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Improving Oral Health in People with Intellectual and Developmental Disabilities

A guide for healthcare practitioners

Understanding IDD

Features complex interactions between health conditions, environmental factors, and personal factors[1]

Elements common to people with intellectual and developmental disabilities (IDD)[1]

- Significant impairment of cognitive function
- Resultant reduction in social functioning
- Learning difficulties
- Communication impairment
- Develops before the age of 18 years

Some conditions with IDD[2]

- Autism spectrum disorder
- Cerebral palsy
- Cognitive impairment in some cases (sarcopenia and impaired fine motor skills)
- Metabolic disorders, e.g., phenylketonuria, galactosemia, glycogen storage disease in some cases
- Genetic disorders, e.g., Williams syndrome, Down syndrome, Klinefelter syndrome, Angelman syndrome, Prader–Willi syndrome, Fragile X syndrome, Rett syndrome

Oral health and quality of life (QoL)

- Oral health is a fundamental aspect of physical and mental well-being and an essential attribute for a good QoL[2]
- People with IDD face barriers to accessing dental care, difficulties in performing oral care or a lack of support with oral care, experience deterioration of oral health, and, consequently, a poorer QoL[2]

People with IDD report a higher prevalence and greater severity of periodontal diseases, and a greater prevalence of untreated dental caries, malocclusion, and oral traumatic injuries than the general population

Furthermore, their oral health deteriorates rapidly as they age, due to factors like[1,2,4]

- A diet high in sugar
- Difficulty in chewing and swallowing
- Reduced/impaired salivary flow due to medications
- Lack of manual dexterity and limited relevant sensory capabilities
- Uncooperative behaviour
- An impaired ability to communicate due to oral conditions or tooth pain

Nonetheless, an increase in life expectancy facilitated by improvements in medical care call for provisioning oral healthcare to people with IDD[3]

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Delivering oral healthcare to people with IDD

Goals of care[3]

To reduce the risk of oral diseases

- Establish dental care homes (preferably at an early age)
- Obtain thorough medical, dental, and social patient history
- Link oral health to general health
- Provide regular dental check-ups
- Provide comprehensive education and guidance to the patient and the caregiver
- Provide preventive and therapeutic oral healthcare services

Informed consent[3]

- Assess capacity and obtain signed consent from the patient or their legal representative
- Ensure compliance with state laws and institutional requirements
- Maintain documentation in dental records
- Important for behavioural guidance interventions as well

Communicating effectively[3,4]

Communicating with people with IDD may require modifications to the traditional delivery of care

- Understand the patient and their triggers
- Communicate at the patient's cognitive development level
- Do not assume impaired communication to be associated with intellectual disability

Identify signs of dental distress:

- Facial swelling
- Change in sleep patterns
- Difficulties in chewing, swallowing, oral functioning, and/or speech
- Increased drooling or tapping face
- Gingival bleeding
- Tooth mobility
- Changes in behaviours

Techniques for enhancing communication:

- Non-verbal cues and methods
- Tell-show-do technique
- Positive reinforcement
- Digital media support systems (high-tech alternatives and augmentative communication techniques)
- Interpreters
- Written materials
- Lip-reading
- Protective stabilisation for handling uncontrolled or impulsive behaviours
- Social stories

Techniques for reducing uncooperative behaviour during dental visits:

- Play calming music
- Give weighted blankets
- Reduce bright lights
- Reduce loud noise
- Use visual schedules and visual clocks
- Video-model a successful dental visit
- Distract the patient with a favourite movie
- Pet-therapy in the dental home
- Agreed clinical holding with trained staff
- Acclimatisation

Patient-centred model of care[4]

- Gain hands-on exposure to a diversity of patients
- Align other health professionals and caregivers to the same primary goal
- Increase time spent by dental students in community clinics, hospitals, and dental groups

Choosing the relevant type of dental service[5,6]

- Preventive
- Emergency services
- Specialised dental clinic in disability service centres
- Community-based dental care
- General dental practice
- Specialist dental practice
- Domicilliary dental care where appropriate

Recommending preventive and therapeutic oral care for people with IDD[3,6]

Would help reduce risks of systemic health issues and tooth loss and the cost of oral healthcare

- Consider the type of disability and associated risks
- Individualise preventive oral practices
- Recommend population-specific behavioural and therapeutic interventions
- Promote good oral functions
- Avoid dental treatment as much as possible
- If necessary, perform treatment under general anaesthesia and opt for extraction of teeth

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Preventive practices and guidelines for people with IDD

Recommended daily oral care routine[1–4,7–10]

- Removal of dental plaque with a toothbrush and fluoride toothpaste, twice a day
- Toothbrushing may be difficult for people with IDD to master, along with adapting to the:
  - Texture and taste of toothpaste
  - Tactile sensation of brush bristles
  - Smell or taste of prophylaxis paste or fluoride
- They require additional guidance and specialised cleaning aids for adequate oral care
  - Toothbrushes
    - Special/modified brushes, powered toothbrushes, or three headed toothbrushes
    - Customised toothbrush handle
  - Toothpastes
    - Stannous fluoride toothpastes for better biofilm removal
  - Other cleaning aids
    - Fluoride mouth rinses, antibacterial rinses such as cetylpyridinium chloride rinses, and interdental cleaning aids
    - Floss holders or interdental brushes
  - Tools for better compliance, like finger guards or mouth props
  - Video tutorials
  - Carers trained to assist in oral hygiene maintenance
  - Supervised toothbrushing (can be done via wrist-worn inertial sensors)
  - Discussing photographs for motivation

Dietary and lifestyle modifications[3,11]

- Encourage non-cariogenic diet
- Alter frequency of preventive measures like brushing or supplement with a fluoride mouthwash, if indicated
- Reduce consumption of sugar or sugary medicines; restrict this to meal times
- Recommend sugar substitutes (e.g., xylitol) to prevent caries in high-risk groups; however, this should be done in limitation, otherwise it can cause issues
- Drink plain water often during the day and avoid sugary and fizzy drinks

Addressing traumatic injuries[3]

- Give anticipatory guidance regarding risk of dentoalveolar trauma in:
  - People with seizure disorders
  - People with motor/coordination deficits
  - People who have experienced physical or sexual abuse
- Ensure awareness about signs of abuse and mandated reporting procedures

Medication and treatment[3]

- **Detailed patient assessment**
  - Include chief complaint, history of present illnesses, medications, hospitalisations, and allergies/sensitivities
- **Treatment planning**
  - Careful consideration of risks, benefits, and prognosis of the proposed plan
  - Consider deferring elective dental treatment during active phases of medical care
  - Thorough knowledge of indications and contraindications, to check for adverse drug reactions
  - Referrals to specialised dental services, e.g., when sedation or anaesthesia is indicated
  - Multidisciplinary approach for complex case management
- **Dental visits**
  - Schedule regular dental recall visits
  - Limit the time spent in the waiting room
  - Increase dentist's and team's time with patient
  - Determine need for auxiliary staff
  - Accommodate patient's unique circumstances to ensure a positive experience
  - Provide physical access to dental office (wheelchair ramps, disabled parking spaces)
  - Establish dental homes—i.e., a comprehensive, continuously-accessible, coordinated, and family-centred method of dental care delivery—for paediatric patients before the age of 12
- **Therapeutic administration**
  - Prescribe antibiotic prophylaxis when indicated
  - Topical fluoride gel/varnish for high caries risk
  - Interim therapeutic restoration
  - Chlorhexidine mouth rinse (spray or gel) for gingivitis and periodontal disease may be indicated for short periods
  - Minimally invasive restorative strategies (silver diamine fluoride application, atraumatic restorative technique) for caries management
  - Availability of sedation and general anaesthesia
  - Patients diagnosed with IDD must be immediately evaluated by a dental professional specialised in special care dentistry

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Role of training, counselling, and education[1,2,3,4]

Patient
- Assist in developing health-related behaviour and a daily, tailor-made preventive routine

Caregiver
- Improve oral hygiene knowledge and sensitise them to the links between oral and general health
- Assist in building health-seeking priorities and attitudes
- Seek cooperation to assess patient's anxiety or dental fear

Other care providers
- Involve them in significant findings
- Provide specialised training and additional education for confidently addressing special care needs
- Integrate multiple healthcare fields' education programs
- Co-ordinate care through consultation

Interdisciplinary care
- 'Team-based' care with multi-stakeholder engagement may improve oral hygiene for people with IDD
- Collaborate with occupational therapists to plan modifications to dental environments and protocols, behavioural therapists, psychologists, speech and language therapists, etc., to increase chances of success

Utilising artificial intelligence[8]
- Artificial intelligence (AI) can be used to improve the diagnostic performance of people with IDD
  - Disease and injury identification
  - Estimation of dental pain
  - Predicting need for dental care based on clinical features
  - Image segmentation, correction, and its application

With rapid progress in AI technology, a facilitated dental treatment for people with IDD is foreseeable
- Pre-appointment
  - Consider patient preferences (day, time, music, relaxing fragrances, room temperature)
  - Evaluate patient information (allergies, vital signs, current medications, drug interactions)
- During the appointment
  - Generate diagnosis and treatment
  - Predict final outcomes and prognosis with accuracy
- Post-appointment
  - Generate digital workflow
  - Fabricate dental restorations quickly and easily (if needed)

Key takeaway
- People with IDD can have poor oral health and unmet dental needs
- Dental professionals must be aware of the sensory processing challenges, uncooperative behaviours, and strategies to combat them
- This requires specialised knowledge, increased awareness and attention, adaptation, and accommodative measures on the part of healthcare practitioners
- Building a multidisciplinary, patient centric model of care for delivering treatment and care is desirable
- Preventive care based on an individualised daily care regimen should be recommended
- Caregivers and other health professionals should be trained for the confident delivery of specialised care to people with IDD
- Advances in AI can be leveraged to facilitate diagnosis, treatment, and care for people with IDD

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