

Comprehensive Oral Healthcare Long-term Treatment Planning

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Continuing Education Units: 1 hour

Online Course: www.dentalcare.com/en-US/dental-education/continuing-education/ce492/ce492.aspx

Disclaimer: Participants must always be aware of the hazards of using limited knowledge in integrating new techniques or procedures into their practice. Only sound evidence-based dentistry should be used in patient therapy.

This course explores the obligation dental care providers have to assist older adults in planning their future dental needs. The importance of an accurate medical history will be discussed as well as the need to create an individual dental hygiene care plan based on the patient's medical history findings and, in particular, the presence of any chronic disease. Dental assessments, treatment plans and their implementation in a general practice setting will be examined as well as the caregiver's role in helping to address identified needs.

Conflict of Interest Disclosure Statement

- Ms. McConaghy reports no conflicts of interest associated with this course.

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Overview

The dental world is comprised of many specialties to help patients with their dental needs throughout many phases of their lives. The oral health disciplines include specializations in endodontics, periodontics, orthodontics, and even pedodontics for our youngest dental patients; however, no specialty exists in geriatric dentistry. The older adult population may have growing oral health needs and may wish to continue their treatment with their general dentist. Without a specialized practice in geriatric dentistry, the general practitioner is charged with helping patients transition through all stages of life, potentially including stages which include medical changes with systemic side effects.

Older adults may experience oral conditions that can have an effect on their quality of life just as they are beginning to enjoy their retirement years. As one ages, the likelihood of developing medical conditions increases. It is well-documented adults over the age of 65 have at least one to two chronic diseases and are on at least 1-2 prescription medications that may have xerostomic effects. It is also at this time they may no longer have dental insurance and thus must make decisions about where to invest their fixed income. Patients, and their caregivers where applicable, need to be educated about disease prevention strategies to avoid the ramifications of oral disease.

Twenty-three percent of adults 65 years and older are edentulous.¹ The goal now is to retain one's dentition throughout a person's lifespan as patients are becoming more aware of prevention and nonsurgical options. Dental professionals must assist their patients in reaching this goal by creating a lifelong oral health care plan; subsequently, dispelling the age-old notion tooth loss is inevitable as we age.

Learning Objectives

Upon completion of this course, the dental professional should be able to:

- Explain the motivations for choosing or declining dental care as a person ages.
- Discuss the importance of taking an accurate medical history.
- Describe the significance of a patient's systemic disease and medication choices on their oral health.
- Develop a treatment plan based on the patient's oral examination and feedback.
- Recognize the role of a caregiver in a patient's oral health plan.

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The Need to Create a Long-term Dental Plan

We frequently learn of our patient's plan to retire during their preventive care visits. This conversation provides us the opportunity to begin a dialogue about the patient's long-term oral health goals.

Creating a long-term oral health care plan will reduce the incidence of dental emergencies that may appear at inopportune times as a patient ages. Finances, past experiences, inconvenience and the relationship with their dental practitioners have the potential to influence their dental goals.²

The common focus patients have about dentistry, as finances become limited, is to treat issues as they arise. Studies show 28.4% of adults between the ages of 65 and 74 carry dental insurance coverage; of those aged 75 and older, only 16.5% remain covered by a dental benefit plan due to the loss of an employer-sponsored dental plan.⁴ Preventing and planning for a patient's needs earlier will allow them to take advantage of the dental benefits they currently receive and help them decide what procedures to pursue while they are still financially able.

Anxiety about future treatments can be eased with empathy, friendliness and pain reduction. The communication patients have with their oral health providers and physicians can prepare them to make future dental decisions. Involving the patient in the decision making process will forge a positive relationship with the oral care provider.

Inviting a patient to schedule a comprehensive oral healthcare long-term treatment planning appointment will allow the dental staff the time to assess the patient's current medical condition and oral health status. Such an appointment will enable identification of the patient's individual needs; thus, resulting in the development of a patient-specific long-term care plan that includes targeted oral hygiene, dental hygiene and dental treatment plans. A patient's motivation to accept care can be influenced by the support the patient perceives from their oral health professionals.⁵

Patient Assessment

Creating a comprehensive treatment plan essentially starts with reviewing a patient's medical history and evaluating their dental desires. Obtaining a medical history and finding out what a patient visualizes for their dental future will help create a plan. Risk factors and current habits will also be assessed. Once the medical history and patient's desires are gathered, a comprehensive oral examination will complete the assessment phase in order to develop the patient-specific treatment plan.

Medical History

In a published report by the World Health Organization, *Application of the International Classification of Diseases to Dentistry and Stomatology*, oral implications are associated

with over 120 chronic diseases. Approximately 45% of the American population has been shown to have at least one chronic illness which can either have its own oral effects or create oral changes as a consequence of the medications used to treat the illness.⁶

Obtaining an accurate health history to assess a patient's current health and anticipating possible future needs will enable the clinician to determine a timeline for treatment. It is necessary all oral health team members be educated on the medical-dental connections and trained to inquire at every visit about the patient's current health status. Educating patients about the importance of updating their medical history, since many do not make the connection between their dental health and their overall health, must be addressed as well.

The health history will allow oral health providers insight into issues a person can expect from their health situation and will allow practitioners to address dental hygiene needs that may arise as the result of those conditions. This will also determine if a medical clearance for a specific medical condition is needed before treatment begins.

As the advancements in medicine continue, individuals are experiencing longer life expectancies and are living longer with chronic illnesses.⁷ The diseases we become afflicted with and the medications we take for those illness are known to have effects on the oral cavity (Table 1).

Xerostomia is reported to be the primary oral side effect of medications. Xerostomia is the patient's perception of dryness in the mouth which may be associated with diminished salivary function. Having a dry mouth causes loss of lubrication, speech difficulties, complications with the fit of dentures, and an increase in carious lesions due to the lowered buffering capabilities.

Dental professionals can provide additional options for treating the symptoms of xerostomia and other side effects of diseases and medications, such as gingival overgrowth, enamel erosion, grinding and mobility issues. Interventions may include recommendations for dietary changes and home care modifications or implementing professional treatments based on the information provided in the patient's medical health history.

Table 1. Oral Change Caused Either by the Disease or Medication Used to Treat Disease.

	Xerostomia (dry mouth)	Gingival Overgrowth	Oral Mucositis	Increased Bleeding	Vomiting
Heart Disease	X	X			X
High Blood Pressure	X	X			
Cancer	X		X		X
Stroke	X			X	
Alzheimer's Disease	X				X
Diabetes	X				X
Parkinson's Disease	X				X

Name: _____

Date: _____

Would you like to keep your teeth for a lifetime?

Do/Did your parents wear dentures or partials?

Do you have teeth sensitivity?

If you lost teeth, would you consider replacing them with a(n):

bridge?

Implant(s)?

denture/partial?

Do you believe that disease in your mouth can affect your overall health?

Are you happy with your smile?

If you could change your smile, what would you change?

Figure 1. Patient Dental Questionnaire.

Many medical and medication effects can be minimized with meticulous self-care, diet and adjunctive therapy provided by oral health professionals. It is during periodic preventive care visits the oral hygiene status will be evaluated and adjusted to meet the patient's needs. Maintaining a dialogue with a patient's primary care physician as a patient's health changes and increasing the monitoring of oral conditions may be required as the health of the individual changes.

Initiating a conversation with the patient about their dental desires and the dental services that are available is easily started utilizing a Patient Dental Questionnaire (Figure 1). It is with this questionnaire the clinician will be able to determine the patient's intention to maintain their dentition for life or their plan to use a prosthetic to gain function if teeth are lost. The patient's cosmetic desires will be assessed at this time as well. Once the patient determines their dental goals, the examination and treatment planning can begin.

Examination Phase

The next part of the assessment that will aid in the development of the care plan includes a comprehensive examination to help determine a patient's needs and address what the patient desires in the future. The examination will consist of photographs, radiographs and a clinical examination including hard and soft-tissue evaluations.

Photographs provide visual communication to our patients about their current dental status. A full-frontal, retracted-lip photograph will allow the clinician and patient to view the facial-anterior portion of a patient's mouth. Occlusal photos will enable the patient to see their current posterior dental status from the clinician's point of view. Broken teeth, fractures, restorations and occlusal wear can be visualized and documented.

A full series of radiographs based on ALARA principles will determine active areas of decay, bone level and the radiographic interpretation of current restorations. Identifying areas of concern such as overhangs, irregular contacts and bridge issues using radiographs will give the clinician information to determine future risk for the patient.

The dental hard-tissue examination enables the clinician to visualize older restorations and determine if they are at risk for failing. It is during the clinical examination that oral habits such as wear from grinding and clenching, toothbrush abrasion and mouth breathing will be addressed. The patient will understand through education these issues are not only cosmetic but also functional problems with the potential to impact performance of their teeth and affect their overall health.

Providing a "Caries Management by Risk Assessment (CAMBRA)" exam, including a pH test, salivary assessment and obtaining a caries history can determine a patient's future risk for dental decay.

Periodontal health is vital for a solid foundation for future dental work. Periodontal examinations include a 6-point periodontal probe depth reading of the entire dentition, measurements of clinical attachment loss, bleeding points, recession, furcations and mobility. A salivary test such as MyPerioPath® can determine the quantity of pathogenic bacteria present in a patient's mouth. Risk factors such as smoking, hormonal



Figure 2. Failing occlusal amalgam.



Figure 3. Failing occlusal amalgam with fractured enamel.



Figure 4. Failing interproximal amalgam fillings.



Figure 5. Crowded lower anterior crowding leading to periodontal issues due to inability to effectively clean area.

changes and diabetes as well as a family history of periodontal disease, influence a person's susceptibility for periodontal disease and should be questioned as well.

Periodontal pathogens have been found in various parts of the body and are associated with bacterial endocarditis (an inflammation of the inner lining of the heart), brain abscess, cavernous sinus infection, endophthalmitis (inflammation involving the entire eye), lymphadenitis (inflammation of a lymph node), septic arthritis, osteomyelitis (infection and inflammation of the bone or bone marrow), pneumonia, empyema (accumulation of pus in a cavity of the body), prosthetic joint infections and respiratory infections.^{8-16,25} A soft-tissue treatment plan will be created to reduce the oral bacterial levels. This would include removing hard and soft deposits through root debridement therapy (scaling and root planing), creating a biofilm reduction plan for a patient to carry out when at home and prescribing a systemic antibiotic to reduce the bacteria levels after in-office periodontal therapy is completed.

During the clinical examination home care will be assessed. The amount of biofilm will be analyzed and locations determined so a home care plan can be created. Patients will also need to be educated about plaque biofilm and its potential to create dental caries, periodontal disease and peri-implantitis. Additional education should also be provided about the links between oral and systemic diseases if the patient has a history of a chronic disease.

Developing the Treatment Plan

Once the examination phase has been completed, a treatment plan will be created based on the patient's urgent needs and desires. Patients may not be aware of their needs until brought to the attention by their dental provider.

Obvious infections take priority followed by conditions that may create issues in the short-term. A sequenced treatment plan can be created to enable patients to utilize their dental benefits before they are lost. The chronological plan can be established so a patient can take advantage of their benefit plan or plan their dental work accordingly to decrease the amount of future appointments by quadrant treatment planning.

Patients will be made aware of their condition, every option for treating the condition, the consequences of non-treatment and its impact to their overall health. The age of an individual should not determine a patient's treatment options. Non-treatment can be an option if the patient is made fully aware of all consequences involved. It is our responsibility to educate patients about every option available to them without interjecting our preconceived ideas of what is right for the patient. This treatment plan will be revisited periodically during preventive appointments to assess a patient's changing needs.

Patients may deny the need for treatment or change the priority we have established for that treatment. Open communication between the patient and dental providers (and eventually their caregivers) will allow for care of the patient's dental needs and wants. Many patients are motivated to accept treatment based on worsening oral symptoms, deteriorating oral function and their dissatisfaction with their oral health status and chewing ability.¹⁷

A person's perception of the aging process will motivate them to accept or decline care. Patients who believe dentures are an expected result of aging may not be willing to accept preventive dentistry. Patients whose parents had dentures may feel this is the only option for missing teeth. Implants and bridges may not be in their vocabulary; therefore, visual displays of these options should be available for patient education. Identifying what medications a patient is taking can also affect the compliance of a denture wearer due to the potential xerostomic side effects.

Evaluating the photographs together allows the patient to take ownership of the dental issues and allows the clinician to answer any questions the patient has about what they see. Patients are more motivated to treat conditions they see as the photographs provide information that words cannot convey. The photographs, as a visual tool, will also allow patients to monitor changes in their mouth at recare visits.

The wearing of the teeth, which may have been noted on the photographs, caused by grinding and clenching, is not just a cosmetic issue but can create functional issues in the future. Patients

Table 2. Example of Patient Treatment Options.

Treatment Needed	Benefits of Treatment	Consequences of Treatment	Consequences of Non-treatment
Extraction	Relief of pain, if present	Space left in place of tooth	Infection
Implant	Preserve bone Preventing deterioration of facial structure Improving of appearance Replaces missing tooth		Bone loss Deterioration of facial structure due to continued bone loss Space left in place of tooth Loss of tooth function
Bridge	Improving of appearance Replaces missing tooth	Cuts down on adjacent teeth to attach tooth to Bone loss occurs where fake tooth is present	Shifting of teeth Space remains Loss of tooth function
Denture/Partial	Improving of appearance Replaces missing teeth/tooth	Deterioration of facial structure due to continued bone loss	Loss of tooth/teeth function Deterioration of facial structure due to continued bone loss

should be made aware that grinding and clenching may result in fractures of teeth and the possibility of needing future expensive and larger restorations. Excessive wear can indicate sleep issues which can be monitored by the patient's physician.⁹

Patients' physicians should be contacted if mouth breathing is noted as this may indicate a more pressing medical condition may be present, such as sleep apnea or high blood pressure. Patients may be prone to high blood pressure due to the blood oxygen levels being lower than those who breathe nasally.¹⁸

The radiographs will be read to find areas of decay, abscesses and bone loss. Overhangs and irregular contours creating plaque traps and areas for bacterial overload due to the inability to clean these areas effectively will need to be addressed. More conservative dentistry can be provided to the patient if open margins are found early so expenses to the patient can be kept at a minimum.

Bridges need to be evaluated as their failure rate has been found to be 35% due to periodontal disease and caries on abutment teeth.¹⁹

If the patient's periodontal health is less than ideal, further investigation of the infection may be in order. Bacteria from the oral cavity have been found elsewhere in the body, and the inflammation produced by the body's response to these bacteria has been shown to have a correlation with many systemic illnesses such as heart disease, diabetes, strokes, erectile dysfunction, colon and pancreatic cancers and arthritis, as literature suggests.^{8,20-24} Consultations with both periodontists and medical physicians may be necessary to create a comprehensive plan if high levels of bacteria and inflammation are present.

Gingival recession will be noted and monitored as root exposure from bone loss may increase the patient's susceptibility to root caries. The need for gingival grafts to alleviate this problem should

be identified, where appropriate, and incorporated into the treatment plan.

A patient with bone loss caused by a previous periodontal infection, that is now controlled, may be a candidate for guided bone regeneration (GBR). This regeneration of bone will create a more solid foundation for a patient's dentition allowing maintenance of the teeth for a longer period of time decreasing their need for dentures. An evaluation for implants, to replace lost teeth, can be done if the periodontal health is stable.

The home care assessment will help determine a patient's current at home care regimen. The monitoring of a patient's ability to adequately remove plaque should be done at every appointment. Overgrowth of plaque, especially on dentures, can lead to inhalation of plaque biofilm that could potentially contribute to aspiration pneumonia.²⁵

A detailed home care plan should be outlined and may include the use of electric toothbrushes, floss, interdental brushes or a water flossing device. Xylitol, in sprays, gum and candy forms, may be incorporated for those to be found with a low pH and dry mouth issues to prevent decay and reduce plaque levels. Changes to home care techniques may need to be modified if the patient develops medical conditions or physical limitations.

It may be necessary to include a third party during treatment planning to facilitate communication during the visit. The caregiver, if one is needed, can assist the patient with decision-making about their care. It is important the caregiver not pressure the patient to make a decision that may not be in their best interest.

Changing Focus

The wants and needs of patients may change based on the treatments they value at each stage of their life. Cosmetic dentistry may be a priority at one stage of retirement, whereas in later years restorative and prosthetic dentistry may take priority.

There may come a time when the patient can no longer care for him or herself and the dental

plan that was created must be shared with their caregiver. It is important the caregiver respects the patient's treatment desires and wishes. The treatment plan and oral hygiene needs created prior to their incapacitation should be addressed as indicated by the patient. Prevention should be stressed to avoid dental emergencies.

Mobility issues and cognitive changes that can occur with aging may limit a person's self-care ability. Caregivers may need to intervene before self-neglect becomes dangerous and dental complications arise due to the inadequate self-care.²⁶

An Advanced Care Plan/Directive can be created for the individual for use by nursing home staff if the patient becomes unable to care for him or herself. It should indicate the patient's health care representative (the person who is responsible for making health care decisions while a person is incapacitated) and what tasks should be provided by his or her caregiver while in the nursing home setting. The oral hygiene tasks may include toothbrushing, interdental care (floss, proxy brush, stimulents) and administration of pH balancing medicaments and/or oral probiotics.

Caregivers and patients should be aware oral diseases become more complex and costly over time and early intervention is beneficial. Dental complications such as fractures and decay can cause pain, which in turn can create malnutrition due to the discomfort and communication issues due to tooth loss. Tooth loss, an affliction many individuals feel is an inevitable effect of aging, can cause discomfort, problems with occlusion, trauma to adjacent teeth, spaces that cannot be effectively cleaned and dental decay, including root caries. Social issues may develop due to halitosis as well.

Conclusion

The lack of a specialty in geriatric dentistry leads the general dentist to navigate the dental needs of their aging dental patients. The needs of patients change over a lifetime; they will shift from cosmetic to maintenance and then to restorative/function. The treatment plans created earlier in a patient's life will help them maintain their dentition for a lifetime.

Course Test Preview

To receive Continuing Education credit for this course, you must complete the online test. Please go to: www.dentalcare.com/en-US/dental-education/continuing-education/ce492/ce492-test.aspx

1. **A majority of senior citizens are covered by an employer-sponsored insurance plan.**
 - a. True
 - b. False

2. **Which of the following motivate a patient to accept dental care?**
 - a. Finances
 - b. Social Factors
 - c. Guidance they receive from their dental practitioners
 - d. Past experiences
 - e. All of the above.

3. **A patient's treatment plan should be based on all the following EXCEPT _____.**
 - a. periodontal examination
 - b. clinical examination
 - c. radiographic examination
 - d. patient's age

4. **What percentage of the American population has at least one chronic disease?**
 - a. 20%
 - b. 45%
 - c. 60%
 - d. 70%

5. **What is the leading oral side effect of most medications on the oral cavity?**
 - a. inflammation of gums
 - b. increased bleeding
 - c. xerostomia
 - d. swelling of the tongue

6. **An overgrowth of plaque on dentures can cause _____.**
 - a. pneumonia
 - b. asthma
 - c. high blood pressure
 - d. diabetes

7. **Risk factors for periodontal disease include _____.**
 - a. Alzheimer's
 - b. smoking
 - c. diabetes
 - d. Both B and C
 - e. All of the above.

8. **What percentage of adults are edentulous over the age of 65?**
 - a. 53%
 - b. 23%
 - c. 32%
 - d. 10%

9. Mouth breathing could indicate an underlying medical condition such as _____.
- a. diabetes
 - b. Parkinson's
 - c. sleep apnea
 - d. low blood pressure
10. Side effects of medications may include _____.
- a. gingival overgrowth
 - b. erosion
 - c. grinding
 - d. All of the above.

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Ms. McConaghy is currently Vice President of the Montgomery Bucks Dental Hygiene Association in Pennsylvania and working clinically in a family practice in Penndel, PA. She has been a licensed Registered Dental Hygienist since her graduation from Montgomery County Community College in 1996 and a BS in Oral Healthcare Promotion from O'Hehir University in 2013. Her career goals are to improve oral healthcare by implementing disease prevention programs into offices and help hygienists and dentists realize the potential their dental hygiene department has on their practice through clinical and consultative services and through her website, www.opencontactdental.com.