

The effectiveness of oral health interventions for people with disability

An Evidence Snapshot brokered by the Sax Institute for the Australian Commission on Safety and Quality in Healthcare
March 2021.

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This Evidence Snapshot was produced using the Evidence Snapshot methodology in response to specific questions from the commissioning agency.

It is not necessarily a comprehensive review of all literature relating to the topic area. It was current at the time of production (but not necessarily at the time of publication). It is reproduced for general information and third parties rely upon it at their own risk.

Introduction

This Evidence Snapshot was commissioned by the Australian Commission on Safety and Quality in Health Care (the Commission) and prepared by the Sax Institute. It summarises the evidence on improving oral health and reducing the risks to health and wellbeing associated with poor oral health for people with disability. This Evidence Snapshot does not consider strategies targeting dentists and dental practitioners alone. Note that it was completed within 10 working days, so while a rigorous process for searching was followed it is possible that some peer reviewed or grey literature may have been missed.

An Evidence Snapshot is a rapid review of existing evidence tailored to the needs of an agency. An Evidence Snapshot answers one specific policy or program question and is presented as a short brief of 3-4 pages summarising existing evidence. Evidence Snapshots review up to 20 peer reviewed and up to 20 websites or grey literature reports, focusing on literature published in the last five years identified using limited search terms, databases, and table headings. A detailed analysis, synthesis and quality assessment of the included studies are not provided. Additional information is provided in Appendix 5.

The Commission was funded by the NDIS Quality and Safeguards Commission to undertake three rapid reviews regarding effective strategies to address comprehensive health assessment, oral health and lifestyle issues for people with disability. The Sax Institute brokered the three Evidence Snapshots, see also: *Interventions to reduce or prevent lifestyle risks for people with disability* and *The effectiveness of comprehensive health assessments for people with disability*.

Review question

What interventions have been shown to be effective in reducing risk related to oral health for adults with disability?

Methods

We searched Medline, Scopus, and Google Scholar as well as a selection of journals from both dentistry and disability. Our grey literature search included jurisdictions and major international organisations from Australia, the UK, and the US.

We reviewed the title and abstracts of 393 peer reviewed papers and conducted a full text review of 20 papers. Twelve peer reviewed studies and two peer reviewed commentaries were included in the Evidence Snapshot. The searches were undertaken between 25 and 29 September 2020. Grey literature was sourced by 12 October 2020.

The search strategy is reported in Appendix 2. The peer reviewed literature is reported in Table 1 with the full results in Appendix 4.

Summary of findings

Findings

- We identified 12 peer reviewed studies that met our inclusion criteria, of which there were a systematic review(1), a scoping review(2), a realist review(3); a randomised controlled trial(4); a comparative study(5); three cross-sectional surveys(6-8); two observational studies(9, 10); and a prospective longitudinal study.(11) One review could not be accessed.(12) In addition, we found two peer reviewed commentaries and ten grey literature reports.
- Studies were conducted in a range of settings including: outpatient(4); hospital(11); at home(8) in residential care facilities(5, 9, 10); or in mixed settings.(2, 6, 7) Two reviews did not specify a setting.(1, 3) One review reported on the Australian context.(2)
- The main target group for the studies were: people with intellectual or developmental disability (IDD)(1-3, 5, 6, 9-11) ranging from mild to moderate and severe and profound; and people with mild to moderate schizophrenia.(4) One study examined formal and informal caregivers(3); and a number of other studies mentioned carers as part of mixed study populations.(1, 2, 7, 8, 11) Two studies focused largely on managers and support workers.(7, 8)
- Interventions to improve oral health included: oral health education for people with disability(4); carer-led oral hygiene interventions(3); adjustments to the clinical environment(5); and mixed interventions, including oral health education for carers, workers or people with disability.(1) Other studies examined care planning(1, 8); organisational practices(7), assessments of oral health status(9, 10) and risk factors for choking.(6)

Key messages

Peer reviewed literature

Interventions for people with intellectual disability

- Overall, the evidence for interventions to reduce risks of harm for people with IDD show evidence of benefit, however the certainty of the evidence is low to very low.(1)
- Decisions about oral health care should be based on professional expertise and the needs and preferences of people with IDD and their carers.(2, 13)
- People with IDD rated having an informed dental workforce with insight into the issues they face as their most important issue. Involvement in shared decision-making, having access to more

meaningful information, and the communication competencies of dental professionals were highlighted.(13, 14)

- The benefits of identifying dental practices which make adjustments to the clinical environment and/or assess individuals' need for adjustments is noted.(2) One study found that care delivered in a sensory adapted dental environment (SADE) for adults with iIDD disability both reduced frequency and duration of agitated behaviours and reduced physiological evidence of agitation.(5)

Interventions for caregivers

- The role of caregivers and support workers is considered critical to oral health outcomes(1, 3) particularly for people with moderate, severe or profound levels of IDD. The need for caregiver education and training was noted by many. Training should be tailored to the individual's needs to take account of the type and degree of disability, the presence of other factors such as co-morbidities and challenging behaviours, the work environment and the local service context.(1, 2) The role of caregivers and support staff is also considered critical in the management of risk factors.(6)
- Strategies focused on involving carers in design and implementation of oral health care; practical guidance on how to implement strategies with specified goals and steps to follow; support and feedback; acknowledging the physical and emotional toll of caring for people with IDD; and providing opportunities for repeating training.(3) Carers expressed interest in web based oral health related information.(14)

Care planning and organisational interventions

- The included studies point to the need for multi-tiered approaches that include care planning with people with disability, their carers, those who deliver care, managers or others who develop care plans.(10)
- At an individual level, individualised oral care plans were evaluated in one nonrandomised study that found they may be beneficial.(2)
- At the service level, Salmi et al.(8) found that oral health needs were not routinely considered in service planning for older people with disability, unless at initial evaluations about suitability for home care or when prompted by relatives. Raising staff awareness and training by oral health personnel are needed. Scheduling regular dental recall visits and supervising toothbrushing between visits may reduce gingival inflammation and plaque in the long term.
- At the organisational level, policies to support oral health planning are required, with guidelines on assessing health needs. Action may sit more with those who develop the care plans rather than the employees who implement them. Including oral health as a part of care service planning may help nursing and other staff in their practical work and increase the likelihood that a client's needs are systematically evaluated and identified early.(8)
- An organisational culture that favours oral health promotion and care can influence the attitudes and practices of managers and caregivers including educators, nurses, speech therapists, social workers and family caregivers, and daily living assistants.(7) Examples of a favourable culture included where there is collaboration with a dentist, dental projects, oral health promotion by hygienists, or organisational policies or practical guidelines to support oral health care. These characteristics were associated with better oral health, an openness to caregivers' questions,

having a clear contact point, and carers' increased awareness of their client's or family member's oral health needs and interest in oral health education.

- At a systems level, some studies(3) noted the need for approaches that include oral hygiene interventions, policies, guidelines, resourcing, with accountabilities at all levels. Embedding values across an organisation will ensure good quality and sustainable oral hygiene practices. Wilson et al concluded in their scoping review that a system-based approach is needed to address the diverse needs people with IDD, their caregivers and the service context. Organisational interventions should include procedural, behavioural and educational elements and should be adaptable enough to be applied in a variety of client care contexts.

Training interventions

- Training initiatives variously targeted people with disability, family carers, managers and support workers (clinical and non-clinical).(10)
- Training people with disability in oral healthcare led to statistically significant improvements in frequency of brushing and in knowledge, motivation and practice, though these changes did not lead to clinically significant differences.(4) Two studies found that training people with IDD in brushing their own teeth may reduce plaque in the short term.(1, 2) The efficacy of specific toothbrushing interventions for people with IDD is yet to be established.(2)
- Some carers reported their perceived incompetence and lack of training; Wilson et al. found that educational interventions for caregivers were effective.(2, 14) Training should include optimising the eating performance of people with disability(9) and managing choking risks and episodes.(6) Training carers, caregivers and support workers to brush the teeth of people with ID may have improved carers' oral hygiene knowledge in the medium term.(1) Early intervention training where people with disability present with behavioural challenges should also be provided.
- In the Australian context, Wilson et al.(2) note that the shift of funding to the person with disability under the NDIS may enable carers to access training; however few carer training programs exist.(2, 14)
- Interventions for paid caregivers all described significant outcomes and were broadly based on two principles: enhancing theoretical knowledge; and providing opportunities for caregivers to practice alongside an expert, and offering regular reinforcement over time.(3) Opportunities to embed oral health education interventions into annual mandatory staff training should be considered to promote the value of and potential for better oral health outcomes.
- Training for unpaid caregivers should include tools to help identify dental pain early and individualised training that targets specific behavioural challenges.

Grey literature and agency reports

- Overall, the grey literature examined the need for oral health related interventions for people with disability, their carers and support workers and for provider organisations. There was a call for appropriate standards, policies and procedures in the disability sector and for additional resources and incentives for public dental health services.(15-17) The need for training for dentists and dental assistants to adjust practices for those with specialised needs, including physical, intellectual and cognitive disability, was also noted.

For people with disability

- People with disability should be directly involved in communication and decisions about their oral health care, including informed consent for procedures.(13, 14) Dentists and oral health practitioners need to be responsive to the individual needs of people with disability.
- The Australian Dental Association has resources for people with disability which highlight the need for health promotion and early intervention and detail the impacts of smoking, diet and medication on oral health.(18)
- Policies and reports recommend that people with disability have an individual care plan.(19, 20)

For carers and support workers

- The literature points to the critical role of carers and non-health professionals in supporting the oral health of people with disability. This included encouraging and supervising tooth brushing or performing tooth brushing, as well as through healthy eating and maintaining general health and wellbeing. Other aspects of care include communication with providers and obtaining informed consent.(13)
- The disability support workforce was also seen as a central resource. Support workers should promote oral health as part of their role.(21) Several reports including one by the Australian Dental Association(17), highlighted the need for training opportunities for carers and support workers; however, there are few training opportunities for non-health professionals.(14, 17, 19, 20)
- An innovative example of a home-based intervention delivered by APHCRI Centre of Research Excellence in Primary Oral Health Care(22), training for carers and support workers. The program assists carers in providing oral hygiene care, developing an oral health plan, completing oral health assessments and assessing the need for referral. Oral health assessments showed high carer-dentist agreement in most categories.
- Resources for carers included brushing the teeth of people with disability, oral hygiene, and healthy diet as well as understanding risks associated with smoking and medications.(18, 21, 23) The Queensland Government has resources to support carers and workers to develop and maintain an oral health care plan.
- Of note is the report from the Dental Health Services Victoria which recommends that support workers ensure people with disability ('in disability accommodation'): have an adequate fluid intake and eat a healthy diet; attend a routine dental check-up at least once per year; complete an oral health assessment annually; and develop an individualised oral health care plan.(20) This has implications for NDIS providers.

Oral health policies and strategic plans

- Several organisations have oral health policies and strategic plans which could potentially inform the development of plans by the NDIS and NDIS providers.(16, 17, 20, 22)
- COAG recommends strengthening nutrition and oral health policies in disability settings. More comprehensive oral health components are required in the accreditation standards for services. The COAG 'Healthy Mouths, Health Lives' Plan recognises the need to improve oral health outcomes and reduce harms for people with specialised health care needs.(16)

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- The APHCRI report identified the need for further research to identify barriers and enablers that facilitate the training of carers of people with disability.(22)

Table 1—Summary of studies by target population

First author, year	Study design	Main intervention	People with disability					Carers and workers				Organisations					
			Needs and preferences	Adapt clinical environment	Individualised care plans	Oral hygiene or training	Tailored clinical care	Repeated training / practice	Guidance and information	Care planning	Recognition and feedback	Manager and staff training	Staff accountabilities	Policies and procedures	Service planning and delivery	Collaboration with dentists	Culture and values
Agarwal 2019	RCT	Education				X	X										
Liu 2019	Observational	Eating performance				X											
Manduchi 2020	Cross sectional	Choking risk			X			X									
Ningrum 2020	Observational	Oral hygiene			X	X		X									
Phlypo 2019	Surveys	Management / system						X	X	X		X	X	X	X	X	X
Potter 2019	Comparative	Clinical environment	X	X			X										
Rollon-Ugalde 2020	Prospective	Oral health related QOL	X				X										
Salmi 2019	Cross sectional	Management / system			X			X		X		X		X			
Waldron 2019	Review		X			X		X		X							
Waldron 2020	Review	Care / carer education						X	X		X	X					X
Wilson	Review	Care / carer education				X	X	X									

Appendix 1: Included publications

Peer reviewed literature

1. Agarwal D, Kumar A, Manjunath BC, Sethi S, Yadav V, Shyam R, et al. Effectiveness of oral health education on oral hygiene status among schizophrenic patients: A randomized controlled study. *Special Care in Dentistry*. 2019;39(3):255-61. doi: 10.1111/scd.12373
2. Gao SS, Chu CH, Young FYF. Oral health and care for elderly people with Alzheimer's disease. *International Journal of Environmental Research and Public Health*. 2020;17(16):1-8. doi: 10.3390/ijerph17165713
3. Kangukar T, Watson J, Calache H. Education and training interventions that focus on improving oral health related well-being of people with intellectual disability: A review report. *Intellectual Disability Australasia*. 2020;41(2):24
4. Kurth NK, Hall JP. Feeling Good About Your Smile: Implementation and Evaluation of an Oral Health Intervention for People With Intellectual Disability. *Inclusion*. 2019;7(3):169–76. doi: 10.1352/2326-6988-7.3.169
5. Liu W, Shaw C, Chen X. Dental-related function and oral health in relation to eating performance in assisted living residents with and without cognitive impairment. *Special Care in Dentistry*. 2019;39(5):497-504. doi: 10.1111/scd.12405
6. Manduchi B, Walshe M, Burke É, Carroll R, McCallion P, McCarron M. Prevalence and risk factors of choking in older adults with intellectual disability: Results from a national cross-sectional study. *Journal of Intellectual and Developmental Disability*. 2020. doi: 10.3109/13668250.2020.1763278
7. Ningrum V, Wang W-C, Liao H-E, Bakar A, Shih Y-H. A special needs dentistry study of institutionalized individuals with intellectual disability in West Sumatra Indonesia. *Scientific Reports*. 2020;10(1). doi: 10.1038/s41598-019-56865-2
8. Phlypo I, Palmers E, Janssens L, Marks L, Jacquet W, Declerck D. The perception of oral health and oral care needs, barriers and current practices as perceived by managers and caregivers in organizations for people with disabilities in Flanders, Belgium. *Clinical Oral Investigations*. 2020;24(6):2061-70. doi: 10.1007/s00784-019-03071-z
9. Potter CN, Wetzel JL, Learman KE. Effect of sensory adaptations for routine dental care in individuals with intellectual and developmental disabilities: A preliminary study. *Journal of Intellectual and Developmental Disability*. 2019;44(3):305-14. doi: 10.3109/13668250.2017.1409597
10. Rollon-Ugalde V, Coello-Suanzes J-A, Lopez-Jimenez A-M, Herce-Lopez J, Toledano-Valero P, Montero-Martin J, et al. Oral health-related quality of life after dental treatment in patients with intellectual disability. *Medicina oral, patologia oral y cirugia bucal*. 2020;25(5):e576-e83. doi: 10.4317/medoral.23549
11. Salmi R, Lahti S, Tolvanen M, Suhonen R, Närhi T. Oral health assessment in domiciliary care service planning of older people. *Special Care in Dentistry*. 2019;39(5):485-90. doi: 10.1111/scd.12403

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12. Waldron C, MacGiolla Phadraig C, Nunn J. What is it about carer-led oral hygiene interventions for people with intellectual disabilities that work and why? A Realist Review. *Community Dentistry and Oral Epidemiology*. 2020. doi: 10.1111/cdoe.12564
 13. Waldron C, Nunn J, Mac Giolla Phadraig C, Comiskey C, Guerin S, van Harten MT, et al. Oral hygiene interventions for people with intellectual disabilities. *Cochrane Database of Systematic Reviews*. 2019. doi: 10.1002/14651858.CD012628.pub2
 14. Wilson NJ, Lin Z, Villarosa A, Lewis P, Philip P, Sumar B, et al. Countering the poor oral health of people with intellectual and developmental disability: a scoping literature review. *BMC public health*. 2019;19(1):1530. doi: 10.1186/s12889-019-7863-1

Appendix 2: Search strategy

Key concepts

Concept 1	Concept 2	Concept 3	Concept 4	Concept 5
Disability	Health AND	Intervention	Effect*	Risk
disabled	Oral OR	assess*	outcome	prevent*
delayed	dental	treat*	result	detect*
		therapy	evaluat*	diagnos*

Note: due to the relatively small literature, not all of the search concepts were applied during the search process—some were left for the title/abstract screening and full-text review processes.

Timeframe

This review includes peer reviewed and grey literature published in the 12 months to 25 September 2020 (peer reviewed) and 12 October 2020 (grey literature).

Inclusion and exclusion criteria

We **included** studies whose participants either were, or worked with, persons with serious and permanent disability, including physical disability, learning or intellectual disability, mental illness or psychiatric conditions. Participants' impaired functionality may be related to brain injury, autism, cerebral palsy, hearing impairment, intellectual disability, developmental delay, global development delay, down syndrome, MS, psychosocial disability, spinal cord injury, stroke, or vision impairment as well as mental illness or psychiatric conditions.

We **included** studies describing interventions that could be applicable to an NDIS Provider, a participant, a support worker, or a combination of the three. For example, interventions may include monitoring and supervision of support workers training and ongoing development for participants to manage their own oral health care and/or for support workers' knowledge, skills and awareness of oral health, health literacy or health promotion.

We **included** only studies which evaluated interventions. The outcomes of interest were broad in scope, including increased knowledge, skills, and awareness of support workers or participants; improved attitudes or behaviours of the participants; inclusion of a dental health plan in NDIS plans; improved communication or advocacy skills, and reduced dental anxiety.

We **included** studies focused on adults with disability but **excluded** studies of disabilities not covered by the NDIS. Studies focused on children with disability were also excluded. However, studies which

evaluated interventions affecting both adults and children with disability, and which reported the results separately, were included.

Sources and search algorithms

1. Medline
(((“oral health” or “dental health”) and (Disability or disabled or delayed)) not (children or child)).ab.
limit [search] to (english language and humans and yr=“2019 - 2020”)
54 results
 2. Scopus
(ABS (“oral health” OR “dental health”) AND ABS (disability OR disabled OR delayed))
AND PUBYEAR > 2018 AND PUBYEAR < 2021
182 results
 3. Google Scholar
allintitle: disability OR disabled OR delayed “dental health” -child -children - 4 results
allintitle: disability OR disabled OR delayed “oral health” -child -children - 23 results
27 results in total
 - 4a. Additional journals: Disability
Disability journals searched were: Journal of Intellectual Disability Research, Journal of Applied Research in Intellectual Disabilities, and Journal of Intellectual and Developmental Disability
(SOURCE-ID ([identifying the journal being searched])) AND (dental OR oral) AND
(LIMIT-TO (PUBYEAR , 2020) OR LIMIT-TO (PUBYEAR , 2019))
51 results in total
 - 4b. Additional journals: Dental
Dental journals searched were: Special Care in Dentistry, Oral Health and Preventive Dentistry, Medicina oral, patologia oral y cirugia buccal, Journal of the American Dental Association, Community Dentistry and Oral Epidemiology, British Dental Journal, and BMC oral health.
(SOURCE-ID ([identifying the journal being searched])) AND (disab*) AND NOT
(child*) AND (LIMIT-TO (PUBYEAR , 2020) OR LIMIT-TO (PUBYEAR , 2019))
173 results in total
- 224 results in total from disability and dental journals.

Grey literature and jurisdictional searches

Google searches were conducted between 9 and 12 October 2020 and each search examined the first 10 pages of results. Search terms included ‘oral health’, ‘disability’, ‘dental care’, and ‘services’.

Appendix 3: Search results

A	B	C	D	E	F	G
Database	Results	Remove duplicates	Excluded after title & abstract screening	Full text review	Excluded after full text review	FINAL INCLUDED
	n=	n=	n=	n=	n=	n=
1 Medline	54					
2 Scopus	182					
3 Google Scholar	25					
4 Additional journals	224					
TOTAL	485	393	357	36	24	14

The 14 final papers include 12 peer reviewed studies and 2 peer reviewed commentaries.

Appendix 4: Data extraction tables

Table 4.1 Peer reviewed studies

Author, year Country	Study design n=	Setting	Population	Intervention	Diagnosis/ disability / dual diagnosis	Measures of effect	Results/Outcomes	Comments
Agarwal, 2019 India	Randomised parallel controlled trial n= 111	Outpatient	Person with disability	Education, reinforced by printed calendar	People with mild to moderate schizophrenia	After 2 months: <ul style="list-style-type: none"> Assessment of KAP (knowledge, attitude, and practice) through DCBS (Dental Coping Beliefs Scale) Oral hygiene assessed with oral hygiene index 	Despite statistically significant improvements in the intervention group (in knowledge and beliefs, frequency of brushing 2x / day, and debris index), differences were not clinically significant	Shorter recall periods and longer follow-up were advised by the authors
Potter, 2019 United States	Observational study with within-subject repeated measures n= 41 (M=22, F=19)	2 inpatient (intermediate care facilities) for IDD; not for profit.	Adults with IDD identified as having difficulty tolerating dental procedures and who demonstrated behaviours that interfered with	Adjustment to practice environment Patients treated in a sensory adapted dental environment (SADE) (rather than the usual dental environment)	Adults with IDD (61% of sample with profound IDD)	During the dental treatment: <ul style="list-style-type: none"> Agitated behaviours (frequency and duration) videotaped Anxiety-related physiological 	SADE reduced frequency and duration of agitated behaviours and reduced physiological evidence of agitation (HR and BP) over RDE with $p = .004$	

Table 4.1 Peer reviewed studies

Author, year Country	Study design n=	Setting	Population	Intervention	Diagnosis/ disability / dual diagnosis	Measures of effect	Results/Outcomes	Comments
			completing oral care			measures recorded (heart rate, blood pressure)		
Salmi, 2019 Finland	Cross-sectional survey n= 25	Domiciliary (home) care for older people with disability that prevents them from living independently	Care managers supervising a total of 450 nurses, other carers or care assistants providing health and medical as well as other services in the home Care managers mostly had a social or health care background	Questionnaire for managers with multiple-choice and open-ended questions	Older people with disability that prevents them from living independently and who require care for daily routines i.e. functional disability with cause not further defined	Consideration of the frequency and timing of oral health-related needs checks e.g. during service planning, when prompted by a relative; and presence of guidelines	All managers considered oral health care important. However, it was not routinely considered in service planning Where oral health needs were considered, it was generally after evaluating the overall need for domiciliary care or if prompted by a client or relative This study indicated a need for structured guidelines and further education for assess the need for oral home care assistance	Survey gathered information on care managers' knowledge and practices clients oral health needs, especially to determine whether oral health needs are taken into account in service planning and if this differed among the managers with a social or health care background

Table 4.1 Peer reviewed studies

Author, year Country	Study design n=	Setting	Population	Intervention	Diagnosis/ disability / dual diagnosis	Measures of effect	Results/Outcomes	Comments
Waldron et al. 2019	Cochrane review n=1795 adults and children 354 carers		People with ID or their carers	<ul style="list-style-type: none"> • Electric and manual toothbrushes • Carer education (training in oral hygiene care) • Education for people with ID in oral hygiene care • Care planning (scheduled dental visits and supervised brushing) • Discussion of clinical photographs showing plaque, varied frequency of toothbrushing, plaque-disclosing agents and individualised care plans 	Intellectual disability (IDD)	Reduced gingival inflammation (GI) and plaque	<p>Most evidence was low or very low certainty</p> <p>There was moderate certainty evidence that electric and manual toothbrushes were similarly effective for reducing gingival inflammation in people with ID in the medium term</p>	Larger, higher-quality RCTs are recommended to endorse or refute the findings of this review. In the meantime, oral hygiene care and advice should be based on professional expertise and the needs and preferences of the individual with ID and their carers

Table 4.1 Peer reviewed studies

Author, year Country	Study design n=	Setting	Population	Intervention	Diagnosis/ disability / dual diagnosis	Measures of effect	Results/Outcomes	Comments
Ningrum et al. 2020	34F, 31M	Residential (institutional) care	People with IDD	N/A	Mild to moderate (n=87.7%) ID	Issues assessed: Oral Hygiene Index Simplified (OHIs), Angle's classification of malocclusion, Community Periodontal Index and Treatment Need (CPITN), and decay index and also recorded their brushing behaviour	General comments: • Males had worse oral health overall and were less likely to brush and needed more assistance to brush	There should be a greater focus on providing appropriate oral health education to people with IDD, improving the health literacy and quality of care of caregivers, and providing more dentists with specialised training in special needs dentistry
Manduchi et al. 2020 Ireland	Cross sectional study n=597	Family or independent; community group homes; residential care	Adults with ID (mean age 60) assessed risk factors for choking	Retrospective observational study based on data from the third wave of the Intellectual Disability Supplement to The Irish Longitudinal Study on Ageing	People with intellectual disability (including psychiatric diagnoses)	Prevalence and characteristics of choking episode/s	The study found a prevalence of 17.3% of choking history among older adults with ID	The confirmation of a high prevalence of choking risk in older adults with ID suggests that choking risk assessment should be implemented in usual care for each individual

Table 4.1 Peer reviewed studies

Author, year Country	Study design n=	Setting	Population	Intervention	Diagnosis/ disability / dual diagnosis	Measures of effect	Results/Outcomes	Comments
Wilson et al., 2019 Australia	Scoping literature review	Varied (home, dental clinic, hospital)	People with IDD Caregivers Dentists	Tooth brushing Caregiver oral health education programs Dental care procedures, utilisation of general anaesthesia (GA) and sedation	People with IDD	Not specified	<ul style="list-style-type: none"> • The role of caregivers in the provision of oral health support is vital • For people with more severe IDD and/or dental-related behavioural problems, dental treatment under GA is often a necessary and effective means of providing oral health care and of improving oral health • Access to services and educational supports remains difficult for people with IDD and their caregivers, however outreach and exclusive services appear to be successful strategies for increasing access 	<p>A uniform approach to supporting oral health for people with IDD is unlikely to succeed. A combination of effective interventions needs to be developed for implementation in different contexts of care, for the differing degrees of function, caregiver type, and with dental health professionals to maximise the likelihood that oral health can be maintained and improved</p> <p>Promising examples that fit</p>

Table 4.1 Peer reviewed studies

Author, year Country	Study design n=	Setting	Population	Intervention	Diagnosis/ disability / dual diagnosis	Measures of effect	Results/Outcomes	Comments
							<ul style="list-style-type: none"> A range of educational interventions for caregivers are reportedly effective. However, unpaid caregivers do not always have immediate access to these 	<p>within the current schedule of services defined by the NDIS include:</p> <ol style="list-style-type: none"> 1. Nurse-led oral health support and training programs for the caregivers of people with IDD who also have chronic and complex health problems that directly impact upon the provision of daily oral hygiene. For instance, oral health support to a person with IDD who has a tracheostomy or is at risk of aspiration

Table 4.1 Peer reviewed studies

Author, year Country	Study design n=	Setting	Population	Intervention	Diagnosis/ disability / dual diagnosis	Measures of effect	Results/Outcomes	Comments
								<p>2. Intervention led by a dental officer and targeted at people with milder degrees of IDD and the potential to be independent with their daily oral hygiene</p> <p>Intervention led by a health worker who provides home-based early intervention training for the families of people with IDD who present with behavioural challenges impacting upon their oral health</p>

Table 4.1 Peer reviewed studies

Author, year Country	Study design n=	Setting	Population	Intervention	Diagnosis/ disability / dual diagnosis	Measures of effect	Results/Outcomes	Comments
Waldron et al., 2020 Ireland	Realist review	Not specified	Carer, person with disability	Carer-led oral hygiene interventions	The search criteria specified population of interest as anyone with a chronic/long-term health condition	Not specified	This realist review found evidence to suggest there are six elements to be considered, for possible inclusion in interventions that would improve the outcomes for oral health of people with intellectual disability. They are as follows: 1. Resources and direction must be provided at the systems level, with all stakeholders supporting and monitoring the initiative continuously 2. Training must be provided to carers that is tailored to their needs 3. Carers well-being and personal and work	The six key elements identified in this review (in results column) should direct future interventions by suggesting the mechanisms and contexts that are important to achieve improved oral health outcomes for people with intellectual disability

Table 4.1 Peer reviewed studies

Author, year Country	Study design n=	Setting	Population	Intervention	Diagnosis/ disability / dual diagnosis	Measures of effect	Results/Outcomes	Comments
							<p>environments must be considered</p> <p>4. Feedback, acknowledgement, and encouragement must be given to carers to sustain their motivation</p> <p>5. A clear statement must be given about how the intervention is expected to work, identifying the behavioural change theories at play, which should include setting goals with achievable steps for carers</p> <p>6. Regularly re-train carers, involve senior carers, who take ownership of the sustainability of this training</p>	

Table 4.1 Peer reviewed studies

Author, year Country	Study design n=	Setting	Population	Intervention	Diagnosis/ disability / dual diagnosis	Measures of effect	Results/Outcomes	Comments
Rollon-Ugalde et al., 2020 Spain	Prospective longitudinal study	Hospital	Adult patients with ID undergoing dental treatment under general anaesthesia (GA), and their carers	Hospital-based dental treatment program under GA	Not specified	Outcome = Oral health-related quality of life (OHRQOL) measured using the Franciscan Hospital for Children Oral Health-Related Quality of Life questionnaire (FHCOHRQOL-Q) - a tool designed specifically for parents and caregivers of individuals with ID to detect their dental treatment needs	<p>Main finding of study:</p> <ul style="list-style-type: none"> • A statistically significant improvement was found in the overall score and most of the dimensions of the FHCOHRQOL-Q up to 12 months post treatment • Improvement of oral symptoms was significantly associated with DMFT index (decay-missing-filled teeth), decayed teeth, dental extractions and number of treatments 	<p>This single site study indicates that implementation of dental treatment programs in a clinical (i.e. hospital) setting enhanced the oral health related quality of life of patients with ID.</p> <p>More research needed to ensure findings are generalisable</p>

Table 4.1 Peer reviewed studies

Author, year Country	Study design n=	Setting	Population	Intervention	Diagnosis/ disability / dual diagnosis	Measures of effect	Results/Outcomes	Comments
Liu et al., 2019 US	Observational study	Assisted living facilities	Assisted living residents with and without normal to severely impaired cognition	n/a	Not specified	Objective of study was to examine the relationship between eating performance, dental-related function, and oral health (i.e. gingival inflammation, number of remaining teeth, and number of broken or decayed teeth) among assisted living residents with and without cognitive impairment	There was a statistically significant association between eating performance and dental-related function.	Eating performance is influenced by the complex relationship with dental-related function and oral health. Novel interventions using interdisciplinary partnerships are needed to maintain dental-related function and oral health to optimise eating performance
Phlypo et al., 2020	Surveys One for managers and one for	Residential care organisations for people with	Managers and care givers in residential care, home care,	Respondents were asked about their perceptions of the health needs of their		Knowledge attitudes and skills, perceived needs of people	Managers and carers were open to oral health education. Managers perceived oral health to	The results were to be used to plan an oral health promotion program

Table 4.1 Peer reviewed studies

Author, year Country	Study design n=	Setting	Population	Intervention	Diagnosis/ disability / dual diagnosis	Measures of effect	Results/Outcomes	Comments
	caregivers sent all 570 organisations for people with disability in Flanders	disability in Flanders	recreational organisations, hospitals, associations and health insurers Caregivers were educators, nurses, speech and language therapist 9 (9.9) of daily living assistant, Social works, Coordinators or team coaches, nurses aides, doctors and family caregivers	recipients (people with disability) Carers were asked about oral care, oral health education, comfort level, resistance, barriers and the presence of guidelines in the organisation Organisations with and without an oral health policy, project or collaboration with a dentist were compared to those without		with disability, barriers to oral health care	be better (P=0.019) and mentioned less oral health needs (P=0.049), when collaboration with a dentist was reported. Organisations with an oral health policy perceived oral health to be better (P=0.048) 75% of caregivers mentioned to having enough knowledge and practical skills, and 46% were interested in receiving oral health education. Most interest was shown in practical education and education customised to clients' needs. In organisations with an oral health project, more caregivers indicated that the organisation was open to oral health questions (97%)	for people with disability in Flanders and to influence regional and national policy for oral health of people with disability

Table 4.1 Peer reviewed studies

Author, year Country	Study design n=	Setting	Population	Intervention	Diagnosis/ disability / dual diagnosis	Measures of effect	Results/Outcomes	Comments
							compared with 81%; P=0.045) Most interest was shown in practical education and education customised to clients' needs	

Table 4.2 Peer reviewed commentary

Author, Year	Summary	Target audience
Gao et al. 2020. Expert commentary	This paper provides an overview of oral health and the importance of oral care for elderly people with Alzheimer's disease. Elderly people with dementia have significantly poorer oral health compared to those without dementia. The authors recommend involving carers and support workers in the oral hygiene process, including obtaining informed consent for procedures. The paper underlines the importance of communication and liaison with carers to improve the oral health of people with Alzheimer's disease.	Dental practitioners
Kangutkar et al. 2020. Expert commentary	This paper examines education and training interventions related to oral health of people with intellectual disability. Dental health professionals play a vital role in educating caregivers about oral health. Education of dentists improved attitudes, knowledge and skills but only limited improvement of care from training alone. No training courses were identified for non-health professionals. For carers, training increased knowledge and improved attitudes about oral health care for their recipients. People with ID expressed interest in being involved in their own oral health care and decision making.	Medical and dental professionals, people with ID, carers and support workers

Table 4.3 Grey literature data extraction

Author, Year Document type	Summary	Target audience
Dental Health Services Victoria, 2020 Website	Everysmile is a website established by Dental Health Services Victoria as a central resource to enhance the capacity of the disability support workforce to promote oral health as part of their role. Everysmile contains a number of practical resources for carers and the disability support workforce, including oral health policy templates, oral health care plans, easy read fact sheets, posters and videos.	<ul style="list-style-type: none"> • Disability service providers • Disability support workers • Carers

Table 4.3 Grey literature data extraction

Author, Year Document type	Summary	Target audience
Australian Dental Association, 2020 Policy statement	This document is a policy statement about the delivery of oral health services to individuals with disability and special needs. The Australian Dental Association recommends governments fund dental services and facilities for those with disability and special needs; and provide education and training opportunities for dental personnel and carers.	<ul style="list-style-type: none"> • Government agencies • Dental practitioners
Zylan et al. 2019 Practitioner resource	A resource for dental practitioners that focuses on oral health and intellectual disability. The authors outline common oral health conditions found in patients with intellectual disability and how best to work with disability support professionals manage oral health care.	Dental practitioners
Legislative Analyst's Office, 2018 Government report	This report from Canada aims to improve access to dental services for individuals with developmental disability. Recommendations include expansion of disability coordination services, increased limits for state funded dental care and providing incentives for dentists to provide care to people with a developmental disability in their homes.	Government agencies
Queensland Government, 2017 Fact sheet	This resource is for carers of people with special needs to develop and maintain an oral health care plan. Provides practical advice for carers including tips for brushing other people's teeth and maintaining good oral hygiene and a healthy diet.	<ul style="list-style-type: none"> • Carers • Disability support workers
Australian Dental Association, 2016 Patient resource	This is a patient resource regarding oral health care with Easy Read English section and pictures. The resource highlights the importance of prevention and early intervention for good oral health, and also details the impacts of smoking, diet and medication on oral health.	People with disability
APHCRI Centre of Research Excellence in Primary Oral Health Care, 2016 Research report	This study aimed to improve the oral health of care recipients through a home-based intervention with carers in improving oral care for adults with disability. Carers were given training in completing oral health assessments, developing oral health care plans, providing oral hygiene care and assessing the need for referral for treatment. Findings suggested that the training improved knowledge and confidence in oral	<ul style="list-style-type: none"> • Government agencies • Disability service providers • Carers

Table 4.3 Grey literature data extraction

Author, Year Document type	Summary	Target audience
	<p>care among carers. Oral health assessments showed high carer-dentist agreement in most categories. The authors recommend expansion of opportunities within public dental care for people with disability to gain treatment, including that patients need to be actively followed up to ensure that they attend appointments. The study identified the need for further research to identify barriers and enablers that facilitate the training of carers of people with disability.</p>	
<p>COAG Health Council, 2015 Government policy</p>	<p>‘Healthy Mouths, Healthy Lives’ is Australia’s National Oral Health Plan 2015–2024. The Plan recommends strengthening and embedding nutrition and oral health policies in key sectors, including disability settings. The Plan states that more comprehensive oral health components are required in the accreditation standards for services across a range of sectors, including disability settings. A goal of the Plan is to improve oral health outcomes and reduce the impact of poor oral health for people with additional and/or specialised health care needs. The Plan acknowledges that there is limited availability for Special Needs Dentistry in Australia and long waiting lists to access services.</p>	<ul style="list-style-type: none"> • Government agencies • Disability service providers
<p>British Society for Disability and Oral Health, 2012 Clinical guidelines.</p>	<p>These Guidelines detail clinical care and management of oral health for people with learning disability. The Guidelines recommend that every person with a learning disability should have an individual oral health care plan and that carers should undergo ongoing training related to oral health.</p>	<ul style="list-style-type: none"> • Dental practitioners • Disability service providers
<p>Dental Health Services Victoria, 2010 Government resource</p>	<p>This toolkit is aimed at promoting oral health for people living in government funded disability accommodation services. The resource is based on a program in 2009 which aimed to educate disability support workers about the importance of oral health care. The resource recommends that disability service workers should support people with disability by ensuring that they: Have adequate fluid intake and eat a healthy diet. Attend a routine dental check-up at least once a year. Complete an oral health assessment annually. Develop an individualised oral health care plan.</p>	<p>Disability service providers</p>

Appendix 5: Scope of Evidence Snapshot rapid reviews

An Evidence Snapshot is a rapid review of existing evidence tailored to the needs of an agency. An Evidence Snapshot answers one specific policy or program question and is presented as a short brief of 3-4 pages summarising existing evidence. Evidence Snapshots may review up to 20 peer reviewed and up to 20 websites or grey literature reports and commentaries, focusing on literature published in last 12 months identified using limited databases and search terms. A detailed analysis, synthesis and quality assessment of included studies are not provided.

Evidence Snapshots include peer review of the sort report by a content expert. In this instance, the Australian Commission on Safety and Quality in Health Care elected to provide content expertise.

Included

- **Proposal**

A project brief is provided to the agency following a knowledge brokering session. Once the brief ('proposal') is agreed with the agency, additional changes to the project brief incur a fee. Evidence Snapshots allow for one round of questions for clarification.

- **Report**

Evidence Snapshots are written in the Sax Institute template and include the report (approximately 3-4 pages); the appendices; and the reference list.

- **Appendices**

The appendices include the search strategy and method; the data extraction table for peer-reviewed studies (8-9 columns); grey literature and peer reviewed commentaries (3 columns).

Exclusions

Snapshot Reviews exclude: a synthesis of the findings of the peer reviewed and grey literature; summaries of individual included papers; a detailed analysis; quality assessment of included studies; additional comments by the agency (following an initial review and questions of clarification); presentation of findings to the agency or stakeholders.

Publication

Evidence Snapshots are uploaded to the Sax Institute website with the consent of the agency.

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