

An overview of the role of dental professionals in managing oral diseases and complications arising from poor oral hygiene, trauma, substance use, opioid misuse, and poor dietary habits

Oral health in adolescence

Adolescents, aged 10 to 19 years¹, have distinctive oral health-related concerns²



Poor oral hygiene



Poor nutritional habits and eating disorders



High caries risk



Increased risk for periodontal disease and traumatic injury



Dental phobia



Unique social and psychological needs including increased aesthetic desire and awareness



Risk of pregnancy or sexually transmitted infections



Limited access to oral healthcare

Oral diseases prevalent in adolescents^{2,3}



Dental caries

- Breakdown of teeth due to acids produced by bacteria



Dental erosion

- Irreversible, acid-induced loss of hard tissue



Gingivitis and periodontal disease

- Inflammation of gums, potentially leading to bone loss



Malocclusion

- Misalignment of the upper and lower teeth



Human papillomavirus (HPV) infection

- Sexually transmitted infection with oral manifestations
- Linked with the development of oropharyngeal cancers

Impact of oral diseases on adolescent health and well-being⁴



Tooth loss



Pain



Anxiety



Loss of appetite



Altered facial appearance



Low self-esteem and confidence



Adolescence is a decisive period when reinforcement of positive oral health habits, dental interventions, and dietary choices influence oral health far into adulthood³

Risk factors with a negative impact on oral health³



Dental trauma

Orofacial injuries from participating in contact sports, traffic accidents, or violence



Opioid prescription misuse³

- High rates of addiction
- Increased risk of dental caries



Oral piercings

Potential for complications such as infections, trauma, and bleeding



Malnutrition⁵

- Vitamin and mineral deficiencies
 - Oral lesions
 - Dental caries
 - Mucosal manifestations
- Increased intake of sugar and beverages with added sugar
 - Dental caries and erosion



Alcohol and illicit drug use³

- Increased incidences of violence and motor vehicle accidents leading to oral trauma
- Increased risk of dental caries



Sociodemographic factors³

- Reduced parental control
- Income, gender, and ethnic inequalities
- Lack of parental knowledge of oral health
- Lack of dental insurance coverage

Preventive and management strategies recommended for improving oral health



Healthy eating habits³

- Include nutritious and balanced meals in the diet
- Avoid acidic drinks and beverages with high sugar content
- Include natural sugar sources like fruits instead of snacks with added sugar in the diet
- Avoid consumption of sweet foods and drinks before bedtime and between meals



Oral hygiene measures³

- Brushing teeth twice a day for 2 minutes
 - Use a toothpaste with 1,450 ppm fluoride
- Electric toothbrushes⁶
 - Show consistently positive impact from 2 years of age
 - Effective even during ongoing orthodontic treatment
- Interdental cleaning devices to remove interdental biofilm (plaque) can be helpful after individual instructions

Oscillating-rotating toothbrushes have been found to be more effective at plaque removal than sonic toothbrushes in adolescent orthodontic patients⁷



Fluorides for adolescents with a high caries risk^{3,8}

- Fluoride treatment
 - Toothpaste with 5,000 ppm fluoride is permissible for use only under prescription and usually restricted for children under 16 years in many countries
 - Recommended for individuals with increased caries risk
- Gels (professional use; 5,000–12,300 ppm fluoride), rinses [home or use at schools; (a) daily: 0.05% sodium fluoride (NaF) (225 ppm fluoride), (b) weekly: 0.2% NaF (900 ppm fluoride)], varnishes (professional use; typically, 22,600 ppm fluoride)
 - Professionally applied fluoride products (varnish, gel) are not only indicated for those at high risk but also for secondary prevention, arresting already existing lesions
- Stannous fluoride toothpastes have antibacterial properties and are effective in the prevention of gum problems and oral malodour
- Stannous fluoride and NaF toothpastes have anticavity properties



Dental sealants^{9,10}

- Coating to protect pits and fissure surfaces of posterior teeth



Dental visits²

- Regular check-ups and professional cleaning
- Controls caries progression
- Proactively diagnoses and treats ectopic eruption

Role of professionals in managing adolescent oral health concerns



Dental professionals can provide oral hygiene education, counselling on the consequences of risk-taking behaviour, and counselling for HPV vaccinations

Professional help can ensure oral health management in many ways



Dental professionals involved in sports health teams can¹¹:

- Introduce a comprehensive trauma prevention program
- Generate awareness and counsel on the potential for oral trauma
- Strongly recommend the use of age-appropriate, sport-specific, and properly fitted mouthguards, helmets, and preventive splints
- Respond immediately to dental injury



Generate awareness about opioid misuse¹²

- Monitor for signs of misuse
- Use nonsteroidal anti-inflammatory drugs to manage acute dental pain



Dental professionals should proactively counsel patients regarding³:

- Dangers of substance use
- Complications from piercing and use of oral jewellery
- Advantages of sealants in reducing the risk of dental caries



Educate on HPV vaccination³

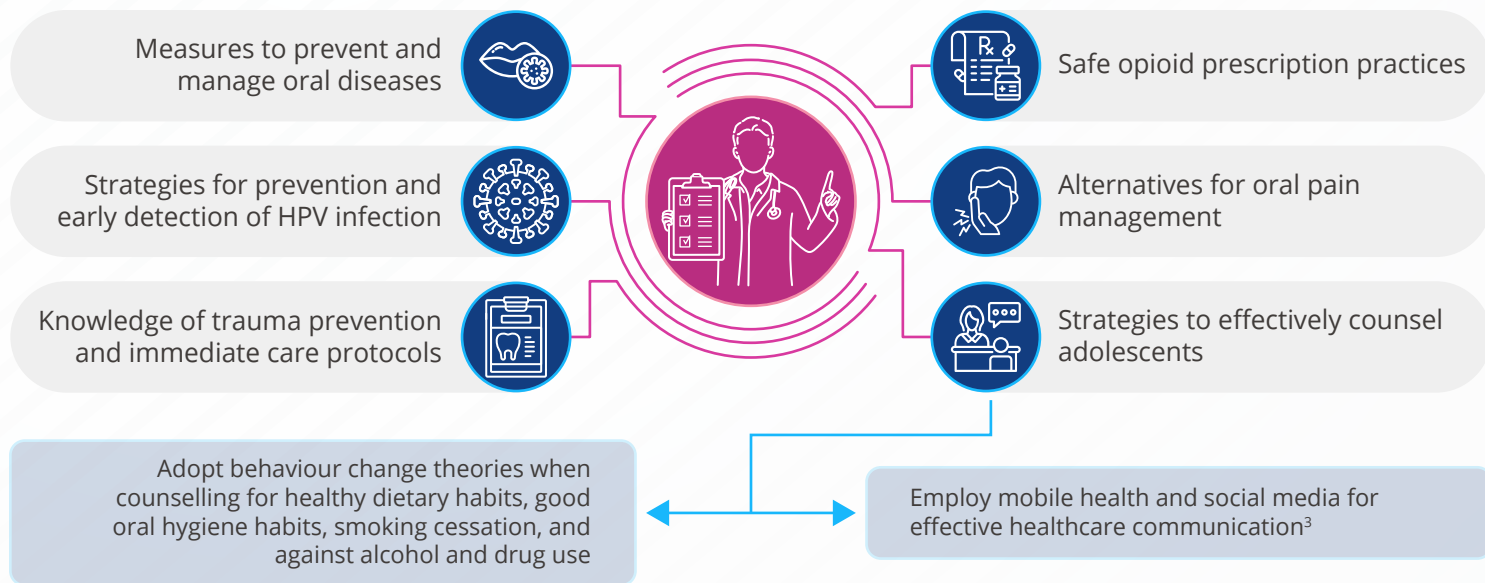
- Adolescence, before initiation of sexual activity, is a strategic period when HPV vaccination is the most effective
- Professionals can educate patients and parents on HPV prevention²
 - Generate awareness on HPV vaccination and HPV's link to oropharyngeal cancers
 - Educate on the risk of unprotected oral sex and preventive barrier techniques (e.g., condoms)
 - Screen for and identify oral signs of sexually transmitted diseases
 - Refer for counselling and treatment



In school-based oral healthcare programs or community-based public health initiatives, professionals can provide³:

- Supportive social network
- Affordable and accessible dental care services

For providing optimal oral care, dental professionals must be equipped with^{2,3}:



Advocating for integrated holistic health approaches can ensure improved outcomes for adolescent patients⁵



Key messages

- ✓ **A holistic approach integrating dental care, balanced nutrition, and healthcare is needed to address the unique oral health challenges of adolescents**
- ✓ **Dental professionals are uniquely situated to educate on oral hygiene best practices, provide information on the right nutrition, counsel against the use of alcohol and drugs, and generate awareness about the importance of HPV vaccinations**
- ✓ **In addition to providing professional services, dental professionals must emphasise the importance and positive impact of healthy oral habits on the long-term overall well-being of adolescents**

References:

1. https://www.who.int/health-topics/adolescent-health#tab-tab_1 Accessed 12 Dec 2024
2. American Academy of Pediatric Dentistry. (2024). Adolescent oral health care. The reference manual of pediatric dentistry. Chicago, Ill.: American Academy of Pediatric Dentistry, 323–32. Overview.
3. National Institutes of Health. (2021). Oral health in America: advances and challenges. National Institute of Dental and Craniofacial Research. <https://www.nidcr.nih.gov/sites/default/files/2021-12/Oral-Health-in-America-Advances-and-Challenges.pdf#page=259> Accessed 12 Dec 2024
4. Singh, S., & Talmale, P. (2023). Impact of dental caries and nutritional status on oral health related quality of life in young Indian adolescents. *Journal of Oral Biology and Craniofacial Research*, 13(4), 506–510.
5. Hung, M., Blazejewski, A., Lee, S., Lu, J., Soto, A., Schwartz, C., & Mohajeri, A. (2024). Nutritional deficiencies and associated oral health in adolescents: a comprehensive scoping review. *Children*, 11(7), 869.
6. Graves, A., Grahl, T., Keiserman, M., & Kingsley, K. (2023). Systematic review and meta analysis of the relative effect on plaque index among pediatric patients using powered (electric) versus manual toothbrushes. *Dentistry Journal*, 11(2), 46.
7. Erbe, C., Jacobs, C., Klukowska, M., Timm, H., Grender, J., & Wehrbein, H. (2019). A randomized clinical trial to evaluate the plaque removal efficacy of an oscillating-rotating toothbrush versus a sonic toothbrush in orthodontic patients using digital imaging analysis of the anterior dentition. *The Angle Orthodontist*, 89(3), 385–390.
8. Toumba, K. J., Twetman, S., Splieth, C., Parnell, C., Van Loveren, C., & Lygidakis, N. A. (2019). Guidelines on the use of fluoride for caries prevention in children: an updated EAPD policy document. *European Archives of Paediatric Dentistry*, 20(6), 507–516.
9. Colombo, S., & Paglia, L. (2018). Dental sealants. Part 1: prevention first. *European Journal of Paediatric Dentistry*, 19(1), 80–82.
10. Colombo, S., & Ferrazzano, G. F. (2018). Dental sealants. Part 2: who should get dental sealants and when. *European Journal of Paediatric Dentistry*, 19(2), 165–166.
11. Guinot, F., & Manrique, S. (2021). Awareness and use of mouthguards in risk sports by Spanish children between 6 and 18 years of age. *European Journal of Paediatric Dentistry*, 22(4), 262–268.
12. Fraser, A. D., Zhang, B., Khan, H., Ma, H., & Hersh, E. (2016). Prescription opioid abuse and its potential role in gross dental decay. *Current Drug Safety*, 12(1), 22–26.

