

# The Medicine Cabinet: Oral Health

Judy Longworth

Senior Clinical Pharmacist,  
Department of Psychological Medicine,  
The Children's Hospital at Westmead

Oral health is important for all children and adolescents and especially important for those who take medications which can affect both teeth and the oral cavity. Poor oral health – mainly tooth decay, gum disease and tooth loss – affects many Australian children and adults contributing to 4.4% of disease burden in 2011 (AIHW). Dental cavity rates vary within populations due to many factors. Oral disease and the maintenance of oral health can present challenges to children with chronic diseases and other special healthcare needs (AIHW, 2019)

There are many causes for enamel loss and dentin loss in teeth; some genetic and some environmental. With enamel and dentin loss, there is a surface for infection to enter the body and this can have very adverse effects. Australian Dental Association recommends teeth cleaning from 6 months of age and to continue for life. Factsheets and further information about dental services are available <https://www.schn.health.nsw.gov.au/find-a-service/health-medical-services/oral-health-dental>

Social disadvantage is also linked to poor oral health and patients with disabilities also require specialist services which are not freely available. Medicare Australia does cover the dental needs of all children under the age of 18. Sugary drinks not only add to the obesity rates but also figures indicate that 70.3% children (9-13 years) in Australia consume too much sugar (ADA, 2019).

## Teeth grinding

Bruxism is often listed in lists of adverse effects of medication but it also can occur naturally. Bruxism or teeth grinding occurs more in childhood and can be characterised by association with sleep apnoea and micro-arousals from sleep and activation of the autonomic nervous system (Gerster, 2019). Fluoxetine (Lovan®, Prozac®) has been associated with bruxism treatment. There have been reports of the use of gabapentin (Neurotonin®) or dose reduction. Amitriptyline and clonidine has been used in adult patients for teeth grinding with some effect.

## Dry mouth (xerostomia)

Medications that affect the cholinergic/muscarinic sys-



tem such as amitriptyline and clomipramine can cause dry mouth or xerostomia as one the adverse effects and thus lead to further tooth decay risk. Alternative antidepressants may also cause dry mouth but to a lesser degree with fluvoxamine having the greater potential of the SSRIs. Other medications that also cause dry mouth are olanzapine, risperidone and quetiapine but also to a lesser degree aripiprazole and paliperidone. In clinical trials there were reports of dry mouth with amphetamine salts so dexamfetamine and lisdex-amfetamine could be implicated. Sucking on ice helps alleviate the dry mouth and increases saliva.

Carbamazepine which is a mood stabiliser and also used in aggression management, also has reports of

# “Social disadvantage is also linked to poor oral health ”

causing dry mouth. In some clinical trials, there has been reported adverse effects. Clonidine is often used to help decrease arousal and help with impulsivity associated with attention deficit hyperactivity disorder or even due to its sedative effect given at night to help with sleep.

Some of the preventer asthma preparations such as those containing beclomethasone or fluticasone can cause dry mouth, so patients are encouraged to rinse their mouths after using to prevent the dry mouth and increased steroid systemic absorption. Reports of dry mouth are also noted even when using non-sedating antihistamines such as cetirizine. When omeprazole and esomeprazole as well as famotidine are used to treat gastrointestinal reflux they have been reported as causing dry mouth.

So with all medications there is the potential to cause dry mouth and the effect can be additive so this common adverse effect needs to be monitored and addressed by keeping hydrated and increasing the saliva in the mouth by sucking on ice chips or unsweetened hard lollies.

## Impact of dosage form on oral health

Consumption of free sugars – monosaccharides and disaccharides are the main contributor to dental caries in children, young people and adults. Free sugars are available in honey, syrups, fruit juices and fruit juice concentrates as well as in liquid medications. Reducing the amount of free sugars consumed is an effective strategy for improving dental health as well as metabolic health.

Most common available dosage form used in children is the solid dosage form either tablet or capsule but when a child can not or will not swallow tablets or capsules then a liquid preparation is needed. Liquid preparations are often sweetened with either sucrose or artificial sweeteners to mask the often bitter taste of the original medication. Also to make a product soluble, often the medication has to be in an acidic or alkaline environment, and both these can have detrimental effects on teeth and the oral cavity. One of the product Ferro-liquid® (A liquid iron preparation used to treat iron deficiency anaemia and often used to correct poor nutrition) has a pH range of 1.4-5.3 which is

very acidic thus leading to increased dental decay. For reference a popular cola drink has a pH of 2.5 and a sugar content of 106 mg/ml but Ferro-liquid® has 600mg/ml. If using sweetened or any oral liquids always rinse the mouth after dosing or suck on some ice.

Some medications can be prescribed as tablets and then crushed and dispersed in water immediately before giving the dose. As not all medications can be given this way it is always best to check with the dispensing pharmacist as they have resources to confirm the suitability of this method. The same with some capsules where the contents can be mixed with apple puree or yoghurt and given; this method might be problematic for patients with oral sensory issues as it leads a grainy texture.

A good resource to help teach children to swallow tablets or capsules is <https://www.rch.org.au/pharmacy/medicines-information/Teach-children-how-to-swallow-tablets-and-capsules/>

Another method to avoid use of sweetened liquids is use of a medication lubricant which is an aid to help swallow tablets/capsules, these can be flavoured and vary in thicknesses and are primarily used in the geriatric population.

## Conclusion

It is important for the general health of all that the oral health of a patient is monitored and cared for. Reducing the need for sugary drinks both in general consumption and via the use of medications will also help maintain good oral health as well as drinking water.

If the patient has oral sensitivities and thus needs oral liquids speaking with your occupational therapist about some desensitising strategies would also be helpful.

## References:

1. AIHW oral and dental care in Australia (accessed from <https://www.aihw.gov.au/reports/den/231/oral-health-and-dental-care-in-australia/contents/summary-21/10/19> )
1. Krol DM. Children's oral health and the role of the paediatrician. *Curr Opin Pediatr* 2010;22:804-8
2. Gerstner G. Sleep-related bruxism (teeth grinding) UpToDate accessed 21/10/19 through CIAP.
3. oral health tracker pdf <https://www.ada.org.au/ADA-AHPC-Technical-Appendix-07032018> accessed online 21/10/19
4. Micromedex accessed 22/10/19