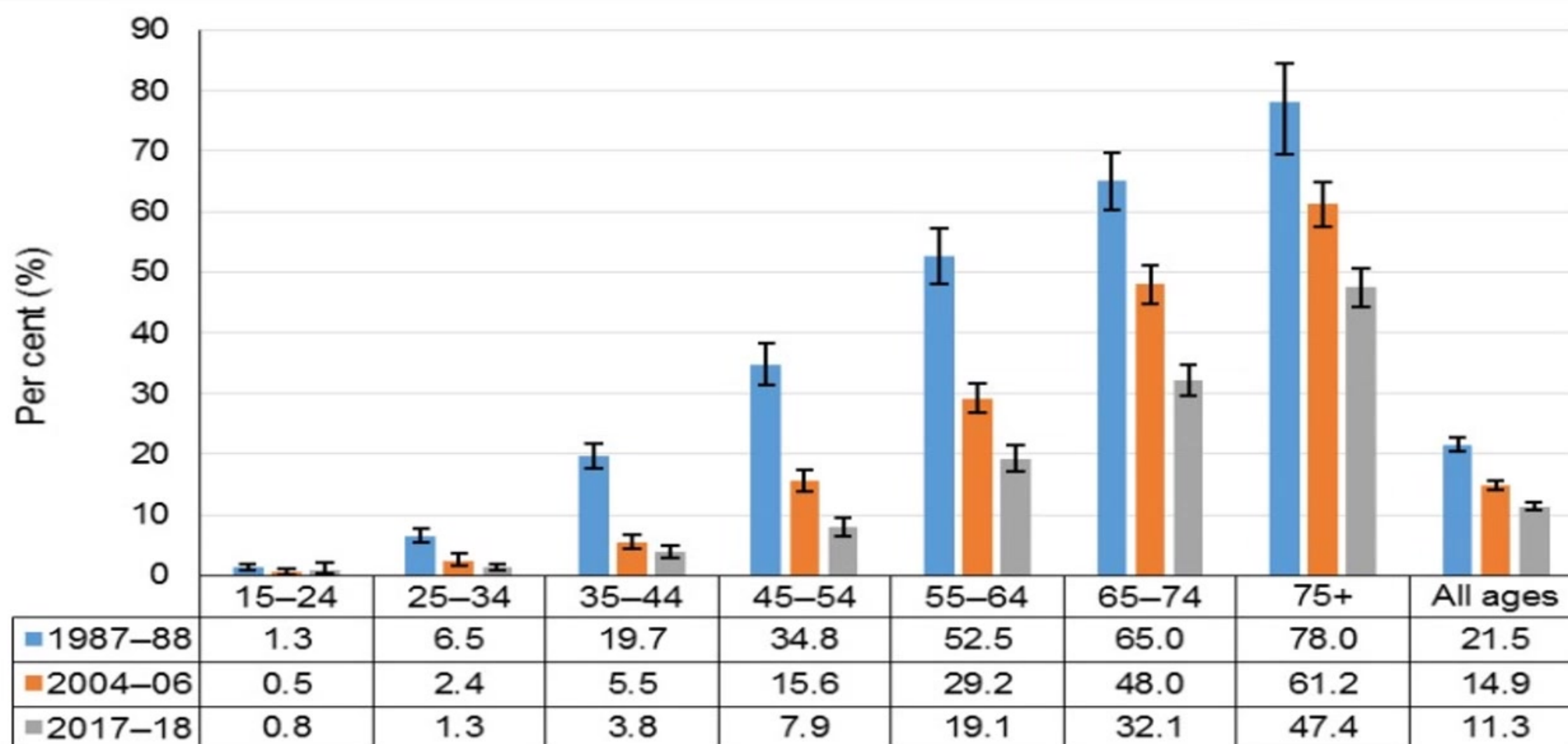
Some findings – Elder population – NOHS 2017-18



Source: National Oral Health Survey of Australia 1987-88, National Survey of Adult Oral Health from 2004-06, and National Study of Adult Oral Health 2017-18.

Figure 7.2: The percentage of people with less than 21 natural teeth among dentate Australians aged 15 years and over, 1987-88, 2004-06, and 2017-18

Some findings – Elder population – NOHS 2017-18



Source: National Oral Health Survey of Australia 1987-88, National Survey of Adult Oral Health 2004-06, and National Study of Adult Oral Health 2017-18.

Figure 7.3: The percentage of people wearing denture(s) among dentate Australians aged 15 years and over, 1987-88, 2004-06, and 2017-18

Some findings – people with disabilities

Table 2. Distribution of children by dental status and need for preventive and/or restorative treatment

Dental status	Children at special developmental schools n=150		Children at special schools n=150		Total children n=300	
	Range	Mean score (±SD)	Range	Mean score (±SD)	Range	Mean score (±SD)
No. decayed teeth (d+D)	0-16	1.5(2.4)	0-8	1.3(1.6)	0-16	1.4(2.0)
No. missing teeth (m+M)	0-2	0.1(0.3)	0-2	0.1(0.3)	0-2	0.1(0.3)
No. filled teeth (f+F)	0-8	0.9(1.7)	0-8	0.7(1.4)	0-8	0.8(1.6)
Total No. teeth present (t+T)	17-29	24.0(2.0)	14-31	24.6(2.3)	14-31	24.3(2.2)
dmft + DMFT index*	0-18	2.5(3.1)	1-10	2.0(2.3)	0-18	2.2(2.8)
No. teeth with enamel defects	0-18	1.2(2.8)	0-26	2.2(4.1)	0-26	1.7(3.5)
No. teeth with attrition	0-22	3.1(5.1)	0-16	2.1(4.1)	0-22	2.6(4.6)
Need for preventive and/or restorative treatment	No. of children (%)		No. of children (%)		Total children (%)	
None	18(12)		8(5)		26(9)	
Simple	66(44)		57(38)		123(41)	
Moderate	38(25)		53(35)		91(30)	
Complex	28(19)		32(21)		60(20)	

*dmft+DMFT index = sum of No. of decayed teeth (d+D), plus No. of missing teeth (m+M), plus No. of filled teeth (f+F).

Some findings – people with disabilities

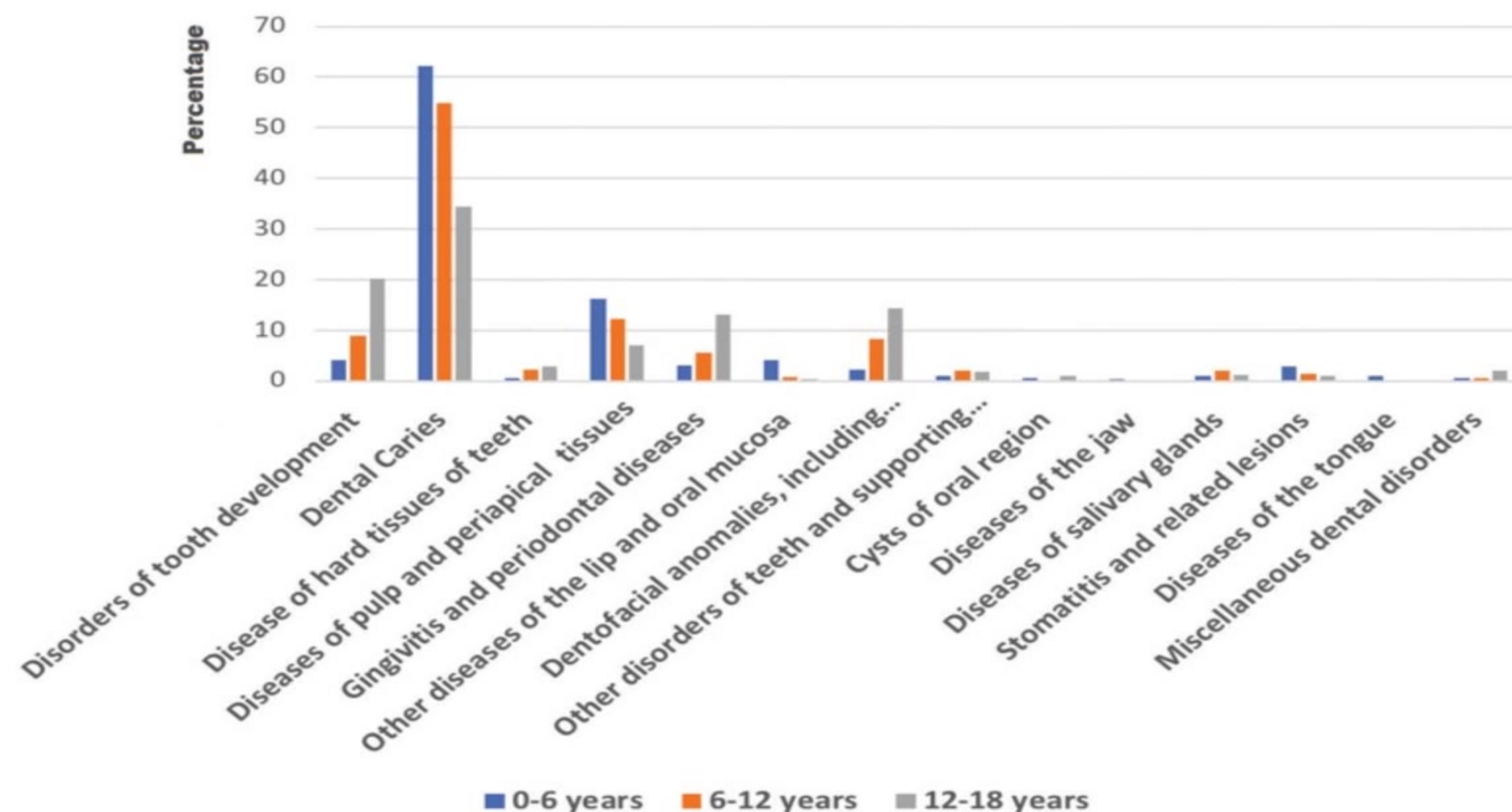
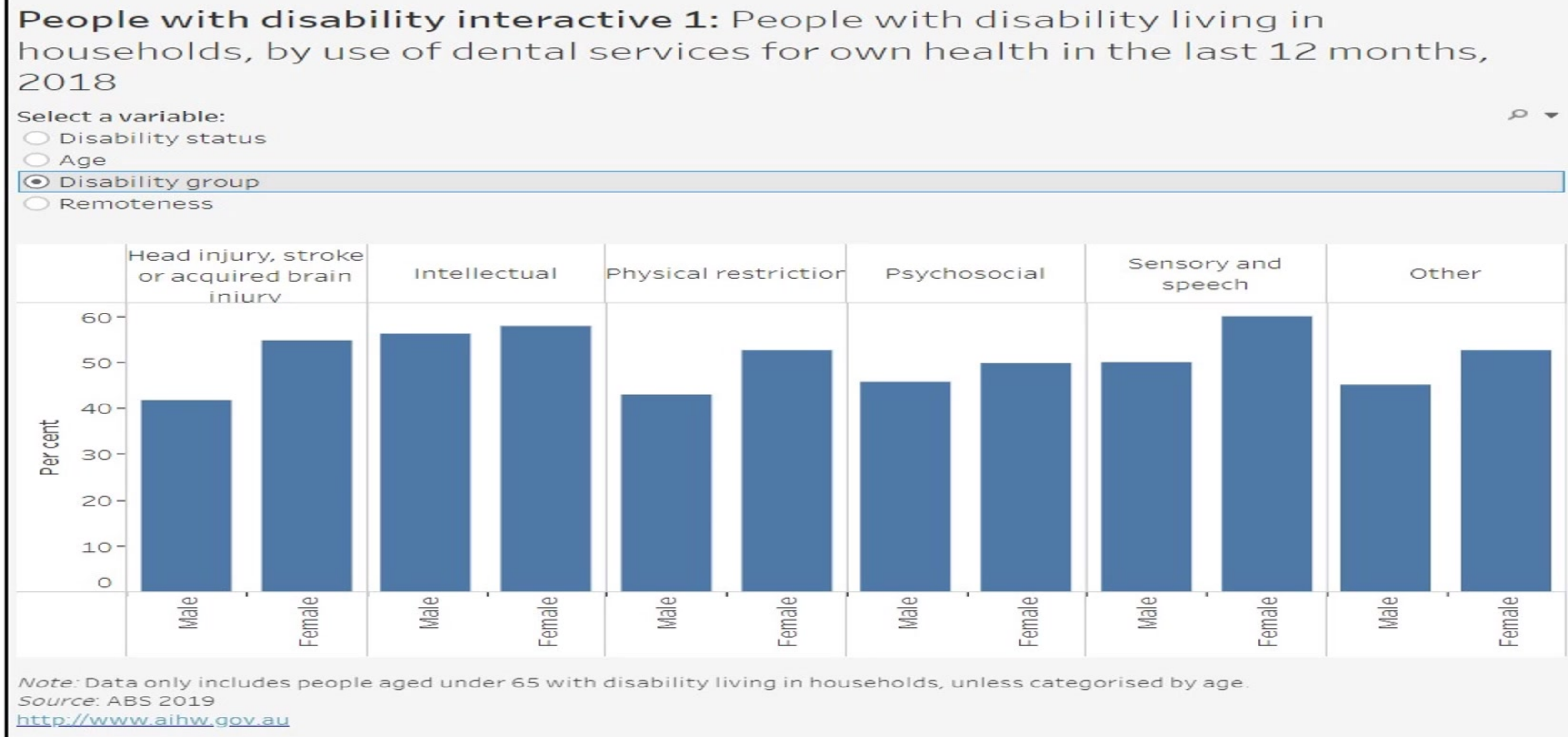


Figure 1. Dental hospitalisation episodes for various oral diagnoses for children with intellectual disability and/or autism born in Western Australia in three different age group cohorts.

Some findings – people with disabilities



Desai M, Messer LB, Calache H. A study of the dental treatment needs of children with disabilities in Melbourne, Australia. Aust Dent J. 2001 Mar;46(1):41-50. doi: 10.1111/j.1834-7819.2001.tb00273.x

Azimi S, Lima F, Slack-Smith L, Bourke J, Calache H, Junaid M, Leonard H. Factors associated with dental hospitalisations in children with intellectual disability or autism spectrum disorder: a Western Australian population-based retrospective cohort study. Disabil Rehabil. 2022 Sep;44(19):5495-5503. doi: 10.1080/09638288.2021.1936662.

Australian Institute of Health and Welfare (2023) [Oral health and dental care in Australia](https://www.aihw.gov.au/reports/dental-oral-health/oral-health-and-dental-care-in-australia/contents/priority-populations/people-with-additional-and-or-specialised-health-c), AIHW, Australian Government, accessed 28 July 2024. <https://www.aihw.gov.au/reports/dental-oral-health/oral-health-and-dental-care-in-australia/contents/priority-populations/people-with-additional-and-or-specialised-health-c>



Revision

- Concepts of burden of disease
- Identifying priority population
- Burden of disease among priority groups and describing reasons.

Thank you

