



FOCUS ON  
**HEALTH**

## Dental Assisting, Dental Therapy & Oral Hygiene

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***You can complete any one, or all the parts of this activity***

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# G1(25)

## TIPS FOR DENTISTS THE AGING POPULATION



As the global population continues to age, dentists are increasingly seeing older patients with unique oral health needs.

The aging population presents specific challenges and opportunities for dental care providers. From managing age-related conditions like dry mouth, gum disease, and tooth sensitivity to addressing mobility or cognitive issues that may impact treatment, dentists must adapt their approach to ensure comprehensive and compassionate care.

Understanding these nuances is essential for providing optimal oral health solutions and improving the quality of life for elderly patients.

*This article highlights key tips for dentists to effectively cater to the aging demographic.*

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## INTRODUCTION

According to the World Health Organisation (WHO), people worldwide are living longer. Today most people can expect to live into their sixties and beyond, leading to a significant increase in the elderly population. By 2030, one-sixth of the world's population will be aged 60 or older, rising to 2.1 billion by 2050. The number of persons aged 80 years or older is expected to triple between 2020 and 2050 to reach 426 million. This trend necessitates enhanced healthcare, including dental care, for this very heterogeneous group of individuals, who face diverse health challenges (WHO, 2022; Kimble et al., 2023; Nitschke et al., 2024).

Living longer does not necessarily mean living a healthy life. Many older adults have chronic diseases and experience compromised oral health, often due to inadequate past dental care. This calls for health professionals to be aware of the specific health issues of this population, their unique needs and special considerations when providing healthcare.

The mouth is referred to as a mirror of overall health. Good oral health is an important part of healthy ageing and is integral to overall well-being and quality of life. In the elderly population, poor oral health has been considered a risk factor for general health problems, yet, with increasing age, the use of dental services declines and oral health becomes secondary (Blasi et al., 2024; Poudel et al., 2024; da Mata & Allen, 2023; Lipsky et al., 2023).

Older adults are a “vulnerable” group with unique needs and demands requiring specific dental care models. Gerodontology, also known as geriatric or senior dentistry, is the delivery of dental care to older adults involving diagnosis, prevention, management and treatment of problems associated with age-related diseases, as well as the promotion of good oral health and quality of life in late adulthood (Poudel et al., 2024; Nitschke et al., 2024; da Mata & Allen, 2023).

Among the most common diseases affecting older adults are chronic diseases of the oral cavity, including dental infections, caries, tooth loss, mucosal lesions, and oral cancer. These conditions can adversely affect nutrition, self-esteem, quality of life, and general health. Because oral health is so closely associated with general health, morbidity, and mortality. That being said, poor oral health is not an inevitable consequence of aging (Lipsky et al., 2023).

Treatment decisions may become more complicated when dealing with frail, semi-dependent and dependent patients. Some dentists may not feel prepared to deal with patients that present with a number of comorbidities and polypharmacy and who need more tailored (special) oral healthcare.

This article aims to explore common conditions affecting elderly patients and strategies for providing patient-centered care to this population.

## ORAL HEALTH IS RELATED TO OVERALL HEALTH

Globally the prevalence of oral diseases remains high, with untreated caries in permanent teeth being the most common condition identified in the Global Burden of Disease Study, 2015. While caries peaks among 15- to 19-year-olds, about 35% of individuals aged 65 and older are affected. Total tooth loss peaks at ages 75 to 79, and severe periodontal disease peaks nearly two decades earlier. Consequently, older patients now present with increased treatment demands beyond just dentures (da Mata & Allen, 2023).



There is an intricate relationship between oral health and general health. Poor oral health leading to periodontal disease has been linked to systemic conditions (or their associated complications) such as cardiovascular diseases, diabetes, chronic kidney disease, recurrent pneumonia, chronic obstructive pulmonary disease, gastritis, rheumatoid arthritis, respiratory infections, cancer, and cognitive impairment. A significant body of evidence suggests that poor oral hygiene/denture hygiene may be a risk factor for aspirational pneumonia among older adults. This is also

known as nursing home-acquired pneumonia and is the leading cause of mortality amongst nursing home residents. Oral health is crucial for, and significantly impacts overall health, well-being and quality of life, however, there is a bi-directional association between oral health and chronic systemic disease. Systemic diseases can also affect oral health. This highlights the importance of incorporating oral health into chronic disease management, and early recognition of common pathologies increases the likelihood of maintaining good oral health throughout a lifetime.

The consequences of untreated poor oral health invariably leads to discomfort, pain, suffering and tooth loss and this can negatively impact oral function, speech, and nutritional intake; causing functional, aesthetic, nutritional, and psychological problems that ultimately reduce the quality of life (Angst et al., 2024; Janto et al., 2023; Nitschke et al., 2024; Lipsky et al., 2023; Kimble et al., 2023: 473).

General health status may vary substantially among people over 65. Using chronological age to identify older individuals may not be appropriate. Age in itself should not determine care pathways. Factors such as medication effects, access to dental care, as well as patients' physical, psychological and social circumstances are important determinants of oral health, the dental care provided and outcomes of treatment in older adults. This highlights the complexity of their needs compared to younger populations (Janto et al., 2023; da Mata & Allen, 2023).

## THE IMPORTANCE OF PERIODIC DENTAL CARE OF ELDERLY PATIENTS

Despite its significance, poor oral health remains prevalent among older adults. Conditions such as dental caries, periodontal disease, and tooth loss can alter food choices and dietary habits, leading to inadequate nutrient intake and possible malnutrition, weight loss, sarcopenia, frailty, and increased dependency. These issues subsequently impact overall well-being and quality of life.

Several factors contribute to oral health deterioration in this population, including the decline in oral health status, limited functional teeth—which is linked to poor nutritional outcomes—oral discomfort, reduced oral motor skills, and difficulties with chewing, swallowing, and reduced saliva production (Poudel et al., 2024; Lipsky et al., 2023).

In a study by *Janto et al.* (2023) which included 120 elderly patients, only 25% presented regularly for dental checkups. Patients with higher education and those with higher incomes visited the dentist more regularly. Regular dental checkups however, lead to improved self-reported and dentist-confirmed oral health as well as enhancing patients' awareness and improving hygiene practices (Janto et al., 2023).

Patients who have regular dental checkups report significantly lower medication use for dental pain. In contrast, those with irregular visits often seek emergency care

for issues like toothaches, denture problems, and extractions. *Janto et al.* (2023) reported that 46.67% of patients who irregularly visited the dentist frequently avoided certain foods, and 10% had sensitivity to cold, hot, or sweet foods. Only 3.33% of these patients claimed never to experience feeding discomfort, compared to 20% of those with regular checkups.

A comprehensive review of a patient's medical history, medications, and existing conditions is crucial, as it highlights multimorbidity and polypharmacy—key factors in the elderly population. Simple indicators of poor oral health, which can be easily assessed in clinical and long-term care settings, can aid in early detection and possible prevention of physical frailty in older adults (Kimble et al., 2023; da Mata & Allen, 2023).

Objective measures for oral health assessment include counting remaining natural teeth, evaluating periodontal disease (attachment loss and pocket depth), measuring saliva production rate and self-rated oral health (excellent, good, fair, or poor). Other relevant factors to assess are difficulty eating, sensitivity to temperature or sweets, and dry mouth (Kimble et al., 2023).

## FRAILITY

Kimble et al. (2023) found high associations between poor oral health and the progression to frailty, with edentulism in particular being associated with severe frailty. Tooth loss negatively impacts

masticatory function, nutritional choices, and diet quality, which is associated with fatigue, low physical activity, slow gait speed, and overall frailty. *Kimble et al.* (2023) reported that individuals with fewer than 21 teeth and no dentures were more likely to progress to severe frailty, while denture wearers did not show the same risk.

Additionally, inflammation may mediate the relationship between poor oral health and frailty by affecting distant organs and tissues. It can exacerbate muscle wasting by stimulating catabolism and suppressing protein synthesis, ultimately reducing physical function and contributing to frailty (Kimble et al., 2023).

A high percentage of older adults have unmet dental needs and do not see a dentist annually, however, periodic dental care in this population is important, because interventions aimed at maintaining (or improving) oral health can contribute to reducing the risk for, and progression of physical frailty. To summarise, oral health markers that go along with physical frailty in the elderly include:

- denture use
- tooth count
- periodontal disease
- dry mouth and
- perceived difficulty eating (Kimble et al., 2023).

### **SPECIAL CONSIDERATIONS REGARDING OLDER PATIENTS**

Understanding patient uniqueness is necessary, for example, the same physical oral health situation may be perceived as an oral health problem by one patient but not by another. There may be patient-specific, individual differences in perception and response to a specific health condition, for example, not every patient perceives the loss of posterior teeth as a restriction on their oral health-related quality of life. This depends on factors such as resilience, attitudes, values, and social norms (Nitschke et al., 2024).

Human interaction and astute observation go a long way in oral health, and physical oral health needs to be interpreted in context, an assessment of oral health status should always be paired with the individual's experience of the situation. For example, a 93-year-old gentleman who has lived without any teeth for several years (the patient's physical oral health situation is undoubtedly bad), but is otherwise in reasonable general health, does not necessarily need to receive complete denture supported by 2 implants in the lower jaw- a treatment that could be considered a standard treatment for this oral health situation (Nitschke et al., 2024).

On the other hand, tooth retention among older adults has increased, and with that, the prevalence of oral diseases has increased, calling for significant changes in treatment approaches. Advances in dental materials, the use of fluorides, and improved prevention awareness have contributed to this trend, yet caries remain a major concern. As teeth are restored rather than extracted, older adults face

various risk factors, including caries, periodontitis, tooth erosion, xerostomia, gingival recession, oral cancers, diminished motor skills, and partial denture wear (da Mata & Allen, 2023; Nitschke et al., 2024).

Aging is often associated with physiological changes, reduced appetite, and nutritional issues. Chronic diseases and their treatments can lead to decreased salivary flow (hyposalivation), resulting in difficulties with chewing and swallowing. This can hinder nutritional intake and diminish quality of life. Hyposalivation also increases the risk of coronal and root caries and periodontitis, potentially leading to tooth loss and further impacting chewing function and aesthetics. Periodontitis is prevalent among seniors and is linked to complications such as aspiration pneumonia, which contributes to morbidity and mortality. Poor oral health can exacerbate systemic conditions like cardiovascular disease and diabetes, compromising overall health in older adults (Poudel et al., 2024).

Additional challenges, such as limited access to dental services, cognitive impairment, and disability, further increase vulnerability in this demographic. Effective communication with frail elderly patients often requires the involvement of family and caregivers for consent and care discussions. Engaging patients in their dental health and fostering mutual respect are essential for improving healthcare quality and patient satisfaction (Blasi et al., 2024; da Mata & Allen, 2023).

Cognitive impairments, dementia or stroke can provide challenges for effective patient-dentist communication. Some elderly patients may exhibit a life-negating attitude. In this instance, it becomes questionable whether subjective statements from these patients can still be deemed as trustworthy. When patient self-report and communication fail, clinical decision-making faces tremendous challenges. If the patient's statements are deemed to be unreliable, which is not an easy task to determine, a first step could be to involve a family member or carer to answer an appropriate questionnaire, but this may not accurately represent the patient's experience.

## **TOPICS SPECIFIC TO ELDERLY PATIENTS**

### **1. MULTIMORBIDITY**

Multimorbidity is the presence of two or more comorbidities and represents one of the greatest challenges in healthcare. As people age, they are more likely to develop systemic diseases and multiple comorbidities, making them more susceptible to developing oral health problems, further accelerating periodontal disease progression. Comfort, dignity, and well-being are consequently negatively affected. In addition, those with poor oral health conditions are likely to manage their non-communicable diseases poorly. The interplay of these diseases and the medications used to treat them may also have repercussions in other parts of the

body (O’Gorman & Willis, 2024; Poudel et al., 2024; da Mata & Allen, 2023).

Diabetes mellitus, respiratory diseases (including chronic obstructive pulmonary disease), cardiovascular disease, stroke, osteoporosis, arthritis, and Alzheimer’s disease have all been linked to an increased risk of periodontal disease and edentulism. Evidence also suggests there is a bi-directional link between periodontitis and systemic disease, with associations established for periodontitis and an



increased risk for several chronic diseases, including cardiovascular diseases, diabetes, rheumatoid arthritis, cancer, and chronic obstructive pulmonary disease.

Oral diseases share the common risk factors with major non-communicable diseases, such as unhealthy diet high in sugar, use of tobacco, and harmful use of alcohol. As multimorbidity increases with age, oral health and associated regular dental check-ups are less prioritised compared to general medical issues. Furthermore, in older adults with serious illness and functional dependency, oral health problems are often underdiagnosed and untreated (Lipsky et al., 2023).

Chronic dental diseases are particularly problematic as older adults move from community living into long-term residential care facilities. These patients are often very frail, and many of them may already have a range of systemic comorbidities as well as other conditions such as cognitive decline or dementia. The impact of a decline in their oral health can be significant, as they have reduced access to dental care and many might have difficulty maintaining adequate oral hygiene (da Mata & Allen, 2023; Blasi et al., 2024; Poudel et al., 2024; Lipsky et al., 2023).

## 2. POLYPHARMACY

Older adults are more likely to be prescribed multiple medications (polypharmacy) to treat the above-mentioned comorbidities. Lipsky et al. (2023) state that over half of adults 65 years and older report taking four or more prescription drugs to manage chronic conditions, and some drugs, including those for cardiovascular diseases and diabetes, can impact oral health and dental treatment. This makes the management of oral disease in these patients very challenging for dental practitioners, and highlights a need for preventive measures and patient education regarding overall health as well as dental health, and a multi-disciplinary approach to care.

Many of these medications often affect salivary gland function and may cause side effects such as xerostomia (dry mouth), which can exacerbate periodontal issues.

Therefore, when providing dental treatment to older patients, their general health status and drug regime are of major concern. A comprehensive health history and reviewing a patient's medication list is recommended. Discontinuing or switching to a drug with less effect on saliva flow should be considered. Alternatively referring the patient to their general practitioner (multidisciplinary approach) for review of medications. It is the clinician's duty to be conscientious when prescribing medication for older patients in



terms of the side effects, interactions and oral manifestations associated with each medication (Nitschke et al., 2024; O'Gorman & Willis, 2024; Lipsky et al., 2023; da Mata & Allen, 2023).

### **3. ORAL DRYNESS (XEROSTOMIA) AND IT'S MANAGEMENT**

A Swedish systematic review with meta-analysis done by *Fisic et al.* (2024) showed a high prevalence of oral dryness. The prevalence of dry mouth was higher among older adults (25.3%) compared to younger adults (19.3%) and more common among women than men.

Oral dryness is a complex, often chronic condition encompassing both the subjective sensation of dry mouth (xerostomia) and objective evidence of reduced saliva production (hyposalivation) and is associated with frailty progression in older adults. While the subjective complaint of dry mouth and xerostomia are sometimes used interchangeably, true xerostomia is characterised by a inadequate salivary secretion and is the consequence of acute or chronic salivary gland hypofunction and alterations in saliva composition. Typically, patients complain of oral dryness when the salivary secretion is reduced by >50%. However, the sensation of dry mouth can also occur despite the normal secretory function of the salivary glands, a condition known as pseudo-xerostomia or false xerostomia (Fisic et al., 2024; Lipsky et al., 2023).

Hyposalivation is determined by the objective measure of salivary flow rate. Hyposalivation is diagnosed when saliva secretion rate is reduced, for unstimulated saliva to  $\leq 0.1$  ml/min, and for stimulated saliva to  $\leq 0.7$  ml/min. The subjective sensation of dry mouth does not always correlate with hyposalivation, which suggests a change in saliva composition that contributes to the perception of dry mouth (Fisic et al., 2024).

Saliva has several important functions essential to maintaining overall health, as well as oral health. It is important for oral homeostasis with numerous functions, including lubricating soft tissues, regulating pH levels, clearing food particles, an

antimicrobial function, and facilitating tooth mineralization (Fisic et al., 2024: 2).

A careful examination including questions about dry mouth in different situations, extra-and intra-oral examination and measurement of salivary flow rates aid in the diagnosis.

### Causes

Causes of pseudo-xerostomia or false xerostomia (subjective symptoms) include changes in the composition of saliva, mouth breathing, atypical oral and facial symptoms, burning mouth syndrome, oral dysesthesia, and mental, psychological (including depression and anxiety), and psychiatric disorders (Fisic et al., 2024; Lipsky et al., 2023).

Various age-related factors contribute to xerostomia in older individuals. These include: changes in salivary gland structure and function, systemic diseases such as diabetes mellitus type 2, rheumatic disease, HIV/AIDS and cancer (Fisic et al., 2024).

Medication use (Table 1) for chronic age-related diseases is the predominant cause of oral dryness because of their side effects. Medications for asthma neuropsychiatric diagnoses, and depression, can increase the risk of oral dryness and accompanying problems. Sjögren's syndrome and radiation therapy of the head and neck region are other causes of oral dryness (Fisic et al., 2024; Lipsky et al., 2023).

All of the following classes of medication are associated with dry mouth
Anticholinergic agents
Antidepressants and antipsychotics
Diuretics
Antihypertensive agents
Sedative and anxiolytic agents
Muscle relaxants
Analgesic agents
Antihistamines
Stimulants
Bronchodilators

Fisic et al. (2024) state that the three most common indicators to identify individuals with oral dryness were: 1) patients' current and past medication use, 2) clinical examination of mucosa and tongue, and 3) previous and current diseases.

### Complications

While often thought of as merely a nuisance, xerostomia exerts a substantial impact on affected individuals. It influences not only their oral health but also their general health (80.1%), social and emotional life, diminishing a person's overall quality of life (94.8%) and well-being (92.0%). A dry mouth can lead to difficulties speaking (88.4%), chewing (mastication), and swallowing (dysphagia), adversely affecting taste, appetite and nutritional intake and possibly nutrient deficiency (Fisic et al., 2024).

It also causes ulceration, greatly increases the risk of dental caries, periodontal disease, halitosis, and candidiasis as well as systemic inflammation. In cancer patients, it can lead to altered oral sensation which can adversely affect their relationship with food, quality of life, and overall health outcome. Psychosocial factors, including emotional stress and anxiety, can exacerbate the sensation of dry mouth in elderly individuals and compound the impact of xerostomia (Lipsky et al., 2023; Kimble et al., 2023; da Mata & Allen, 2023; Poudel et al., 2024: 22; Fistic et al., 2024).

### Treatment

There is no treatment for oral dryness, but, saliva stimulating products (lozenges, chewing-gum and sprays) and saliva substitutes (mouth gel, sprays and oil) can relieve the symptoms and decrease the risk of oral health problems.

A study by Fistic et al., (2024) stated that the three most recommended treatment options suggested by dental care professionals were: 1) saliva-stimulating stimulating products (97.0%), 2) meticulous oral hygiene (95.3%), and 3) extra fluoride (90.3%) (“Figure 2”; (Fistic et al., 2024: 6) ).

### Recommendations

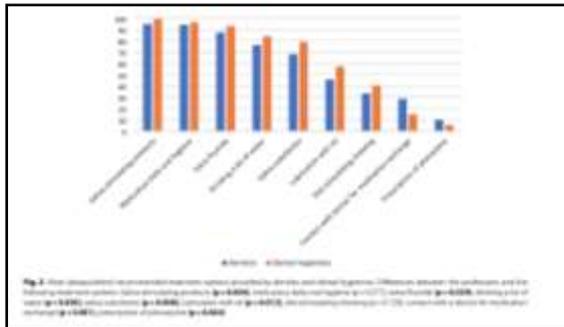
With an increasing number of older people, oral dryness will likely be more frequent in the future. Xerostomia associated with systemic diseases requires optimising care for the underlying cause, educating patients about hydration, and

avoiding triggers like tobacco, coffee, alcohol, and hard-to-chew foods. Promoting optimal oral hygiene and dental care minimises dental complications associated with reduced salivary flow. Patients with oral dryness should receive preventive dental care 3–4 times a year (Lipsky et al., 2023; Fistic et al., 2024).

According to *Fistic et al.* (2024) 93% of dental care professionals reported asking individuals aged 65 and older about dry mouth, which is important because dental care professionals have a crucial role in raising patient awareness and knowledge as the consequences of oral dryness could be decreased with preventive measures. This is easy enough to implement by including one yes or no question about a dry mouth in the medical-dental health history and then asking follow-up questions regarding oral dryness in various situations. The Clinical Oral Dryness Scale (CODS) is recommended in the literature to evaluate clinical signs of oral dryness and grade its severity (Lipsky et al., 2023: 3) (Fistic et al., 2024).

## **4. CARIES RISK AND MANAGEMENT**

Caries is a very prevalent oral health problem, commonly known as tooth decay



or cavities and are the most frequent dental pathology encountered among the elderly. It is a dental condition characterised by the demineralisation of the tooth structure due to the action of cariogenic bacteria metabolising sugars to produce acid. This acid attacks and damages the tooth surface, leading to caries formation.

### Contributing factors

Age-related salivary and immune function changes, multiple co-morbidities, and gingival recession, which are common as individuals age, and medication-induced xerostomia are among the contributors. Other key factors contributing to the development of caries include the presence of cariogenic bacteria, consumption of sugary drinks, high-carbohydrate diets, and inadequate oral hygiene practices (Lipsky et al., 2023: 7).

### Treatment

Maintaining oral health is particularly crucial for geriatric populations, as more adults are retaining their natural teeth, emphasising the importance of preventive

measures. Management of dental caries includes both preventive and treatment strategies.

Preventive measures are essential for mitigating caries risk. These are regular semi-annual dental visits, that include detailed examination for dental caries (cavities), due to exposed root surfaces or dry mouth (xerostomia). Professional cleanings, and fluoride use are also recommended. Individuals with increased risk of caries should receive extra fluoride such as 0.2% sodium fluoride as a rinse, 0.42% fluoride gel in trays, fluoride toothpaste with 5000 ppm sodium fluoride, or fluoride varnish (22.6 mg/ml) at least twice a year (Fisic et al., 2024; Lipsky et al., 2023).

A Swiss study (Angst et al., 2024) reported silver diamine fluoride (SDF) as a caries preventive agent, and that using silver diamine fluoride (SDF) in the treatment of frail older adults had advantages, especially in the preservation and/or prolongation of the life of teeth without invasive treatments. It was also suggested by some participants in the study that treatment with SDF may be a cost-effective alternative to operative care.



Proper at-home oral hygiene practices play a pivotal role in reducing the prevalence of caries, particularly among the elderly population. Educating individuals about dietary choices, the importance of regular dental visits, and the correct use of fluoride products can empower them to take proactive steps to preserve their oral health.

Fluoride remains a cornerstone in caries prevention, with daily fluoride concentration recommendations proving highly effective in remineralising teeth. For older populations, especially those in institutionalised settings, nursing homes, or home-bound adults, the use of higher fluoride toothpaste and fluoride varnish concentrations is recommended over conventional toothpaste (Fisic et al., 2024; Lipsky et al., 2023).

## 5. EDENTULISM

Edentulism, or the complete loss of natural teeth, is a significant concern for overall well-being, and is a major problem for older adults. Edentulism can be the result of congenital, iatrogenic, or traumatic causes, but dental caries and periodontal diseases are the main causative factors of teeth loss in the elderly. Edentulism often represents the final stage of untreated caries or periodontal disease (Lipsky et al., 2023).

Behavioural risk factors, such as tobacco use, consumption of alcoholic beverages, and a poor diet, lead to edentulism. People that smoke are more than three times more likely to lose all their teeth. Women are also more susceptible to edentulism. Socioeconomic factors, including low income, minimal education, no dental insurance, and limited access to dental care, are also associated with an increased prevalence of edentulism (Lipsky et al., 2023).

As natural teeth are lost, older adults may need to choose softer, more manageable foods, lower intakes of protein, fibre and fruit and vegetables, putting these individuals at risk for nutritional compromise due to decreased intake of vital nutrients. This may have consequences for healthy ageing and potentially predispose these patients to increased risk of sarcopenia, bowel diseases and other diet-related non-communicable diseases (O’Kane et al., 2024; Lipsky et al., 2023).

## Management



Addressing edentulism is important because of its harmful effects on oral and general health. Oral consequences include mandibular bone loss, impaired masticatory function, an unhealthy diet, social disability, and poor quality of life.

Prosthetic rehabilitation can improve masticatory function, but not the intake of nutrients. Denture use is associated with denture stomatitis, an inflammatory condition of the palatal mucosa resulting in redness, swelling, and tenderness.

There is a need for a combined approach of oral rehabilitation and dietary counselling. Individualised treatment plans tailored to each patient's unique needs and preferences is crucial in achieving successful outcomes and improving quality of life in the elderly. Regular tissue check-ups are essential to ensure the health and stability of oral prostheses and prevent complications. Ongoing patient education is paramount since it empowers elderly individuals to maintain good oral hygiene practices and promotes good nutrition. (Lipsky et al., 2023; O'Kane et al., 2024; Lipsky et al., 2023).

## **6. PERIODONTITIS**

Periodontal disease encompasses gingivitis and periodontitis and is characterised by bacterial infection leading to gingival inflammation, tooth loss, bone resorption, and gingival recession. Gingivitis is the earliest stage of periodontal disease and is used to describe inflammation between the gingival line and tooth. *Janto et al.* (2023) state that as many as 60% of the respondents in their study who visited the dentist as required suffered from periodontal disease.

Periodontitis occurs when the microbially induced, host-mediated inflammation progresses into a chronic, destructive, irreversible disease state that damages the tooth attachment and the supporting bone. Gingival swelling, redness, and bleeding when brushing or flossing suggest periodontal disease. Tooth loss and edentulism represent the final stages of untreated periodontitis (Lipsky et al., 2023).

### Risk factors

The risk factors for periodontitis in older adults are like those in younger age groups and include inadequate brushing and flossing, cigarette smoking, being poorer, less educated, and not having medical insurance or cover (Lipsky et al., 2023).

### Treatment and prevention

It is crucial to recognise that, in older individuals, periodontal disease can have a



significant impact on both life expectancy and quality of life if not promptly assessed and managed.

Gingivitis can often be reversed with improved oral hygiene, and when necessary, restorative treatments to maintain oral health. Tobacco use is the most important modifiable risk factor, and smoking cessation reduces the risk of periodontitis and tooth loss (Lipsky et al., 2023).

Prevention strategies for periodontal disease involve controlling co-morbidities. Patient education is important as a preventative measure regarding the effect of smoking, not only on oral health, but health in general. This need not take up a significant amount of the practitioners time. Information brochures are an easy, effective way to convey the necessary information.

Regular dental check-ups every six months to assess hygiene and home care techniques, monitor probing depths, and detect bone loss are essential in the management of periodontal disease. Additionally, comprehensive health check-ups can help identify and address

underlying systemic conditions that may contribute to gingival disease (Lipsky et al., 2023).

## 7. ORAL CANCER

Oral cancer (OC) is the most common form of head and neck cancer and includes cancers of the lips, tongue, palate, oropharynx, tonsils, and other oral structures. The most common type is squamous cell carcinoma. OC is a disease of older adults with an average age of 64 years at the time of diagnosis. Each year, there are over 54,000 new cases and 11,000 deaths from oral cancer (Lipsky et al., 2023).

Tobacco use is the strongest risk factor. Smoking tobacco and or using smokeless tobacco products both increase the risk of OC. Alcohol, particularly heavy drinking, also increases the risk of oral cancer. Smoking and alcohol use act synergistically, and individuals who both smoke and drink increase their risk for OC by as much as 30 times more than nonsmokers and drinkers. OC is also associated with the human papillomavirus (HPV) (Lipsky et al., 2023).

Early diagnosis improves outcomes. This includes a physical examination that consists of systematic inspection and palpation. An awareness of the common presenting symptoms, such as a non-healing lesion, red or white patches, and hoarseness, are key to making an early diagnosis. Suspicious lesions, growths and non-healing ulcerations merit referral for evaluation and biopsy. Lesions that appear

benign and relate to a reversible condition, such as local irritation or infection, can be treated and reassessed in 10 to 14 days. Failure to improve after 2 to 3 weeks indicates the need for additional testing (Lipsky et al., 2023; (O’Gorman & Willis, 2024).

## **PATIENT PREFERENCES AND CONCERNS**

Older adults have a desire for autonomy and independence. The ability to care for themselves are basic and very important needs. Key factors include the ability to visit their preferred dentist independently and regularly for as long as possible; and the capability to perform and maintain hygiene themselves into old age. In a study by *Blasi et al. (2024)* it was reported that simply thinking about possible future scenarios in which they were no longer able to perform oral hygiene by themselves was related to great anxiety and avoidance. Patients were reported as saying that life without the ability to brush their own teeth was no longer considered worth living. This view was particularly dominant among men. When oral hygiene could no longer be performed independently, the preference was to wear a total prosthesis that could be cleaned by the patient themselves.

Another important need of older individuals is being able to discuss dental issues with their trusted dentist rather than the support environment, and to be made aware of the need for oral hygiene support.

For the subjects in the study by *Blasi et al. (2024)*, oral health was considered a very intimate topic, and patients rejected the idea of relatives, for example addressing the topic of any oral hygiene support. They also expressed great fear of being excluded from the healthcare system because of age. They worried about dental offices not being accessible and adapted for mobility impaired patients, for example stairs and space for walkers and wheelchairs, and that the dental chair would be difficult to access and possibly very uncomfortable. Frequency of required visits, costs and the practice environment played a decisive role when thinking about additional preventive measures for their future (*Blasi et al., 2024*).

These factors highlight the need for some adaptations by dental practitioners to accommodate elderly patients in their practice to make them feel more comfortable, more welcome, seen and heard, and encouraged to maintain good oral hygiene.

## **DENTAL CARE AT HOME (DOMICILIARY DENTAL CARE)/ NURSING HOMES / LONG-TERM CARE SETTINGS**

Domiciliary dental care is an established approach for providing oral care to dependent older adults at home or in long term care facilities. However, research indicates that the oral health of those living in long term care facilities is poorer than their community-living counterparts and

that the provision of domiciliary dental care in many countries is low. There are many reasons for this, but *Angst et al.* (2024) reported that dentists who regularly undertook home visits found patients and their relatives to be very grateful to be cared for in this manner, because in old age, there may be many barriers making it difficult for these patients to visit the dentist's practice.

Dentists in the study by *Angst et al.* (2024) reported doing home visits mostly on a voluntary basis in their spare time, not because they were required to do so. They also had in mind the idea that maybe one day, one of their own relatives or themselves would be in a retirement home and unable to make visits to the dental office. They took an afternoon off every few weeks and did a "volunteer service" for a local retirement home in their vicinity, to take care of the patients and teach the health staff about oral hygiene. They reported that the situation regarding oral health was alarming. Some of the patients had previously been long-term patients in their dental practice, for dentition restoration and preventive treatment (*Angst et al.*, 2024).

However, barriers to this approach included:

- Treatment options during such home visits were relatively poor
- Work ergonomics, being an essential basis for the success of a treatment, was compromised and had to be improvised, making it difficult to achieve a treatment of good quality.

- Questionable safety for some of the participants.
- Cost was higher in contrast to providing dental services in their practice.
- Logistically difficult with transportation and set-up of equipment, and hygiene-related issues.
- The lack of a mobile radiography unit was a concern.
- Organisation and administration were time consuming.
- Resources were limited, for example there was not always a dedicated nurse to arrange everything at the long-term care facility (*Angst et al.*, 2024).

Other barriers include incomplete medication lists, missed appointments by the patients or the nurses, infection control, and treatment of the patients in their wheelchairs or in their beds. Sometimes treatment planning for dependent older patients is difficult because the patient can no longer make decisions about the treatment and various parties have to be involved in the decision-making process (including family members, relatives, legal guardians, care-givers, doctors, nurses) (*Angst et al.*, 2024).

*Blasi et al.* (2024) reported that the awareness and knowledge of oral care practices amongst caregivers is inadequate and preventive oral care in long term care facilities is often limited. Older adults expressed concerns about dependency in inpatient care facilities and the maintenance of oral health due to staff shortages as well as associated time constraints. They also had fears regarding

tooth brushing being neglected in daily personal hygiene. The associated reduction in oral care was evident.

Major interventions that can be implemented in the nursing homes or long-term care setting include:

- hands-on guidance and support in oral care
- instruction in interdental flossing and toothbrushing
- oral health and hygiene education
- denture and oral mucosa cleaning, and
- encouragement of oral functional exercises such as facial muscle and tongue exercises and salivary gland massage.

*Poudel et al.* (2024) reported that such interventions improved swallowing, reduced plaque index and gingival index scores, improved oral malodour and -dryness, and prevented root caries. Oral health related quality of life of older residents improved, as did knowledge level, attitude and self-care behaviours regarding oral health.

## **BARRIERS TO ORAL HEALTHCARE**

Older individuals face a number of barriers to accessing dental care, which could be classified as patient-related, dentist-related, or general. Patient-related barriers include financial limitations, communication issues, difficulty getting to the dentist, low levels of oral health literacy, and non-seeking dental care behaviour. The latter could be due to, among other things, not having oral health

as a priority and acceptance of tooth loss as a natural life process.

Frail individuals may face further barriers as they become dependent on other people to organise oral care for them. They may be hospitalised or living in long-term care facilities, where pathways of oral care may be non-existent. Some of these patients may already have a range of systemic comorbidities such as dementia, which can also impact their oral health, as keeping oral hygiene may become challenging. The result is high levels of dental disease among these patients and a lack of proper oral healthcare pathways in most countries. As a consequence of this erratic pattern of dental treatment, dental extractions may become the only feasible treatment option (da Mata & Allen, 2023).

The problem can be further complicated by the complex nature of the dental procedures usually required by this group of patients. Increased levels of tooth retention have resulted in a greater variety of restorative work being delivered to adults, such as crowns, bridges, and implants. Like any other dental work/material, these have a limited lifespan and will need maintenance and eventual repair or replacement. The problem is that these failures might occur later in life when individuals present with systemic disease and polypharmacy and might be frail and incapable of maintaining oral hygiene. The result is that clinicians treating older individuals may be constantly facing difficult treatment decisions that require not only knowledge of medical conditions affecting older

patients and their oral health and treatment management strategies, but also some clinical experience (da Mata & Allen, 2023).

## **MULTIDISCIPLINARY APPROACH (MEDICAL-DENTAL INTEGRATION)**

A multi-disciplinary approach to dental healthcare (medical-dental integration) involves holistic collaboration with other healthcare providers, coordinated care with primary care physicians and specialists to address systemic conditions that may impact oral health or treatment outcomes.

According to *Fisic et al.* (2024) a high proportion (75.9%) of dental professionals stated that they never or seldom consult with physicians to change medications because of adverse effects such as dry mouth. This may be attributed to the limited inter-professional collaboration, which impacts the treatment options and overall patient care.

Ideally, medical and dental records should not be separated, as the combined information is often crucial for the dental care of geriatric patients. Lack of medical information should not cause dental care providers to assume that “everything is fine” regarding physical and mental health of the patient (Nitschke et al., 2024).

Oral diseases and chronic systemic conditions share common risk factors—

such as unhealthy diet, tobacco use, and alcohol consumption—indicating the need for education beyond dental offices. Dental issues often correlate with nutritional deficiencies and negatively impact outcomes in cardiovascular disease, diabetes, and other conditions prevalent among older adults. This bi-directional relationship underscores the value of a multidisciplinary, proactive approach to early recognition and treatment which enhances both oral health and quality of life in this population (Lipsky et al., 2023).

For older adults, integrating mental health considerations into a holistic care plan, which includes dental care, was important particularly as they become or are frail and “functionally dependent”. These patients may have anxiety, depression, or moderate-to-advanced cognitive decline, and as the dental expertise required is more specialised, oral care needs to be coordinated with input from medical and allied health professionals, increasing the need for a multi-disciplinary, team-based approach.

The team-based approach when caring for older patients and their special needs, includes physicians, nurses, physiotherapists, occupational therapists, pharmacists, psychologists, dieticians and others. The non-dental provider’s role consists primarily of prevention and early

diagnosis of oral cancer (Lipsky et al., 2023; Poudel et al., 2024).



*O’Kane et al.* (2024) reported that there was a desire expressed by dentists for the development of multi-disciplinary cooperation among those involved in supporting and caring for older adults. These dentists found it challenging to offer dietary advice to patients who resided in long-term care facilities where food was provided for them and also reported that they felt they needed more support from general medical practitioners and dieticians in cases where older adults had complex needs, because they lacked confidence in delivering evidence-based advice (*O’Kane et al.*, 2024).

One of the reasons for a multi-disciplinary team approach is that despite the high prevalence of oral disease in these individuals, dental attendance is very low, and these patients may not see a dentist routinely, but do see other health professionals involved in their healthcare more often, sometimes on a daily basis. Therefore, these non-dental health workers could potentially provide some form of oral health counselling and refer

the patient to a dentist or oral hygienist when appropriate (da Mata & Allen, 2023).

## **PREVENTION AND MANAGEMENT OF ORAL HEALTH CONDITIONS AMONG OLDER POPULATIONS**

Prevention and reduction of functional, painful, aesthetic, and broader psychosocial impacts related to oral disorders, are the central tasks for geriatric dentistry. Accessing oral health services can be very difficult for this population group due to problems with mobility, physical handicap, cognitive decline, and other health complications. In addition, confusion can arise regarding who is responsible for providing oral health services for dependent older adults.

Numerous epidemiological oral health surveys have demonstrated the increase in the number of dentate older adults. Although this indicates an improvement in the oral health of this population group, it also presents oral health professionals with several challenges. Older adults are more susceptible to chronic dental diseases, particularly root caries, in addition to periodontal disease and tooth wear. Many elderly patients cannot cope with extensive dental procedures, nor do they have the ability to maintain complex restorative treatment (*Nitschke et al.*, 2024; da Mata & Allen, 2023; *Angst et al.*, 2024).

Improving oral hygiene contributes positively to the prevention of major dental issues and reduces the development or occurrence of respiratory diseases. Behaviour that is in response to

environmental factors (predominantly socioeconomic factors) can be changed in a positive way through appropriate communication, information, and education. It is important for the individual to be aware of, and to recognise, their responsibility for maintaining and improving health. Periodic dental control involves visiting the dentist every six months (Janto et al., 2023).

*Poudel et al. (2024)* report that the most common intervention was to raise awareness on oral health through courses, trainings or educational sessions and the distribution of educational material.

Educational interventions that can be used include a wide range of methods such as:

- face to face motivational interviewing techniques to educate the patient about oral health
- practical sessions and demonstrations
- educational sessions
- instruction on oral health care and daily oral hygiene routines
- online oral health education and promotion programs to improve knowledge, attitudes, and self-care practices aimed at attaining and maintaining oral hygiene and health
- interventions for the care givers and nurses of older residents that include educational sessions and demonstrations on oral hygiene and denture care
- practical oral care videos
- text messages via phone, and
- smartphone applications

Such interventions can reduce the plaque and gingival indexes in the older patients and improve their (and their caregivers) knowledge and attitudes on oral health (Poudel et al., 2024).

Interventions that can be used by dentists include application of silver diamine fluoride, toothbrushing with fluoride toothpaste, fluoride varnish, chlorhexidine rinsing, ultrasonic devices for denture cleaning, lip muscles trainer device and using a sonic toothbrush (Poudel et al., 2024).

Dental care among older adults could also include mobilising their care givers and nursing staff. These interventions may include regularly monitoring and managing the oral health of older residents; tongue cleaning and wiping the oral mucosa with a sponge soaked in chlorhexidine; application of chlorhexidine varnish and fluoride. *Poudel et al. (2024)* reported the results of such interventions were significant declines in plaque and gingival indexes, reduced opportunistic infections, and prevention of incident root caries in these older residents.

Management of dental caries, especially root caries, in older adults should follow a minimally invasive approach including disease prevention given the logistical challenges of delivering operative care. Application of high-fluoride topical agents is a well-established approach. However, evidence suggests that the application of 38% silver diamine fluoride (SDF) solution annually is highly effective in preventing root caries and is considered to be a

primary preventive measure. SDF is known to arrest and re-mineralise active caries lesions. There is now a growing recognition that SDF is a safe and non-invasive topical agent that could be effective for the prevention and arrest of dental caries in older adults (Angst et al., 2024).

One of the major advantages of SDF over other conventional treatment alternatives is its low invasiveness. About half of the participants in the study by Angst et al. (2024) saw an advantage in the fact that it is a treatment alternative without the need for drilling and filling, and some participants mentioned that the treatment with SDF is less painful than conventional treatment and therefore, better for treating patients with care-resistant behaviour. This makes SDF a good option in long term care facilities, where other treatments are not possible. If the patient is bedridden and it is difficult to maintain a good oral hygiene, then it can be a solution to preserve the teeth until the end of the life of the patient, without pain.

In addition, SDF is relatively fast compared to filling therapy. The draining is less problematic than with filling therapy and it is possible to work without anaesthesia. The caries can be slightly excavated by hand and then the SDF can be brushed on the cavity. This makes the treatment a less traumatic experience for the patient than when drilling is needed.

A disadvantage is that careful handling of the product was always necessary, as it can cause staining on clothing and in the dental surgery. Issues of poor aesthetics (black

discolouration; discolouration of tooth surfaces) have also been reported (Angst et al., 2024).

There seems to be limited focus on preventive oral health programmes in dependent older adults. Maintenance of oral hygiene including mechanical tooth brushing, is often not prioritised, with subsequent rapid deterioration in oral health status, particularly for those living in long term care facilities.

Improving oral health outcomes of the older population requires adequate oral health interventions tailored to the specific needs of this age group that will influence their quality of life. Improvement in oral health status can have a significant positive impact. Older people with more natural, intact teeth have reported a perceived greater quality of life, positive body image, increased self-worth, maintenance of oral function, and sense of achievement. This reinforces the fact that special oral health care education for older people and their caregiver/family is essential to preventing adverse effects of aging on oral health. Efforts to save teeth and maintain good oral health, therefore, are crucial in geriatric populations (Blasi et al., 2024 ; Poudel et al., 2024).

## **10 TIPS TO HELP OLDER PATIENTS BE MORE COMFORTABLE IN THE DENTAL PRACTICE**

Helping elderly patients feel comfortable in a dental setting requires an understanding of their unique needs and concerns. Here are some strategies dental practitioners can use:

1. Create a welcoming and comfortable environment: Consider factors like ease of access for wheelchairs, walkers and care givers to assist these patients. Provide comfortable chairs with good back support and cushions if needed. Chairs should not be too low and should also have armrests that the patient may need to use. Be mindful of the temperature (not too cold as many older individuals have a low body fat percentage). Warm lighting in the reception area is calming but must also good enough to allow the patients to read and fill in paperwork.
2. Communication: Older patients really value their time with their dental practitioner. Take time to listen to their concerns, as they have a desire to be heard and express themselves, but also to understand. Patiently explaining procedures clearly, using simple language and avoiding jargon makes them feel more at ease.
3. Physical positioning: Elderly patients may have mobility issues or arthritis. Offering assistance if they have difficulty getting in and out of the dental chair will be

welcomed. Providing handrails or support can make the process easier and less stressful. Good positioning can greatly enhance their comfort during appointments. This may involve finding a balance between reclining for procedures and sitting upright for comfort. Using positioning aids such as pillows and ensuring that the dental chair has a supportive headrest that can be adjusted to their height, can help older patients maintain a comfortable position during procedures, and help them feel stable and secure.

4. Temperature: Older adults can be more sensitive to temperature changes. Using a blanket, if necessary, will help to keep them warm.
5. Empathy and patience: Older patients are more vulnerable than those that are younger and may have increased anxiety and fear when undergoing any medical intervention. Using a gentle approach, showing care, patience, and understanding of their physical and psychological state will help these individuals be more at ease. Playing soothing music can also help these patients be more relaxed before and during treatment.
6. Pain management: These patients may be more sensitive to pain. Consider the patient's comfort level and provide appropriate pain

management strategies if the procedure causes discomfort. Checking in regularly to ensure they are comfortable during procedures is highly valued. Because dental, oral, and orofacial pain is subjective, the “voice” of the patient needs to be heard. However, in individuals with cognitive impairment and dementia, detecting pain poses a significant challenge.

7. Frequent breaks: Allow for frequent breaks during longer appointments to stretch or use the restroom if



needed. This can help prevent stiffness and discomfort.

8. Caregiver involvement: If necessary, involve caregivers or family members in discussions about treatment plans, post-treatment care and education regarding oral hygiene maintenance. It can be assumed that when care-givers or family members have frequent contact with the individual in question, oral

health impacts such a major functional, pain-related, or aesthetic impacts can typically be detected.

9. Knowledge: Providing educational materials in simple language about oral health care tailored to their needs, including the importance of dental visits and proper hygiene can help the patient feel comfortable, build trust with their dentist and take personal responsibility for their oral health.

10. Follow-up and support: Providing clear instructions for post-treatment care and any necessary medications are important. Following up with a phone call or appointment after procedures to ensure that patients are recovering well and addressing any concerns promptly can make older patients feel valued and supported.

## RECOMMENDATIONS

From a dental point of view, it is known that deterioration in oral health starts between 60 and 70 years of age, so regular periodontal evaluations are very important. However, older patients may be unaware that the quality of their oral hygiene is already gradually declining. *Blasi et al.* (2024) reported that for some of these patients it was difficult to understand to what extent different parts of the dental care process, such as check-ups, professional dental cleanings, annual

scaling and additional oral care services, that were not yet part of their dental care, differed from each other. So, having a clear plan that is communicated to the patient in a way that they can understand and implement it, is the goal.

High-frequency efforts to maintain daily oral hygiene at home, at intervals that can be easily planned and integrated into the daily routine, in-between regular dental check-up appointments, are recommended, because they are associated with better oral health in people aged  $\geq 60$  years (Blasi et al., 2024). The use of an electric toothbrush and sodium fluoride as a mouth rinse or toothpaste for caries prevention should be recommended for this vulnerable patient group. 5000 ppm fluoride toothpastes offer preventive benefits on root caries compared to dentifrices with less than 1500 ppm fluoride. Teledentistry is currently being introduced in Germany, and this could be an additional viable oral care tool for supporting people who have difficulty accessing dental care or who have no access to it.

To support appropriate care of this population, a variety of oral health assessment tools have been created or adapted for use among older adults. Valid assessment instruments already exist for non-dental staff in nursing homes, which are developed to screen oral health problems and are intended to integrate oral health and hygiene daily care. These include the Kayser-Jones Brief Oral Health Status Examination (BOHSE), the Oral Health Assessment Tool (OHAT), the

Revised Oral Assessment Guide (ROAG), and the oral health-related section of the interRAI (ohr-interRAI).

Measuring patient-reported outcomes such as with the dental patient-reported outcomes (dPROs) is also important and has several practical advantages: 1) can be applied by personal interview, questionnaire, phone, or via internet, 2) allow for oral health impact assessment in various settings that cannot be reached by oral health professionals, and 3) provide an opportunity for expanding oral health impact assessment.

When only physical parameters can be used for oral health assessment, these concepts still matter to patients and would still be the foundation for clinical decision-making. However, using assessment tools together with a clinical measurement of physical oral health as well as measuring dental patient-reported outcomes and implementing a multidisciplinary approach is a more wholistic approach to caring for older patients (Nitschke et al., 2024; Poudel et al., 2024).

*Nitschke et al.* (2024) recommend a framework of care in geriatric dentistry which includes: 1) oral function, 2) orofacial pain, 3) orofacial appearance, and 4) psychosocial impact. These are the fundamental building blocks of oral impact and provide a solid foundation for the care of geriatric dental patients.

Oral function being the ability to maintain optimal oral function, mainly chewing ability, which plays a vital role in preserving

oral health-related quality of life, nutrition and overall well-being. Therefore, addressing issues and promoting oral functional capability are essential.

Orofacial appearance is the aesthetic aspect of oral health, and this is important to older adults too. They want to have a socially acceptable appearance of teeth, mouth, and face. Impaired appearance can have a direct and psychosocial impact on the patient. Crooked or missing teeth, discoloured gingiva and misalignment of the jaw, just to name a few, are oral health conditions that represent a deviation from the expectations that people have when they look at the structures of the orofacial system. Individuals who are impaired in the appearance of their teeth or dentures may experience reduced self-confidence and social discomfort. Ensuring access to dental services for addressing orofacial appearance concerns is medically necessary and on par with addressing patients' functional, pain related, and psychosocial impact related to oral disorders (Nitschke et al., 2024).

With regards to psychosocial impact, anxiety, depression, and other mental disorders are prevalent in older adults. Oral health problems can have a further significant psychosocial impact on this population. For example, if patients are distressed by bad oral health, it can add to social isolation. When functional, pain-related, and aesthetic oral health problems are severe or persistent, they also have a

substantial psychosocial impact on the elderly. Dental practitioners should be attentive to this psychosocial impact and should not overlook a situation in which the patient appears to be distressed, feel down or doesn't perform their usual activities. For example, when a nursing home resident suddenly stops playing cards with fellow residents, an activity they love and previously regularly participated in, because their ill-fitting dentures embarrass them in the company of others (Nitschke et al., 2024).

## CONCLUSION

Integrating good oral health into healthy aging is essential, as overall health is inseparable from oral health. Health professionals must recognise that older patients often present with established or undiagnosed comorbidities, multimorbidity, polypharmacy, and frailty. Collaboration within a multidisciplinary team is crucial for effective patient care.

Regular dental visits, oral prophylaxis, and fluoride treatments are vital for maintaining oral health in older adults. Educating patients, about oral health issues and promoting a mindful, healthy lifestyle can help prevent dental decay and periodontitis.

## REFERENCES

1. Angst L, Nüesch N, Grandjean M-L, Watson S, McKenna GJ, Srinivasan M. Caries management using silver diamine fluoride and providing domiciliary dental care for dependent older adults: A qualitative study of Swiss dentists. *Community Dent Oral Epidemiol.* 2023; 51: 469-482. doi: 10.1111/cdoe.12774 (Angst et al., 2024)
2. Blasi AM, Vonhoegen L, Herrler A, Wicht MJ, Barbe AG. Older people's preferences and expectations of preventive oral care in the home. *Gerodontology.* 2024; 41: 241-250. doi:10.1111/ger.12698 (Blasi et al., 2024)
3. da Mata, C, and Allen, PF. 2023. Providing Oral Healthcare to Older Patients—Do We Have What It Takes? *International Journal of Environmental Research and Public Health* 20, no. 13: 6234. <https://doi.org/10.3390/ijerph20136234> (da Mata & Allen, 2023)
4. Fistic, A., Aras, H.C., Almhöjd, U. et al. Dental care professionals' awareness of oral dryness and its clinical management: a questionnaire-based study. *BMC Oral Health* 24, 45 (2024). <https://doi.org/10.1186/s12903-023-03813-2> (Fistic et al., 2024)
5. Janto, M., Lurcov, R., Daina, C. M., Venter, A. C., Suteu, C. L., Sabau, M., Badau, D. and Daina, L. G. 2023. The Importance of Periodic Dental Control in the Oral Health Status of Elderly Patients. *Clinics and Practice* 13, no. 2: 537-552. <https://doi.org/10.3390/clinpract13020050> (Janto et al., 2023)
6. Lipsky, M S., Tejasvi, S., Zakeri, G and Hung, M. 2024. Oral Health and Older Adults: A Narrative Review. *Dentistry Journal* 12, no. 2: 30. <https://doi.org/10.3390/dj12020030> (Lipsky et al., 2023)
7. Nitschke, I., Slashcheva, L. D., John, M. T., and Jockusch, J. 2024. Dental patient-reported outcomes in geriatric dentistry: A call for clinical translation. *Journal of Evidence-Based Dental Practice*, Volume 24, Issue 1, Supplement, 2024, 101958, ISSN 1532-3382, <https://doi.org/10.1016/j.jebdp.2023.101958> (Nitschke et al., 2024)
8. O’Gorman, C., Willis, A. Oral medicine considerations for the older patient. *Br Dent J* 236, 251–260 (2024). <https://doi.org/10.1038/s41415-024-7060-1> (O’Gorman & Willis, 2024)
9. O’Kane R, Watson S, Woodside J, McKenna GJ. Exploring the attitudes of general dental practitioners to providing dietary advice alongside oral rehabilitation for older adults. *Gerodontology.* 2024; 41: 101-110. doi:10.1111/ger.12689 (O’Kane et al., 2024)
10. Poudel, P., Paudel, G., Acharya, R. et al. Oral health and healthy ageing: a scoping review. *BMC Geriatr* 24, 33 (2024). <https://doi.org/10.1186/s12877-023-04613-7> (Poudel et al., 2024)
11. Kimble, R. A. Papacosta, O., Lennon, L. T., Whincup, P. H., Weyant, R.J., Mathers, J. C., Wannamethee, S. G., Ramsay, S. E. The Relationship of Oral Health with Progression of Physical Frailty among Older Adults: A Longitudinal Study Composed of Two Cohorts of Older Adults from the United Kingdom and United States. *Journal of the American Medical Directors Association*, Volume 24, Issue 4, 2023, Pages 468-474.e3, ISSN 1525-8610, <https://doi.org/10.1016/j.jamda.2022.11.022>. (Kimble et al., 2023)
12. World Health Organisation. 1 October 2022. Ageing and health. <https://www.who.int/news-room/fact-sheets/detail/ageing-and-health> (WHO, 2022)

**QUESTIONNAIRE**  
**B1(25) Part 1 of 4**  
**Tips for Dentists - the aging population**

**INSTRUCTIONS**

- Read through the article and answer the multiple-choice questions provided below.
- **Some questions may have more than one correct answer;** in which case you must mark **all** the correct answers.

**Question 1:** By 2030, one-sixth of the world's population will be aged \_\_\_\_ or older?

- A: 50
- B: 60
- C: 40
- D: 70

**Question 2:** The mouth is referred to as a mirror of overall health. Good oral health is an important part of healthy ageing and is integral to overall well-being and quality of life. In the elderly population, poor oral health has been considered a risk factor for general health problems.

- A: TRUE
- B: FALSE

**Question 3:** All of the following are among the most common diseases affecting older adults, **EXCEPT** .....

- A: Caries
- B: Tooth loss
- C: Mucosal lesions
- D: Dental fluorosis
- E: Oral cancer

**Question 4:** Gerodontology includes which one of the following?

- A: Regenerative dentistry
- B: Cosmetic dentistry
- C: Geriatric or senior dentistry
- D: Dental care for infants

**Question 5:** The most common dental condition identified in the Global Burden of Disease Study 2015 was \_\_\_\_\_?

- A: Untreated caries in permanent teeth
- B: Ulcers
- C: Tooth loss
- D: Halitosis

**Question 6:** Poor oral health leading to periodontal disease has been linked to systemic conditions (or their associated complications) such as which of the following? Select all the correct options.

- A: Cardiovascular disease
- B: Diabetes and chronic kidney disease
- C: Respiratory infections, recurrent pneumonia and chronic obstructive pulmonary disease
- D: Muscular dystrophy

**Question 7:** The consequences of untreated poor oral health include which of the following problems that ultimately reduce the quality of life? Select all three the correct options.

- A: Neurological problems
- B: Functional problems
- C: Aesthetic problems
- D: Nutritional and psychological problems

**Question 8:** Chronological age is the best way to identify older individuals.

- A: TRUE
- B: FALSE

**Question 9:** Conditions such as dental caries, periodontal disease, and tooth loss can alter food choices and dietary habits, leading to inadequate nutrient intake and possible malnutrition, weight loss, sarcopenia, frailty, and increased dependency.

- A: TRUE
- B: FALSE

**Question 10:** In a study by *Janto et al.* (2023) which included 120 elderly patients, only \_\_\_\_ % presented regularly for dental checkups?

- A: 52%
- B: 15%
- C: 25%
- D: 5%

**Question 11:** *Janto et al.* (2023) reported that \_\_\_% of patients who irregularly visited the dentist frequently avoided certain foods, and \_\_\_% had sensitivity to cold, hot, or sweet foods?

- A: 10 / 46
- B: 26 / 14
- C: 16 / 24
- D: 46 / 10

**Question 12:** A comprehensive review of a patient's medical history, medications, and existing conditions is crucial, as it highlights which of the following? Select both correct options.

- A: Multimorbidity
- B: Family history
- C: Polypharmacy
- D: Physiological age as opposed to chronological age

**Question 13:** *Kimble et al.* (2023) found high associations between poor oral health and \_\_\_\_\_?

- A: Hypersalivation
- B: Progression to frailty
- C: High levels of energy drink intake after physical activity

**Question 14:** *Kimble et al.* (2023) reported that individuals with fewer than \_\_\_ teeth and no dentures were more likely to progress to severe frailty, while denture wearers did not show the same risk?

- A: 12
- B: 8
- C: 21

**Question 15:** Oral health markers that go along with physical frailty in the elderly include all of the following, **EXCEPT** .....?

- A: Denture use
- B: Tooth count
- C: Dental fluorosis
- D: Periodontal disease
- E: Dry mouth

**THE END**

**QUESTIONNAIRE**  
**B1(25) Part 2 of 4**  
**Tips for Dentists - the aging population**

**INSTRUCTIONS**

- Read through the article and answer the multiple-choice questions provided below.
- **Some questions may have more than one correct answer;** in which case you must mark **all** the correct answers.

**Question 1:** As teeth are restored rather than extracted, older adults face various risk factors, including caries, periodontitis, tooth erosion, xerostomia, gingival recession, oral cancers, diminished motor skills, and partial denture wear.

1. TRUE
2. FALSE

**Question 2:** Decreased salivary flow is known as \_\_\_\_\_?

- A: Hypersalivation
- B: Hyposalivation
- C: Dysphagia
- D: Mastication

**Question 3:** Additional challenges faced by the elderly include all of the following, **EXCEPT** .....

- A: Limited access to dental services
- B: Cognitive impairment
- C: Lack of time
- D: Disability

**Question 4:** \_\_\_\_\_ is the presence of two or more comorbidities and represents one of the greatest challenges in healthcare?

- A: Polypharmacy
- B: Polyphagia
- C: Multimorbidity

**Question 5:** Which of the following have been linked to an increased risk of edentulism? Select all three the correct options.

- A: Diabetes mellitus
- B: Respiratory and cardiovascular diseases
- C: Osteoporosis and arthritis
- D: Parkinson's disease

**Question 6:** Oral diseases share which of the following common risk factors with major non-communicable diseases?

- A: Following a vegan diet
- B: Unhealthy diet high in sugar
- C: Tobacco use
- D: Alcohol

**Question 7:** Older adults are more likely to be prescribed multiple medications (polypharmacy) to treat comorbidities.

- A: TRUE
- B: FALSE

**Question 8:** Many of the medications used to treat comorbidities often affect salivary gland function and may cause side effects such as \_\_\_\_\_, which can exacerbate periodontal issues?

- A: Dysphagia
- B: Sarcopenia
- C: Xerostomia (dry mouth)
- D: Hyperhidrosis

**Question 9:** *Fisic et al. (2024)* showed a high prevalence of oral dryness, and that the prevalence of dry mouth was higher among older adults (\_\_\_\_%) compared to younger adults (\_\_\_\_%).

- A: 19 / 25
- B: 25 / 19
- C: 15 / 29
- D: 29 / 15

**Question 10:** True \_\_\_\_\_ is characterised by an inadequate salivary secretion and is the consequence of acute or chronic salivary gland hypofunction and alterations in saliva composition?

- A: Xerostomia
- B: Periodontitis
- C: Caries
- D: Dysphagia

**Question 11:** Typically, patients complain of oral dryness when the salivary secretion is reduced by > \_\_\_\_\_%?

- A: 15%
- B: 76%
- C: 50%

**Question 12:** Hyposalivation is diagnosed when saliva secretion rate is reduced to  $\leq$  \_\_\_\_\_ for unstimulated saliva?

- A: 10 ml/min
- B: 0.1 ml/min
- C: 1 ml/min

**Question 13:** Saliva has several important functions essential to maintaining overall as well as oral health, including which of the following? Select all three the correct options.

- A:** Lubricating soft tissues and regulating pH levels
- B:** Amassing food particles
- C:** Has an antimicrobial function
- D:** Facilitating tooth mineralization

**Question 14:** Causes of pseudo-xerostomia include all of the following, **EXCEPT** .....?

- A:** Mouth breathing
- B:** Burning mouth syndrome
- C:** Oral dysesthesia
- D:** Anxiety
- E:** Diabetes mellitus type 2

**Question 15:** Medication use for chronic age-related diseases are the predominant cause of oral dryness because of their side effects. Medications for asthma, neuropsychiatric diagnoses, and depression, can increase the risk of oral dryness and accompanying problems.

- A:** TRUE
- B:** FALSE

**THE END**

**QUESTIONNAIRE**  
**B1(25) Part 3 of 4**  
**Tips for Dentists - the aging population**

**INSTRUCTIONS**

- Read through the article and answer the multiple-choice questions provided below.
- **Some questions may have more than one correct answer;** in which case you must mark **all** the correct answers.

**Question 1:** *Fisic et al.* (2024) state that the three most common indicators to identify individuals with oral dryness include all of the following, **EXCEPT** .....

- A: Patients' current and past medication use
- B: Clinical examination of mucosa and tongue
- C: Previous and current diseases
- D: Physical activity status

**Question 2:** Which one of the following classes of medication is **NOT** associated with dry mouth?

- A: Antidepressants and antipsychotics
- B: Diuretics
- C: Topical antibiotics
- D: Antihypertensive agents
- E: Bronchodilators

**Question 3:** A dry mouth can lead to which of the following difficulties? Select all the correct options

- A: Speaking
- B: Chewing
- C: Swallowing
- D: Snoring

**Question 4:** Psychosocial factors, including emotional stress and anxiety, can exacerbate the sensation of dry mouth in elderly individuals and compound the impact of xerostomia.

- A: TRUE
- B: FALSE

**Question 5:** Although there is no treatment for oral dryness, which of the following can relieve the symptoms and decrease the risk of oral health problems? Select all the correct options.

- A: Lozenges
- B: Warm drinks
- C: Chewing gum
- D: Mouth gel, sprays and oil

**Question 6:** Patients with oral dryness should receive preventive dental care \_\_\_\_\_ times a year?

- A: 4 - 6
- B: 0 - 2
- C: 3 - 4
- D: 6 - 7

**Question 7:** Which one of the following is the most frequent dental pathology encountered among the elderly?

- A: Xerostomia
- B: Caries
- C: Endodontic infections
- D: Abscess

**Question 8:** All of the following factors contribute to the development of caries in the elderly, **EXCEPT** .....

- A: Immune function changes
- B: Decreased dental sensitivity
- C: Multiple co-morbidities
- D: Gingival recession

**Question 9:** Individuals with increased risk of caries should receive extra fluoride such as 0.2% sodium fluoride as a rinse, 0.42% fluoride gel in trays, fluoride toothpaste with 5000 ppm sodium fluoride, or fluoride varnish (22.6 mg/ml) at least \_\_\_\_\_ a year?

- A: Twice
- B: Once
- C: Four times
- D: Six times

**Question 10:** A Swiss study by *Angst et al.* (2024) reported silver diamine fluoride (SDF) as a caries preventive agent, and that using silver diamine fluoride (SDF) in the treatment of frail older adults had advantages, especially in the preservation and/or prolongation of the life of teeth without invasive treatments.

- A: TRUE
- B: FALSE

**Question 11:** Edentulism can be the result of congenital, iatrogenic, or traumatic causes, but \_\_\_\_\_ and \_\_\_\_\_ are the main causative factors of teeth loss in the elderly?

- A: Gingival recession; xerostomia
- B: Dental caries; periodontal diseases
- C: Xerostomia; Lack of fluoride
- D: Abscess; dental caries

**Question 12:** People that smoke are more than \_\_\_\_\_ more likely to lose all their teeth?

- A: Four times
- B: Six times
- C: Three times

**Question 13:** \_\_\_\_\_ are also more susceptible to edentulism?

- A: Men
- B: Women

**Question 14:** Periodontitis occurs when the microbially induced, host-mediated inflammation progresses into a chronic, destructive, irreversible disease state that damages the tooth attachment and the supporting bone.

- A: TRUE
- B: FALSE

**Question 15:** Smoking and alcohol act synergistically, and individuals who both smoke and drink increase their risk for oral cancer by as much as \_\_\_\_\_ times more than nonsmokers and drinkers?

- A: 3
- B: 20
- C: 4
- D: 30

**THE END**

**QUESTIONNAIRE**  
**B1(25) Part 4 of 4**  
**Tips for Dentists - the aging population**

**INSTRUCTIONS**

- Read through the article and answer the multiple-choice questions provided below.
- **Some questions may have more than one correct answer;** in which case you must mark **all** the correct answers.

**Question 1:** Older adults have a desire for autonomy and independence. Which of the following are important to them? Select all the correct options.

- A:** The ability to care for themselves
- B:** Having people care for them
- C:** The ability to visit their preferred dentist independently and regularly for as long as possible
- D:** The capability to perform and maintain independent oral hygiene themselves into old age

**Question 2:** Research indicates that the oral health of those living \_\_\_\_\_ is poorer than \_\_\_\_\_?

- A:** In retirement villages; those living in long term care facilities
- B:** In long term care facilities; their community-living counterparts
- C:** In the community; those living in long term care facilities

**Question 3:** Barriers that dentists face with regard to providing domiciliary (where they stay) dental care include all of the following **EXCEPT** .....

- A:** Poor treatment options
- B:** Higher cost
- C:** Poor response from patients and caregivers
- D:** Compromised work ergonomics

**Question 4:** Major interventions that can be implemented in the nursing homes or long-term care setting include which of the following? Select all three the correct options.

- A:** Asking patients to share their knowledge with other patients
- B:** Instruction in interdental flossing and toothbrushing
- C:** Oral health and hygiene education
- D:** Denture and oral mucosa cleaning

**Question 5:** Among the elderly, all of the following are patient-related barriers to oral healthcare, **EXCEPT** .....

- A:** Financial limitations
- B:** Not being able to build a relationship with available dental practitioners
- C:** Communication issues
- D:** Difficulty getting to the dentist
- E:** Low levels of oral health literacy, and non-seeking dental care behaviour

**Question 6:** According to *Fisic et al.* (2024) a high proportion (75.9%) of the dental care professionals stated that they never or seldom consult with physicians to change medications because of adverse effects such as dry mouth, highlighting limited inter-professional collaboration, which impacts the treatment options and overall patient care.

- A:** TRUE
- B:** FALSE

**Question 7:** The team-based approach when caring for older patients and their special needs, includes which of the following healthcare practitioners? Select all the correct options.

- A:** Physicians and nurses
- B:** Sonographers
- C:** Physiotherapists and occupational therapists
- D:** Psychologists
- E:** Dieticians

**Question 8:** One of the reasons for a multi-disciplinary team approach is that despite the high prevalence of oral disease in these individuals, dental attendance is very low and these patients may not see a dentist routinely, but do see other health professionals involved in their healthcare more often.

- A:** TRUE
- B:** FALSE

**Question 9:** *Poudel et al.* (2024) report that the most common intervention in preventative oral care for the elderly was to raise awareness on oral health through courses, training or educational sessions as well as the distribution of educational material. Educational interventions that can be used include a wide range of methods such as which of the following? Select all three correct options.

- A:** Motivational interviewing techniques to educate the patient about oral health
- B:** Instruction on oral health care and daily oral hygiene routines
- C:** Showing them how to use Google for more information
- D:** Interventions for caregivers and nurses

**Question 10:** Dental care among older adults could also include mobilising their care givers and nursing staff. These interventions may include which of the following? Select all the correct options.

- A: Application of silver diamine fluoride
- B: Regularly monitoring and managing the oral health of older residents
- C: Tongue cleaning and wiping the oral mucosa with a sponge soaked in chlorhexidine
- D: Application of chlorhexidine varnish and fluoride

**Question 11:** One of the major advantages of silver diamine fluoride as a caries preventative agent over other conventional treatment alternatives is \_\_\_\_\_?

- A: Can be applied frequently
- B: No teeth discolouration
- C: Its low invasiveness

**Question 12:** Which is **NOT** one of the things that can be implemented in the dental practice to create a welcoming and comfortable environment for older patients?

- A: Ease of access for wheelchairs, walkers and care givers
- B: Providing low, comfortable chairs
- C: Be mindful of the temperature
- D: Warm lighting

**Question 13:** Elderly patients may have mobility issues or arthritis. Which of the following regarding physical positioning can help them be more comfortable? Select all the correct options.

- A: Providing handrails or support
- B: Allowing them to get in and out of the dental chair independently
- C: Using positioning aids such as pillows
- D: Ensuring that the dental chair has a supportive headrest that can be adjusted

**Question 14:** Older patients are more vulnerable than those that are younger, and may have increased anxiety and fear when undergoing any medical intervention. Which of the following can help them feel calmer and more comfortable in the dental practice? Select **BOTH** correct options.

- A: Showing empathy and being patient
- B: Understanding of their physical and psychological state
- C: Playing lively music
- D: Telling them fear is unreasonable in this situation

**Question 15:** Following up with a phone call or appointment after procedures to ensure that patients are recovering well and addressing any concerns promptly, can make older patients feel valued and supported.

- A: TRUE
- B: FALSE

**THE END**



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You can complete any one, or all the parts of this activity.																		
PART 1						PART 2												
	A	B	C	D	E		A	B	C	D	E		A	B	C	D	E	
1					8						1						8	
2					9						2						9	
3					10						3						10	
4					11						4						11	
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How relevant was the content of this activity to your scope of practice?			
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Wierda Park

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**ANSWER SHEET**

**B1(25)**

Tips for Dentists/ The aging population

*Time spent on activity											hour					min							
PART 3											PART 4												
	A	B	C	D	E		A	B	C	D	E		A	B	C	D	E		A	B	C	D	E
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4					11						4						11						
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