LTC Information Series

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Dedicated To Long Term Care Medicine

Oral Health

in the Long Term Care Setting

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Oral health care for elders is under-funded, under-researched, and has been a low health care priority.

— The TRECS Institute, 2005[1]

Within the literature are numerous examples of specific strategies by which oral health in LTC facilities can be improved and strengthened.

— Thorne et al, 2001[2]

1. Purpose of Tool Kit

The purpose of this tool kit is to provide members of the interdisciplinary care team in the long term care (LTC) setting with the knowledge and practical guidance they need to develop, implement, and sustain comprehensive oral health programs that contribute to the comfort, health, and well-being of the frail elderly patients in their care.

A wealth of epidemiological evidence demonstrates that the oral health status of LTC patients is poor and that the oral care provided in the LTC setting can be greatly improved.[3-7] Evidence also supports the view that diseases of the oral cavity contribute to the total disease burden and illness of LTC patients. More importantly, good oral care plays a role in improving health outcomes and quality of life in this population.[8-11] Moreover, LTC facilities receiving Medicaid or Medicare reimbursement are mandated under the Omnibus Budget Reconciliation Act of 1987 to provide patients with access to a range of dental services.

Numerous factors, however, present obstacles to the delivery of oral care in the LTC setting, including lack of institutional support, time, staff, and supplies, and lack of preparation by staff to deal with patients who are unable or unwilling to cooperate with care[3,4,12,13] The cost of dental care and the availability of adequate reimbursement for providers are further barriers to the provision of comprehensive oral care to patients residing in LTC settings. (See Chapter 16, **Options for Financing Dental Care**.)

Use of the guidance and tools found in this tool kit can assist LTC facilities to

- Develop and implement an oral health plan, policies, and procedures and an ongoing process for monitoring and evaluating the quality of oral health care;
- Develop and maintain individualized oral hygiene care plans for every facility patient that are followed and reviewed at regular intervals;
- Integrate oral health care into the facility's overall program of daily patient care;

- Develop and implement ongoing oral health training programs for both new and existing facility staff;
- Develop and maintain an institutional culture that values oral health;
- Instill a facility-wide commitment to achieving and maintaining an oral health care program; and
- Identify and develop relationships with oral health professionals in the community who have expertise in providing care to patients with special needs.

Outcomes that may be expected from implementation of this tool kit include

- Improved oral health of the residents;
- Improved caregiver competence in the provision of oral care;
- Better management of patients who are resistant to oral care;
- Decreases in the number or proportion of patients who experience weight loss related to oral pain, poorly fitting dentures, or other oral conditions;
- Decreases in the number or proportion of patients experiencing social isolation related to oral pain, poorly fitting or missing dentures, or other oral conditions; and
- Decreases in the number or proportion of patients diagnosed with serious oral-related infections.

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2. Scope of the Problem

Oral Health in the Older Adult Population

Oral health is important for systemic health, well-being, and quality of life (QOL) in older people.[1] Many older adults in the United States receive inadequate dental care for reasons that include cost, lack of private insurance coverage, lack of general dental benefits under Medicare, and fear of dental procedures,[2] as well as a perception that they have no need for dental treatment.[3] As a result, poor oral health presents a serious threat to the overall health status of older adults.

In 2000, an estimated one-third of Americans aged 65 and over were edentulous (without any natural teeth).[4] The rate of edentulism varies geographically, socioeconomically, and by race or ethnicity. Tooth loss may lead to a decline in nutritional status. A significant proportion of the older population has additional risk factors for dental caries, including reduced salivary flow, inadequate oral hygiene, frequent sugar intake, and the presence of partial dentures.

Fewer than 50% of older adults are likely to have had a dental visit during the prior year; members of minority groups, homebound older adults, and patients residing in long term care (LTC) facilities are less likely than other older adults to have had a dental visit during the prior year.[4]

Oral Health in the Long Term Care Setting

As a result of inadequate dental care over the years, many older adults may have poor oral health at the time of admission to an LTC facility. Additionally, many patients residing in the LTC setting have chronic medical conditions (e.g., arthritis) or physical or cognitive disabilities (e.g., loss of function related to a stroke or to dementia) that limit their ability to perform adequate oral hygiene care without assistance.[5] In the landmark report *Oral Health in America*, published in 2000, the U.S. Surgeon General reported that patients residing in the LTC setting had a heavy burden of dental disease and that LTC facilities appeared limited in their capacity to deliver needed oral health services to their patients.[4]

By some estimates, more than half of all LTC patients have some form of dementia or memory impairment.[5] Daily oral health care often declines when cognitive impairment progresses.[6] Patients with dementia tend to have the highest oral health care needs in the LTC setting. It is generally very difficult for LTC patients with dementia to perform oral hygiene care. They may have oral pain that they are unable to communicate because of their cognitive impairment.[7] This population presents special challenges to caregivers because, as a result of the confusion and disorientation that arise from cognitive impairment, they are often resistant to efforts to provide oral care.

LTC facilities that receive Medicare or Medicaid reimbursement are required to provide an oral examination as part of a comprehensive physical exam when a new patient is admitted. Facility staff are also expected to comprehensively assess dental status using the resident assessment instrument specified under federal regulations. Oral screening, however, is frequently limited and is likely to be performed by a nurse rather than a dentist. Even when problems are found, evidence suggests that follow-up care is minimal.[5]

Surveys of LTC patients reveal a high prevalence of oral neglect.[8] As many as 70% of patients residing in LTC facilities have been found to have unacceptable levels of oral hygiene,[9,10] with evidence of associated dental, gingival, and periodontal disease.[11,12]

Poor access to dental treatment has also been documented in LTC settings.[13,14] Patients residing in LTC facilities are among the most poorly served by the dental care delivery system.[15] A survey of LTC patients in Kentucky found that only 28% of patients had made a dental visit in the previous year and more than 30% had not seen a dentist in more than 5 years.[16] Other studies have found that as many as 78% of LTC patients had untreated dental caries, more than 40% had periodontal disease, and 18% of those who had dentures did not use them.[5]

The National Nursing Home Survey (NNHS),[17,18] a continuing series of national sample surveys of LTC facilities, patients, and staff, included questions about dental services in 1997 and 1999. Despite the OBRA '87 mandate to provide access to dental care, in 1997 more than 20% of responding facilities indicated that they offered no dental services, either internally or off-premises.[18] In the 1999 NNHS, 26% of LTC facility patients had received professional dental care within the previous 30 days.[11]

One approach to resolve this specific issue is to contract with a local dentist. Although some LTC facilities may contract with oral health professionals to provide oral health assessments as part of a package of services, this is the exception rather than the rule.[15] Oral health professionals generally do not evaluate patients' oral health status on admission to an LTC facility and oral health care plans for LTC patients are developed largely without professional input by dentists.[19] In some states, LTC facilities have reported difficulty in contracting with dentists to provide patient care on site. The provision of on-site dental care is particularly important for patients with cognitive impairment and dementia, who are more receptive to care that is provided in familiar surroundings by caregivers they know.

Impact of an Aging Population

The oldest members of the "baby boom" generation will turn 85 in 2031.[5] Many members of this generation have benefited throughout their lives from access to preventive and restorative dental care.[20] Among baby boomers who will enter LTC facilities, it is estimated that 75% will retain most of their natural teeth.[2] As more older adults retain their natural teeth, an increased incidence of coronal and especially root caries, as well as periodontal diseases, can be anticipated.[21] Baby boomers are generally more aware than were previous generations of the importance of oral health maintenance and have been acculturated to expect access to comprehensive health services.[20] Those who enter LTC facilities can be expected to demand access to oral health care services,[5] further increasing the burden on an already inadequate system of oral care provision in the LTC setting.

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3. Barriers to the Delivery of Oral Health Services in the Long Term Care Setting

Patient Barriers

The ability of patients in long term care (LTC) to perform their own oral hygiene care may be limited by age-related changes (e.g., diminished eyesight, impaired hand-eye coordination) or by progressive arthritic or neurological disease or other degenerative disabilities that can impair manual dexterity. It has been estimated that between 72% and 84% of patients residing in LTC settings have difficulty brushing their own teeth and that about 80% of denture wearers residing in LTC settings find it difficult or impossible to clean their dentures independently.[1] These patients are therefore dependent on direct caregivers for their oral hygiene care.[2] Some LTC patients are physically capable of brushing their own teeth, but because of cognitive impairments they need reminders, guided assistance, or direction from a caregiver, as well as assistance with locating their toothbrush or other tools.

Caregiver Barriers

Despite evidence supporting the benefits of providing routine oral hygiene, poor oral hygiene in LTC facilities is extensively documented.[1-4] The knowledge, attitudes, beliefs, and values of direct care providers can either facilitate or hinder the provision of oral care.

Many care providers in LTC settings are unaware of the links between oral health and general health, viewing oral care as a comfort measure rather than a preventive health measure.[2] In most LTC facilities, responsibility for daily oral care is assigned to nursing assistants. When surveyed, nursing assistants perceive the following obstacles to the delivery of oral hygiene care:[5-7]

- Lack of time,
- Challenging patient behaviors,
- Lack of staff,
- Lack of supplies, and
- Lack of institutional support.

Providing oral hygiene care to dependent and cognitively impaired older adults is a challenging task because of these individuals' reduced physical dexterity and impaired sensory function and related communication and behavior problems.[8] Cognitive impairment and resistive behavior in older adults have been cited as major barriers to the delivery of oral hygiene care.[9] Direct caregivers must be well trained and experienced to provide oral care to patients with dementia and related conditions,[10] yet these caregivers often feel inadequately prepared for the behavioral obstacles they encounter when patients are unable or unwilling to cooperate with oral care. They are often fearful of being struck, bitten, or spat on, and perceive that they lose valuable time coaxing patients to open their mouths.[11] Many caregivers can successfully deliver oral care, however, if they implement compliance strategies used for other activities of daily living (see Table 11-4, *Behavior Management Strategies for Providing Oral Care to Care-Resistant Patients*).

Misconceptions about oral health in older adults are widespread (Table 3-1). Studies show that nursing assistants often mistakenly believe that tooth loss is a natural part of aging that tooth brushing is not necessary to remove dental plaque, and that mouth care cannot be provided to an unconscious patient.[12] Audits of oral care routines demonstrate a lack of oral care, the mixing of dental supplies with other personal-care items at the patient's bedside, and either nonuse or no change of gloves

between patients during routine oral care.[12] Although it is generally recommended that oral hygiene care be performed twice daily, with competing care obligations oral care may be limited to once daily or omitted entirely.[2]

TABLE 3-1. Examples of Misconceptions About Oral Health in Older Adults

Misconception	Fact
Most older adults have lost their natural teeth.	About 75% of adults aged over 65 now keep some or all of their natural teeth.[13]
Tooth and gum deterioration is a normal part of aging.	• Good oral hygiene and regular dental care can prevent or control tooth and gum deterioration in older adults. • Maintenance of good oral health can contribute to overall health maintenance by ○ Preventing or reducing the severity of systemic diseases (e.g., cardiovascular disease, diabetes), and ○ Improving quality of life by enabling older adults to eat and talk in comfort and maintain social interaction and self-esteem.
A dry mouth is a normal part of aging.	• Dry mouth is not a result of aging. • Healthy, nonmedicated older adults show no reduction in salivary function compared with younger people.[14] • Decreased salivary function in older adults results from medication use, salivary gland dysfunction, and chronic illnesses that reduce salivation.[14,15]
Older adults don't get cavities.	• Older adults can get tooth decay as much as or more than younger people. • Because of changes in tooth anatomy over time, tooth decay in older adults may progress extensively without causing symptoms (e.g., pain).
Older adults don't need to see a dentist unless they are having mouth pain.	Many oral conditions progress silently, without causing pain until the problem has become severe. For this reason, older adults should be evaluated by a dentist at least once per year.
Older adults who have lost their natural teeth have no need to see a dentist.	Older adults who have lost their natural teeth remain at risk for infections of the mouth and gums as well as for oral cancer. For this reason, edentulous patients should be examined by a dentist once or twice a year.[16]
It's okay for older adults with dentures to wear their dentures at night.	It is best for dentures to be removed at night to prevent infections such as denture stomatitis and oral candidiasis (thrush)[16] and swallowing problems.
It's okay to use a foam swab instead of a toothbrush to clean the teeth of an older adult.	• Foam swabs may be used to remove surface debris from soft tissues in an edentulous patient, but should not be used to replace a toothbrush. A toothbrush—even when used with water instead of toothpaste—is much more effective than a foam swab at removing dental plaque.[17] • Swabs should be used with caution with patients who may try to bite the swab and may swallow or choke on it.[18]

Adapted from: Chalmers, 1999;[19] Preston et al, 2000;[16] Registered Nurses' Association of Ontario, 2008;[18] Sweeney, 2005.[17]

Direct caregivers may also lack knowledge about dental products, the proper care of dentures, and the approach to oral care in the patient with cognitive impairment or dementia. Oral care has been given low priority in the education of most health care providers. Most Certified Nursing Assistant training programs devote minimal time to oral health care. Few registered nurses feel confident in their ability to recognize signs of periodontal disease; few physicians caring for LTC patients view oral health as important and the accuracy of physicians' oral assessments has been reported to be low.[20]

The literature suggests that nursing staff in the LTC setting have insufficient training in performing oral health examinations and using the Minimum Data Set (MDS) Resident Assessment Instrument process to improve the quality of oral assessments.[21] Although most directors of nursing services report that the MDS is useful in identifying oral health problems, it does not appear to drive the provision of dental care.[4] In a 2001 examination of the quality of care in nursing homes by the Office of the Inspector General, "Dental Care" was one of the top three areas for which the triggering of a Resident Assessment Protocol did not result in the development of a care plan.[22]

Logistical Barriers

Most LTC facilities currently lack adequate facilities, equipment, and dedicated space for the provision of dental services. In a study of 200 LTC facilities in Nebraska, only about one-third had on-site dental treatment capability and only 26% offered dental care monthly or more frequently.[10,23] A study conducted in Louisiana found that more than 98% of LTC facilities had no dental equipment and 93% had no regular staff dentist.[24,25] Many facilities also lack portable dental equipment to serve bedridden patients.[25]

Dentists generally prefer to treat patients in their own offices rather than in LTC facilities.[4,26] The prevalence of physical disabilities and cognitive impairment among LTC patients, however, significantly complicates the task of transporting patients to outside dental offices. Most dental offices lack special equipment such as lifts that are needed to transfer patients from wheelchairs to dental chairs. Oral health professionals generally lack the expertise and training needed to work with cognitively impaired patients, who may be unable to cooperate with treatment and may be confused and disoriented in unfamiliar surroundings. Staffing ratios at LTC facilities may be insufficient to allow one or more staff members to be spared to accompany a patient on a dental visit. In the aforementioned study of LTC facilities in Louisiana, 65.9% of facilities reported that they did not transport patients to outside dental offices.[25]

Financial Barriers

The financing of dental care is a major challenge. In a survey of Michigan LTC facilities, directors of nursing services reported that the two greatest perceived barriers to dental care were the financial concerns of patients or their families and the willingness of dentists to treat facility patients.[27]

Oral Health America estimated in 2003 that fewer than 20% of Americans aged 75 and over have any form of private dental insurance.[28] Medicare does not cover routine dental services, and in the absence of private insurance or personal resources many LTC patients cannot afford dental services.[29]

The extent of coverage of dental services through Medicaid varies substantially by state. A 2003 state-by-state survey of Medicaid dental programs found that while most states provided emergency dental services, only 10 offered comprehensive dental benefits to Medicaid-eligible adults and six offered no Medicaid dental benefits to adults.[21,28] (Patients residing in LTC facilities who are eligible for Medicaid may, however, be able to recover some out-of-pocket expenses related to medically necessary dental care by claiming them as "incurred medical expenses"; see Chapter 16, **Options for Financing Dental Care**.)

Anecdotal reports suggest that Medicaid coverage levels may have declined since the 2003 state-by-state survey was conducted, as economic pressures have led many states to reduce Medicaid dental benefits.[21] Furthermore, some state Medicaid programs reimbursed dentists at rates below customary fees and many states required prior authorization for dental procedures and erected other administrative barriers to care provision.[21,28] Many dentists perceive a financial and administrative burden in providing care to LTC patients because of the low reimbursement rates and complex administrative requirements of state Medicaid programs.[25]

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4. Overview of Federal Regulations

Federal regulations (42 CFR §483.55, F411) require that skilled nursing facilities

- Must provide or obtain from an outside resource routine and emergency dental services to meet each patient's needs;
- May charge a Medicare patient an additional amount out of pocket for routine and emergency dental services;
- Must, if necessary, assist the patient in making appointments and by arranging for transportation to and from the dentist's office; and
- Must promptly refer patients with lost or damaged dentures to a dentist.

Nursing facilities must obtain or provide emergency dental services and routine dental services covered under the state Medicaid plan and must, if necessary, assist patients with making appointments, with transportation to and from the dentist's office, and with referrals for lost or damaged dentures.

The intent of this regulation is to ensure that the facility is responsible for assisting patients in obtaining needed dental services, including routine dental services. The interpretive guidelines for §483.55 state that

- The facility must ensure that a dentist is available for patients (i.e., employ a staff dentist or have a contractual arrangement with a dentist to provide services).
- For Medicare and private-pay patients, facilities are responsible for having dental services available, but they may impose an additional charge on patients for these services.
- If patients are unable to pay for needed dental services, the facility should attempt to find alternative funding sources or alternative service delivery systems so that patients are able to maintain their highest practicable level of well-being. (See Chapter 16, **Options for Financing Dental Care**.)
- The facility is responsible for selecting a dentist who provides dental services in accordance with professional standards of quality and timeliness.

Emergency dental services include services needed to treat an episode of acute pain in the teeth, gums, or palate; broken or otherwise damaged teeth; or any other problem of the oral cavity that requires immediate attention.

Prompt referral means that a referral must be made as soon as the patient's dentures are lost or damaged or that the facility must otherwise show that it is aggressively working to replace the patient's dentures.

Routine dental services means

- An annual inspection of the oral cavity for signs of disease,
- Diagnosis of dental disease,
- Dental radiographs as needed,
- Dental cleaning,
- Fillings (new and repairs),
- Minor denture and partial denture adjustments,
- Smoothing of broken teeth, and
- Limited prosthodontic procedures (i.e., taking impressions for dentures, fitting dentures).

§483.25(a)(3) mandates the provision of oral hygiene to patients who cannot carry out this activity without assistance. **Provision of oral hygiene** means "maintaining the mouth in a clean and intact condition and treating oral pathology such as ulcers of the mucosa."

In January 2008, oral hygiene care was included as a marker in the Centers for Medicare & Medicaid Services Quality Indicator Survey (QIS), which is used to determine whether Medicare- and Medicaid-certified nursing homes meet federal requirements. Failure to provide oral hygiene services could result in facilities receiving deficiencies.

Given the recognized elements of a quality oral care program, federal regulations can provide a framework on which to structure a comprehensive oral care program. Although many experts in geriatric and public health dentistry feel the regulations on oral health are inadequately enforced,[1] if followed, these regulations mandate a program that offers routine assessment, oral hygiene care for dependent patients, and access to dental health care services.

Reference

1. Haumschild MS, Haumschild RJ. The importance of oral health in long-term care. J Am Med Dir Assoc 2009; 10: 667-671.

5. Oral Health

The term **oral health** refers to the health of the oral cavity (i.e., the mouth [Figure 5-1], which includes the cheeks, gums, lips, palate, salivary glands, soft tissues, teeth [Figure 5-2], and tongue). Maintenance of good oral health enables people to eat, speak, and socialize as well as helping to protect them from pain, infection, and disease. Figure 5-3 is an example of dentition that would be considered within the healthy range in an older adult.

FIGURE 5-1. The Oral Cavity

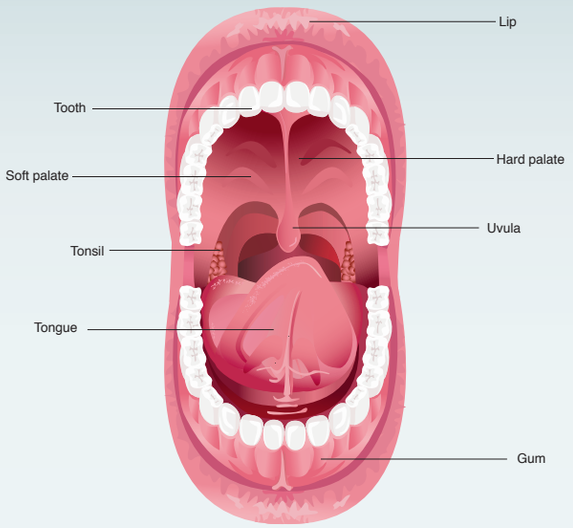

FIGURE 5-2. The Teeth and the Parts of a Tooth

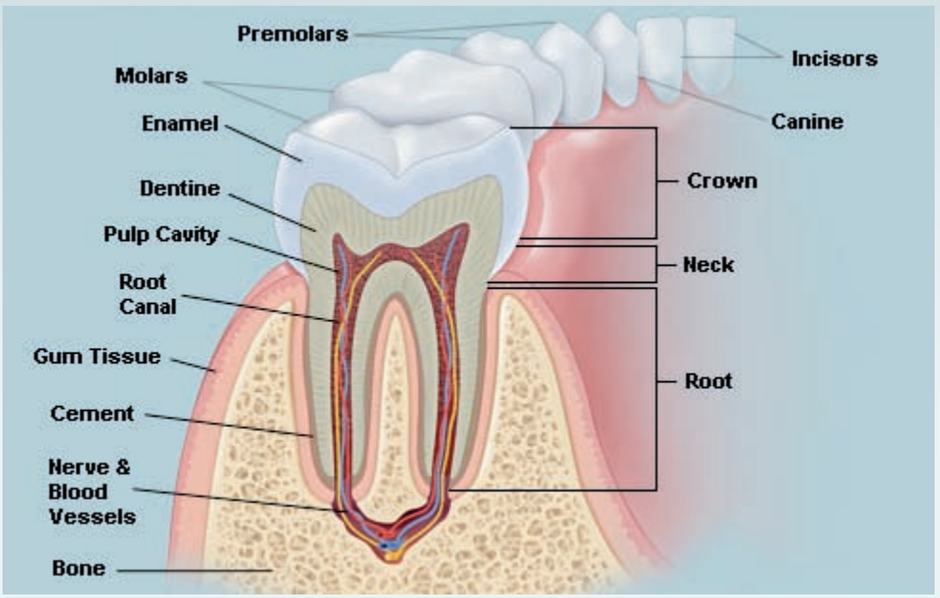

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FIGURE 5-3. Examples of Healthy Dentition in an Older Adult

Photo courtesy of Janet Yellowitz, DMD, MPH, University of Maryland School of Dentistry

Oral hygiene is the practice of keeping the oral cavity clean to prevent or control tooth decay, gum disease, and other oral health problems. Table 5-1 lists recommended oral hygiene practices.

TABLE 5-1. Recommended Oral Hygiene Practices

For patients with one or more natural teeth
- Brush teeth twice a day with a soft toothbrush and an American Dental Association–approved fluoride toothpaste. (Brushing without toothpaste is recommended for patients who have difficulty using toothpaste.)
- Clean between the teeth daily with floss, a floss pick, or an interproximal brush.
- See a dentist at least once a year for a comprehensive oral examination.

For patients with some natural teeth and removable partial dentures
- Remove dentures from the mouth before brushing the natural teeth with a toothbrush (not the same brush used for cleaning the denture) and fluoride toothpaste twice a day.
- At least once a day, clean dentures with a denture-cleaning fluid and a denture brush (a coarser brush than the one used to clean the teeth), preferably at night.
- Remove dentures for at least 4 hours every day, preferably at night, to keep the oral tissues healthy.
- See a dentist at least once a year for a comprehensive oral examination.

For patients with no natural teeth and full dentures
- Remove dentures from the mouth at least once a day for cleaning with a denture-cleaning fluid and a denture brush (a coarser brush than the one used to clean the teeth).
- While the denture is removed, clean the mouth with gauze swabs and rinse the mouth with water.
- See a dentist once or twice a year for a comprehensive oral examination.

Adapted from: American Dental Association[1]

Age-Related Changes to Teeth and the Oral Cavity

The effects of the normal aging process on teeth and gums vary greatly among individuals. Some people show no apparent changes over time in the appearance and function of their natural teeth and gums. Others develop signs of wear on the teeth, such as flattening of the biting edges and the loss of tooth vertical height, which can be caused by many years of eating or chewing on hard edibles. People who grind their teeth are susceptible to wearing down of the teeth.

The outer layer of the tooth consists of enamel, which is largely translucent and contributes to teeth appearing white or nearly white in color. Over the years, this layer of enamel often becomes thinner, largely as a result of exposure to carbonated beverages and acidic foods such as citrus fruits. The thinning of the enamel layer exposes more dentin, the middle layer of the teeth, which is yellower in color than enamel. As a result, the teeth may appear yellower and darker in older adults than in younger people. Other age-related changes to dentin may render older teeth more brittle, less resilient, less soluble, and less permeable.[2] The pulp chamber of the teeth, where the blood vessels and nerves are located, may lose sensitivity, which can result in the reduction or elimination of normal symptoms of dental decay or pulpal infection.[2]

References

1. American Dental Association. Adults Over 60 – Healthy Habits. Available at: http://www.mouthhealthy.org/en/adults-over-60/healthy-habits.aspx. Accessed 03/15/13.
2. Helgeson MJ, Smith BJ, Johnsen M, Ebert C. Dental considerations for the frail elderly. Spec Care Dentist 2002; 22: 40S-55S.

6. Oral Conditions

Signs and symptoms of oral conditions are summarized in Table 6-1.

TABLE 6-1. Signs and Symptoms of Oral Conditions

Oral Condition	Signs or Symptoms	Comments
Amalgam tattoo	Discoloration (usually gray or bluish black) of the gum or inner cheek	Nonpathologic condition, does not require treatment
Angular cheilitis (angular stomatitis, perlèche)	Irritation, cracking, or crusting at corners of the mouth	• Resembles a cold sore or fever blister, although it is not contagious • Typically treated with antifungal or antibiotic cream
Aphthous stomatitis (canker sore)	Painful ulcer in lining of cheeks, tongue, lips, or roof of mouth	• Often resolves in 1–2 weeks without treatment • Persistent or especially painful aphthous ulcers may be treated with oral pain-relieving rinses or gels and oral antibiotic rinses • Severe aphthous ulcers may be treated with a liquid corticosteroid oral rinse
Dental abscess	• Pus on the gum • Pain	May occur in older adults without causing pain
Dental caries	• Cavity or tooth decay • Pain	May occur in older adults without causing pain
Denture stomatitis	Inflammation or ulceration of oral tissues in a patient with dentures	May indicate an allergic reaction or adverse reaction to medication
Erythroplakia	• Red patches on the gums, inner cheek, or tongue • May be elevated, indurated, or ulcerated	• Precancerous condition • Order biopsy if red patches, or a mix of red and white patches, are present for 2 weeks
Gingivitis	Red, swollen, or bleeding gums	Dental consultation recommended
Hyposalivation	Dry mouth (see **Xerostomia**, below)	• Caused by the use of certain medications, salivary gland dysfunction, or chronic illness (e.g., depression, diabetes, rheumatoid arthritis) • Not a normal part of aging • Increases risk for dental caries, periodontal disease, candidiasis, mucositis
Leukoplakia	• White patches on the gums, inner cheek, or tongue • May be elevated, indurated, or ulcerated	• Precancerous condition • Order biopsy if white patches, or a mix of white and red patches, are present for 2 weeks

TABLE 6-1. (continued)
Signs and Symptoms of Oral Conditions

Oral Condition	Signs or Symptoms	Comments
Lingual varicosities	Swelling of veins under the tongue	• Common in older adults • Nonpathologic condition, does not require treatment
Oral cancer	• Red, white, or mixed red and white patches on the gums, inner cheek, or tongue • May be indurated or ulcerated • Proliferating patches with distinct margins • Swollen lymph nodes in the neck	• Dental consultation recommended • Biopsy required to confirm diagnosis
Oral candidiasis	• Whitish patches on the soft tissues • Redness and pinpoint bleeding when whitish patches are scraped away	Dental consultation recommended
Oral lichen planus	• White, lacy patches; red, swollen tissues, or open sores inside cheeks or on gums, tongue, inner lip, or throat • Burning sensation or pain, • Metallic taste or blunted taste sensation • Dry mouth • Bleeding or irritation during tooth brushing	• In absence of pain or other symptoms, no treatment may be required • Symptoms may be controlled with meticulous oral hygiene, smoking cessation, topical steroids, and mouth rinses containing immunosuppressant agents
Periodontal disease	• Red, swollen, or bleeding gums • Pain	Often a silent disease that can progress to tooth loss without warning signs or pain
Xerostomia	Dry mouth	• Associated with more than 500 medications (see Table 9-1, *Examples of Medications Causing Xerostomia)* • Incidence increases with the number of medications taken • Drinking water regularly during the day helps to alleviate symptoms • Avoid alcohol-based mouthwashes, which exacerbate symptoms

Edentulism and Partial Edentulism

Edentulism is the absence of all of one's natural teeth (Figure 6-1). **Partial edentulism** is the absence of some of one's natural teeth (Figure 6-2). The loss of teeth is considered the end stage or final poor outcome of caries and periodontal disease. Loss of all teeth early in life is associated with poor outcomes later in life, such as dementia, cardiovascular disease, and even mortality.[1-3] The U.S. Surgeon General's report *Oral Health in America* estimated that in 2000, about 30% of adults aged over 65 were edentulous, compared with about 46% in 1980.[4] Thanks to preventive measures such as water fluoridation, daily toothbrushing with fluoride toothpaste, and advances in dental treatment, more older Americans than ever before are retaining at least some of their natural teeth. The American Dental Association estimates that 75% of people aged over 65 have retained some or all of their teeth.[5]

FIGURE 6-1. Edentulism

A.

Edentulous maxilla (upper jaw)

B.

Moderately resorbed mandible

C.

Edentulous maxilla and mandible (upper and lower jaws)

Photos courtesy of Michael L. Gurney, DDS, Boise Prosthodontics

FIGURE 6-2. Partial Edentulism

Partially edentulous maxilla and mandible (upper and lower jaws)

Photo courtesy of Michael L. Gurney, DDS

Edentulism and partial edentulism are generally treated by the use of a customized removable prosthesis (complete or partial dentures [Figures 6-3, 6-4]). Individuals who wear dentures are generally more satisfied with their upper (maxillary) denture than their lower (mandibular) denture. Dissatisfaction with lower dentures is primarily caused by the small size of the retentive surface for this prosthesis and by the tendency for the denture to be dislodged by the tongue. The expected lifespan of a denture is about 10 years. Problems that can occur with dentures (e.g., cracking, breaking, and deterioration as a result of poor oral care) are shown in Figure 6-5.

FIGURE 6-3. Complete Dentures

A.

Upper (maxillary) denture. An upper denture usually has better retention (fit) because of the larger surface area it covers.

B.

Well-worn lower (mandibular) denture. A lower denture can be challenging to wear because of limited surface area (small amount of supporting bone) and tongue movements.

Photos courtesy of Janet Yellowitz, DMD, MPH

FIGURE 6-4. Partial Dentures

A.

Maxillary (upper) partial dentures. Photo courtesy of Janet Yellowitz, DMD, MPH

B.

Lower partial denture (the seven bright, white teeth with a pink base) supported by natural teeth on the right and left. You can see the metal clasps on the back teeth that help stabilize the partial denture. Photo courtesy of Michael L. Gurney, DDS

FIGURE 6-5. Problems with Dentures

A.

Dentures (left, lower; right, upper) that appear to have not been cleaned for a long time and are heavily coated with food debris, plaque, and calculus

Photo courtesy of Ruth S. Goldblatt, DMD, University of Connecticut Health Center

FIGURE 6-5. (continued)
Problems with Dentures

B.

Maxillary (upper) partial denture with crack. Photo courtesy of Ruth S. Goldblatt, DMD.

C.

Cracked mandibular denture with an old reline material. Photo courtesy of Ruth S. Goldblatt, DMD.

D.

Severely broken-down teeth with maxillary and mandibular partial dentures. Photo courtesy of Janet Yellowitz, DMD, MPH.

Denture stomatitis is ulceration or inflammation of the oral tissues covered by dentures. It is generally caused by poor oral hygiene, poorly fitting dentures, or by wearing dentures for too long. Allergic reactions and adverse reactions to medications can also cause denture stomatitis.

A **dental implant** is an artificial tooth root that is surgically inserted in the gums or jawbone to hold an artificial tooth that replaces a lost natural tooth. Multiple missing teeth may be replaced by an implant-supported denture (Figure 6-6). When implants are present under a denture, they must be cleaned with a toothbrush when the denture is removed from the mouth, in the same manner as natural teeth would be cleaned.

FIGURE 6-6. Dental Implants

A.

Implant-retained complete lower denture

B.

Two implants in the lower jaw (to support lower denture)

Photos courtesy of Michael L. Gurney, DDS

Hard-Tissue Oral Conditions

Plaque is a soft, thin film of food debris, bacteria, and dead epithelial cells that forms on the teeth, providing a medium for bacterial growth (Figure 6-7). Older adults form plaque more quickly than do their younger counterparts when oral care is not routinely performed; possible reasons for this include gum recession and reduced salivary flow.[6]

FIGURE 6-7. Dental Plaque and Calculus

A.

Photo courtesy of Ruth S. Goldblatt, DMD

B.

Photo courtesy of Frank C. Nichols, DDS, PhD, University of Connecticut School of Dentistry

Dental Caries

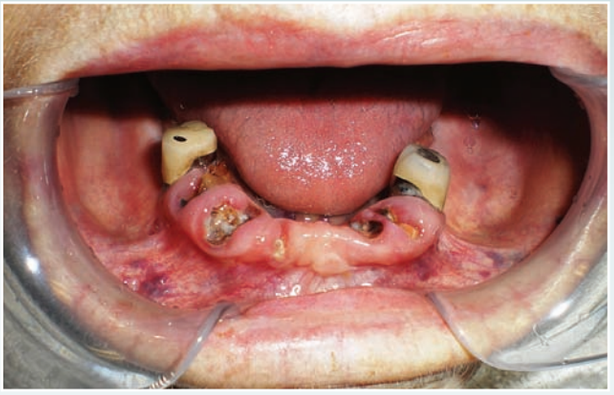
Dental caries is tooth decay or the formation of cavities in the teeth by the action of the bacteria in dental plaque (Figure 6-8). Tooth decay occurs when food interacts with bacteria residing in the mouth, producing acids that demineralize the tooth surface. **Primary** caries refers to decay on an intact tooth surface with no existing restorations (fillings). **Secondary** or **recurrent** caries refers to decay in a tooth with existing fillings. Extensive untreated tooth decay can result in broken teeth that appear as tooth fragments (Figure 6-9). Regular daily oral care can reduce risk for dental caries.

Caries can occur on both the crown and root surfaces of a tooth (see Figure 6-8). Although the process is the same, rates of decay are often divided by where the cavity is located on the tooth (crown or root). Caries on root surfaces typically progress more quickly than those on the crown surface of a tooth. Adults aged younger than 65 have

FIGURE 6-8. Severe Dental Caries

Photo courtesy of Janet Yellowitz, DMD, MPH

FIGURE 6-9. Tooth Fragments



Severely broken-down teeth, with crowns on posterior teeth, both sides

Photo courtesy of Ruth S. Goldblatt, DMD

an average of 19 decayed or filled crown surfaces; this figure rises to 30 for people aged over 65.[7] Whereas the root surface is typically submerged in bone and surrounded by the gingiva (gums), in older adults it often becomes exposed as a result of gum loss. Although only approximately 17% of older adults are diagnosed with moderate to severe periodontal disease at a given time,[7] the results of past periodontal infections leaves bone loss and exposed roots that can make it harder to keep the remaining teeth clean, which in turn allows for greater build-up of harmful bacteria.

Older adults may develop dental caries, which because of changes in tooth anatomy over time do not always cause pain, discomfort, or other symptoms. Extensive caries can affect the **pulp** (nerve and blood vessels) of the tooth, resulting in the need for root canal therapy or tooth extraction. Caries may progress extensively before the patient experiences any pain.

Individuals at high risk for dental caries generally display many restorations (fillings) and may also have newly decayed tooth surfaces. Those at low risk for caries may have few, if any, fillings and little or no newly decayed tooth surfaces. Patients in long term care (LTC) facilities are generally at high risk for caries for reasons that may include inability to brush their own teeth, frequent sugar intake, and the presence of hyposalivation or xerostomia (the subjective sensation of a dry mouth). Saliva acts as a protective agent for teeth by naturally cleansing the mouth and removing food debris from the teeth. Xerostomia in older adults is primarily an adverse effect of medication use. (See Chapter 9, **Medications and Oral Health**.)

The optimal treatment for caries is generally determined by the extent of the disease. Treatments may be simple, extensive, or palliative, ranging from small fillings (restorations) to large restorations to complete prosthetic coverage of the tooth (crown or cap). In some cases, carious teeth are nonrestorable and must be extracted.

Toothbrushing twice a day with fluoride toothpaste is essential to prevent dental caries in those with some or all of their own teeth. In addition to using toothpaste with fluoride, the use of an American Dental Association–approved mouth rinse may provide extra protection against tooth decay.

Torus

A torus is a bony growth that may occur on the upper jaw (maxilla), lower jaw (mandible), or hard palate. It is slow growing and nonmalignant, although it may interfere with chewing and with the placement of dentures. In some cases, a torus may be surgically removed to facilitate the fabrication and wearing of complete dentures.

Soft-Tissue Oral Conditions

When dental plaque is not removed from the teeth by regular brushing, it may form **calculus**, also known as **tartar**, a hardened residue (Figure 6-10) that precipitates inflammation and leads to gingivitis and periodontal disease.

FIGURE 6-10. Dental Calculus

Heavy calculus on lingual (inside or tongue side) surface of mandibular (lower jaw) teeth

Photo courtesy of Ruth S. Goldblatt, DMD

Gingivitis

Gingivitis is inflammation of the **gingiva** (gums) that support the teeth. It results from the presence of plaque over a period of time and can lead to **gingival recession** (receding gums) (Figure 6-11). Gingivitis may present across a spectrum from mild swelling to large, tender, erythematous tissues adjacent to the teeth that bleed when touched. It can be prevented by twice-daily toothbrushing and daily flossing to remove plaque from between the teeth.

Periodontal Disease

Both dental caries and periodontal disease are infectious diseases of the oral cavity and the primary reasons for tooth loss. These diseases share many risk factors with other systemic diseases, such as poor diet, poor self-care, smoking, and a genetic predisposition. Primarily, though, both dental caries and periodontal disease are caused by the accumulation of unhealthy bacteria in the oral cavity, at times leading to life-threatening infections.

In **periodontal disease** or **periodontitis,** the bacteria of dental plaque break down the supporting tissues (gingiva, ligaments, and bone) of the teeth, leading to a chronic inflammatory condition. The inflammation may be localized to one area of the mouth or generalized throughout the mouth. The initial inflammation is followed by loss of gingival tissue and underlying bone. Loss of bone that supports the teeth can lead to loose teeth, tooth loss, poorly fitting dentures, and fewer supportive structures to use for eating and chewing. The progression of periodontal disease is illustrated in Figure 6-12.

FIGURE 6-11. Gingivitis

A.

A mild case of acute necrotizing ulcerative gingivitis at the typical site on the gums of the lower front teeth. Image from Wikipedia article *Acute necrotizing ulcerative gingivitis* (http://en.wikipedia.org/wiki/Gingivitis,_necrotizing_ulcerative); image placed in public domain by copyright holder.

B.

A severe case of gingivitis. Image from Wikipedia (http://commons.wikimedia.org/wiki/File:Gingivitis_before_and_after.jpg); image placed in public domain by copyright holder.

Periodontal disease is a silent disease that may progress to tooth loss with no warning symptom of pain. Although presentations of periodontal disease vary widely in older adults, the most easily recognized symptom is redness and swelling along the gum line.

The primary risk factor for periodontal disease is poor daily oral hygiene. Additional risk factors include diabetes, smoking, and medications such as anti-seizure agents, calcium channel blockers, chemotherapy agents, and steroids.

Treatment of periodontal disease usually consists of tooth scaling and root planing by a dental professional. Options for more extensive treatment include oral medications and periodontal surgery.

Preventive strategies for periodontal disease are similar to those for preventing dental caries. Meticulous oral hygiene is of primary importance in reducing the incidence of periodontal disease. Additionally, regular dental visits can help to identify the early stages of disease, when treatment options are simpler and less expensive.

FIGURE 6-12. Progression of Peridontal Disease

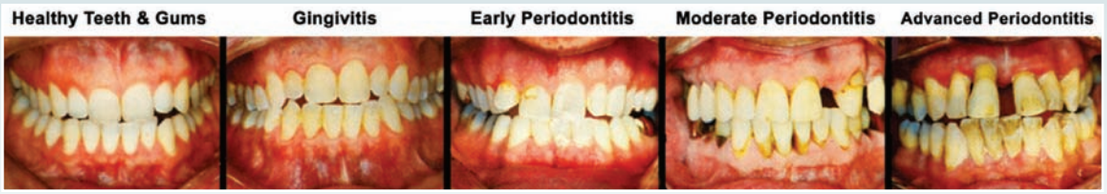


Photo courtesy of OraMedia Dental Self Sufficiency (http://mizar5.com/index.html)

Dental Abscess

A **dental abscess** is a collection of pus on the gum, usually near the root of a tooth, resulting from infection, trauma, or extensive tooth decay (Figure 6-13). Symptoms of a dental abscess include pus oozing from the abscess, a toothache, a bitter taste in the mouth, pain when chewing, fever, and swelling of the gum in the area of the infected tooth.

FIGURE 6-13. Dental Abscess

Photo courtesy of Janet Yellowitz, DMD, MPH

An untreated dental abscess may lead to life-threatening complications. The infection may be treated with antibiotics and root canal therapy or extraction of the infected tooth. Over-the-counter analgesics may relieve pain and fever. Rinsing the mouth with warm salt water may also relieve discomfort.

Oral Candidiasis

Oral candidiasis (also known as thrush) is an infection of the oral mucous membranes caused by the fungus *Candida albicans* (Figure 6-14). This fungus normally lives on the skin and mucous membranes without causing infection; overgrowth of the organism, however, can cause infection to develop. Advanced age, diabetes, poor systemic health, a compromised immune system, and xerostomia all increase risk for developing oral candidiasis. The condition presents as whitish plaques on the soft tissues of the mouth; if these plaques are scraped away, they leave a reddish base and pinpoint bleeding.

FIGURE 6-14. Oral Candidiasis

Oral candidiasis on tongue

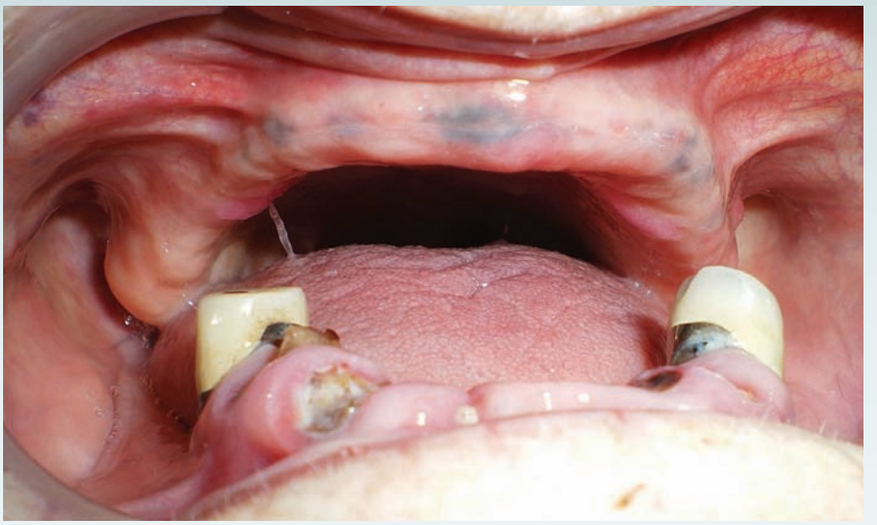
Photo courtesy of Janet Yellowitz, DMD, MPH

Use of a soft toothbrush and a diluted hydrogen peroxide mouth rinse several times daily may clear mild cases of oral candidiasis. In patients with diabetes, maintaining good control of blood glucose levels may help to clear an oral candidiasis infection. Treatment options for more severe infections and for patients with compromised immune systems include the use of an antifungal mouthwash or lozenges for 5 to 10 days and the use of antibiotics (e.g., fluconazole, itraconazole).

Benign Soft-Tissue Conditions

An **amalgam tattoo** is a discoloration (usually gray or bluish black) of the gum or cheek caused by the accidental implantation of silver amalgam into the tissue during tooth restoration or extraction (Figure 6-15). It causes no symptoms and does not require treatment.

FIGURE 6-15. Amalgam Tattoo



Nonpathological blue/black markings on gingival tissue of edentulous maxilla. Mandible has severely broken down teeth and crown. Amalgam tattoo can appear on any soft tissue in mouth

Photo courtesy of Ruth S. Goldblatt, DMD

Angular cheilitis (also known as **perlèche** or **angular stomatitis**) is an infection that presents as irritation, cracking, or crusting at the edges of the lips (Figure 6-16). It may be caused by nutritional deficiencies, fungal infection, or (less commonly) bacterial infection. Although its appearance may resemble a cold sore or fever blister, angular cheilitis is not contagious. It is most common in elderly people, who frequently have weakened immune systems or excessive saliva that causes drooling while sleeping. Angular cheilitis is typically treated with the application of an antifungal or antibiotic cream.

FIGURE 6-16. Angular Chellitis

Photo courtesy of Ruth S. Goldblatt, DMD.

Aphthous stomatitis (also known as a **canker sore**) is a painful ulcer of unknown cause that most commonly occurs in the lining of the cheeks, tongue, lips, or roof of the mouth (Figure 6-17). It often resolves in 1 to 2 weeks without treatment. Treatment options for persistent or especially painful aphthous ulcers include oral pain-relieving rinses or gels and oral antibiotic rinses. Severe aphthous ulcers may be treated with a liquid corticosteroid oral rinse.

Lingual varicosities are varicose swellings of veins under the tongue (Figure 6-18). They are common in older adults and do not require treatment.

Oral lichen planus is an inflammation of the mucous membranes in the oral cavity (Figure 6-19). It may present as white, lacy patches; red, swollen tissues, or open sores inside the cheeks or on the gums, tongue, inner lip, or throat. Other symptoms may include a burning sensation or pain, a metallic taste or blunted taste sensation, dry mouth, and bleeding or irritation during tooth brushing.

The cause of oral lichen planus is not known and the condition is not contagious. If it is causing no pain or other symptoms, no treatment may be required. Oral lichen planus is a chronic condition. Symptoms may be controlled with meticulous oral hygiene, smoking cessation, topical steroids, and mouth rinses containing immunosuppressant agents.

FIGURE 6-17. Aphthous Ulcer (Canker Sore)

Source: http://en.wikipedia.org/wiki/File:Aphtha2.jpg

FIGURE 6-18. Lingual Varicosities

Nonpathological varicose (swollen) veins under the tongue

Photo courtesy of Dr. Ronald L. Rubin, DMD, Boca Raton, FL

FIGURE 6-19. Oral Lichen Planus

Photo courtesy of George T. Gallagher, DMD, Department of Oral & Maxillofacial Pathology, Henry M. Goldman School of Dental Medicine, Boston University

Hyposalivation and Xerostomia

See Chapter 9, **Medications and Oral Health**.

Precancerous Oral Conditions

Leukoplakia and **erythroplakia** are precancerous oral conditions that may develop into oral cancer. Leukoplakia (Figure 6-20) presents as white spots or patches on the gums, tongue, or inner cheek; erythroplakia as red spots or patches on these surfaces. The lesions may be elevated, indurated, or ulcerated. If leukoplakia or erythroplakia, or a mix of white and red lesions (Figure 6-21), is present for 2 weeks, a biopsy should be ordered. Regular documentation of soft-tissue conditions is important to enable appropriate treatment of precancerous oral conditions.

FIGURE 6-20. Leukoplakia

Leukoplakia, shown on biopsy to be severe epithelial dysplasia, a potentially malignant condition

Source: National Institute of Dental and Craniofacial Research

FIGURE 6-21. Erythroleukoplakia

Erythroleukoplakia (mix of white and red lesions)

Source: National Institute of Dental and Craniofacial Research

Oral Cancer

Oral cancer is a malignant growth of the mouth, lip, or oropharynx (the part of the pharynx between the soft palate and the epiglottis). It is primarily a disease of older adults; the median age at diagnosis is 63. Oral cancer is diagnosed about twice as often in men as in women. Because its presentation resembles other soft-tissue conditions (e.g., infection, inflammation, trauma), oral cancer is often referred to as "the great mimicker."

Although numerous factors increase risk for oral cancer (Table 6-2), 25% of newly diagnosed patients present with no risk factors. As with all cancers, the stage at which oral cancer is diagnosed is critical to the prognosis and disease course. The likelihood of survival is much improved when the disease is diagnosed at an early stage.

A regular (at least annual) comprehensive (visual and tactile) oral examination by a well-trained health care professional (a dentist or dental hygienist is recommended) is essential to detect cancerous and precancerous oral conditions. The detection of oral cancer is challenging because of the variability of its presentation (Table 6-3; Figure 6-22). Because of the difficulty of determining whether a lesion is benign or malignant, a biopsy by a skilled clinician is recommended.

FIGURE 6-22. Lesions Suspicious for Oral Cancer

A.

Buccal mucosal lesion revealed by biopsy to be a squamous cell carcinoma. Source: National Institute of Dental and Craniofacial Research

B.

Leukoplakia (white plaque-like lesion[s] on most of lateral border of tongue, extending onto the superior surface [dorsum]). Printed with permission of the Forum Dental Group

C.

Erythroplakia (elevated red patch on lateral border of tongue). Printed with permission of Ed DeAndrade DDS

The National Institute for Dental and Craniofacial Research, part of the National Institutes of Health, has developed a comprehensive guide to detecting oral cancer for health care professionals, available at http://www.nidcr.nih.gov/OralHealth/Topics/OralCancer/DetectingOralCancer.htm [accessed 5/29/13].

In the LTC setting the benefits of an evaluation for oral cancer must always be balanced against the burden for the patient. Evaluation may not be indicated if the patient has a terminal or end-stage condition, if the results would not change the patient's management course, or if the patient or his or her legally authorized representative would refuse treatment. It is most important to carefully document in the patient's medical record the reasons for all decisions ***not*** to treat or evaluate or to choose one treatment approach over another.

TABLE 6-2. Risk Factors for Oral Cancer

- Age over 40 years
- Alcohol consumption (for males, an average of more than two drinks daily; for women, an average of one drink daily)
- Chronic irritation (e.g., from dentures, fillings, or rough teeth)
- History of heavy sun exposure (for lip cancer)
- History of cancer of the upper aerodigestive tract
- Human papillomavirus infection (for base-of-tongue and tonsil cancer)
- Poor oral hygiene
- Tobacco use
- Use of immunosuppressant medications

TABLE 6-3. Symptoms That May Indicate Oral Cancer

- Sore, lump, or ulcer in the mouth
  - Usually pale in color; in some cases may be dark or discolored
  - May be painless at first; pain or a burning sensation may occur as the tumor advances
- Difficulty or pain with chewing
- Difficulty with speech or swallowing
- Ear pain
- Hoarseness
- Pain or numbness in the tongue
- Swelling of the jaw that causes a change in the fit of dentures
- Swollen lymph nodes in the neck
- Weight loss

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7. Systemic Complications of Oral Health Conditions

A growing body of evidence now links poor oral health with several systemic medical conditions.[1] As potential sources of both infection and inflammation, diseases of the oral cavity contribute to the total disease burden and illness of patients in the long term care (LTC) setting.[2] Although high-level evidence for these associations in the form of randomized controlled trials is scarce, the bulk of the present evidence supports a role for oral care in improving health outcomes and quality of life among LTC residents.[3-5]

Oral and systemic health interact bidirectionally—that is, numerous systemic conditions (e.g., diabetes, joint diseases, osteoporosis) have oral manifestations and oral diseases can also exacerbate certain systemic conditions (e.g., diabetes, respiratory disease, vascular disease).[6,7] Many health professionals, however, are unaware of the links between oral and systemic health and continue to view oral care as a comfort measure rather than as a measure that promotes both oral and systemic health. The purpose of this chapter is to increase awareness among medical directors, attending physicians, and other practitioners working in LTC settings of the relationships between oral diseases and systemic health and the role of oral health maintenance programs in promoting systemic health.

Systemic conditions that have been reported to be associated with poor oral health are listed in Table 7-1. Specific conditions for which evidence suggests that better oral health may improve systemic health or that better systemic health may improve oral health are discussed below.

TABLE 7-1. Systemic Conditions Reported to be Associated* with Poor Oral Health[1]

- Coronary artery disease
- Hyperglycemia control in diabetics
- Hyperlipidemia
- Left ventricular hypertrophy
- Malignancy†
- Obesity
- Physical fitness
- Pulmonary infection
- Rheumatoid arthritis
- Stroke

Adapted from Seymour, 2009[1].

* An association (not necessarily causal) has been reported in the literature.
† Periodontitis is associated with oral and oropharyngeal cancers. Observational studies have shown associations between poor oral health and pancreatic cancer, breast cancer, and overall cancer mortality;[8,9] however, most experts do not consider these associations to be causal.

Diabetes

Diabetes is bidirectionally related to oral health: not only does diabetes increase risk for periodontal disease, but the presence of gingivitis or periodontitis may contribute to poorer glycemic control, increasing risk for both the development of diabetes and diabetic complications. To promote good health in older adults with diabetes, it is important to understand the role that oral health may play in diabetes management.

Periodontal disease, a chronic inflammatory condition caused by bacteria in dental plaque, causes the progressive destruction of the tissues that support the teeth, namely the gingiva, periodontal ligaments, and underlying bone. Numerous studies indicate that patients with diabetes have an increased prevalence of periodontitis and that the extent, severity, and progression of periodontal diseases are worse in people with diabetes.[10,11]

The release of cytokines resulting from periodontal inflammation has an adverse effect on glycemic control. The cytokines TNF-alpha, IL-6, and IL-1-beta, which are released during periodontal inflammation, are involved in insulin action and have also been shown to have important metabolic effects on glucose and lipids. In addition, chronic low-grade inflammation involving these cytokines has been associated with the development of insulin resistance, diabetes, and diabetic complications.[12]

Evidence is emerging of a relationship between periodontal health and cardiovascular complications in individuals with diabetes. In a study that followed 628 people with type 2 diabetes for 11 years, those with the most severe periodontal disease had a 3.2-fold increased risk for cardiovascular-related mortality compared with people who had moderate or lower levels of periodontal disease. This elevated risk persisted even after the study authors controlled for other factors related to cardio-renal mortality (e.g., age, sex, duration of diabetes, body mass index, blood glucose levels, glycosylated hemoglobin A1c [HbA1c] levels, cholesterol levels, hypertension, electrocardiographic abnormalities, smoking).[13]

Interventional studies have shown that conservative periodontal therapy (i.e., nonsurgical periodontal debridement and scaling combined with antimicrobial mouthwashes) can achieve improvements in glycemic control in patients with diabetes; a meta-analysis suggests that such therapy can reduce HbA1c levels by as much as 0.7%.[11,14] Better glycemic control can, in turn, reduce the risk for microvascular and neuropathic complications faced by people with diabetes. Thus, maintenance of good oral hygiene is integral to successful diabetes management, as well as being an important preventive health measure for people at risk for diabetes.

Cardiovascular Disease and Stroke

Evidence suggesting that periodontal disease is associated with increased risk for atherosclerosis, myocardial infarction, and stroke has existed since the 1980s.[10,15] This increased risk persists even after the study authors controlled for many of the traditional risk factors for these conditions.[1,11,16] Periodontal disease is a risk factor or marker for cardiovascular disease independent of traditional risk factors such as socioeconomic status. Various measures of periodontal disease confer approximately 24% to 35% of the risk for cardiovascular disease.[17] Possible mechanisms by which periodontitis alters cardiovascular risk include[1,10]

- Host inflammatory response to local oral infection,
- Transient bacteremia and endotoxemia that may elicit host inflammatory responses,
- Induction of platelet activation by periodontal pathogens,
- Autoimmune responses and molecular mimicry, and
- Direct infection of blood-vessel walls by periodontal organisms.

Poor oral health may be a risk factor for coronary heart disease (CHD) and stroke. Some researchers have suggested that oral infections may produce inflammatory markers that may contribute to the pathology of CHD. Studies indicate that levels of serum inflammatory markers such as C-reactive protein and fibrinogen, a protein in blood plasma that promotes blood clotting, are significantly increased in patients with CHD. Tooth loss and prevalence of gingivitis and diseased tooth-supporting tissue have been shown to be greater in patients with CHD than in patients without CHD.[18]

The impact of periodontal disease on cardiovascular risk may be only slight, however, and current evidence does not support a causal link between periodontal infection and cardiovascular outcomes; smoking remains an important and profound confounder of risk.[19] Despite these uncertainties, consensus recommendations have been developed that call on practitioners to optimize periodontal care in those at risk for cardiovascular events.[15]

Diseases of the Respiratory Tract

A correlation is emerging between oral health and respiratory infections (e.g., community-acquired pneumonia, hospital-acquired pneumonia, ventilator-associated pneumonia, nursing home–acquired pneumonia, and chronic bronchitis, each of which is associated with periodontitis). Oral health may be linked to pneumonia in several ways; for example, the oral cavity can serve as a reservoir for bacteria. Dental plaque, which is involved in the development of periodontal disease, harbors many of the same bacteria that cause pneumonia. Bacteria can be easily released from dental plaque into oral secretions and thus aspirated into the lungs. Those at the highest risk for this chain of events include patients who have lost the ability to swallow and those with limited salivary flow or a decreased cough reflex.[20] Good evidence exists that improved oral hygiene and frequent professional oral health care reduce the occurrence or progression of respiratory diseases in high-risk elderly adults.

Pneumonia acquired in the LTC facility is one of the leading causes of death for patients in this setting. Aspiration pneumonia is the most common infectious sequelae of poor oral health in older adults. Suboptimal oral hygiene is among the most common risk factors for aspiration pneumonia;[21] one study estimated that adequate oral care could have prevented 21% of pneumonia cases in a cohort of 613 elderly LTC patients.[22]

The oral cavity has long been a suspected source of the organisms responsible for aspiration pneumonia. Several studies support this view, demonstrating that poor oral hygiene and inadequate oral care are associated with an increased risk of pneumonia.[23,24] Plausible risk factors for aspiration pneumonia include

- Presence and severity of dental caries,
- Presence of *Streptococcus sobrinas* or *Staphylococcus aureas* in saliva, and
- Presence of *Porphyromonas gingivalis* in dental plaque.

Ventilator-associated pneumonia (VAP) is the second most common nosocomial infection in the United States and the leading cause of death from nosocomial infection. Mechanically ventilated patients have a six- to 21-fold increased risk of developing pneumonia compared with patients who are not mechanically ventilated. Bacteria colonize the surface of the endotracheal tube, which facilitates transit to the lung. Poor oral hygiene may predispose high-risk patients to oral colonization by respiratory pathogens; subsequent aspiration may deposit these bacteria into the lower airway, increasing the risk of infection. Additionally, inflammatory products from the gingival tissues and pathogenic bacteria shed from dental plaque can be aspirated into the lower airway, promoting lung infection. Studies show that, compared with community-dwelling patients, institutionalized patients are at greater risk for developing dental-plaque colonization by respiratory pathogens.[25]

The results of intervention studies to improve oral health and reduce the oral microbial burden support the use of oral hygiene treatments to reduce pneumonia risk.[5,11,19] Studies conducted in LTC settings suggest that oral-care interventions may reduce the incidence of pneumonia by as much as 40% over a 2-year period, with reductions in death from pneumonia and fewer febrile days.[26] Given the many irremediable risks for aspiration pneumonia, improvements in oral hygiene can be implemented in LTC settings as a measure to reduce the prevalence of this condition.[27]

It is recommended that nonfoaming toothpastes and other nonfoaming oral cleansing products (e.g., chlorhexidine gluconate gel) be used in oral hygiene care for patients at risk for aspiration. Most toothpastes contain foaming agents, which may be problematic for these patients, who may have difficulty rinsing the mouth or swallowing.[28]

Osteoporosis and Rheumatoid Arthritis

Some studies suggest that osteoporosis may be a risk factor for periodontal disease.[6] Bone loss is a feature shared by both periodontitis and osteoporosis. Given the important role of lost alveolar bone support in periodontitis, it is conceivable that osteoporosis could affect periodontal health.[11] Although osteoporosis does not initiate periodontal disease, it may affect the disease course by reducing the mass of alveolar trabecular bone and alveolar bone-mineral density.[4] A bidirectional relationship between periodontitis and osteoporosis, in which periodontal inflammation may accelerate osteoclastic bone resorption, is biologically plausible.[29]

Osteonecrosis of the jaw is a potential complication of long term therapy with bisphosphonates, medications that are widely prescribed to treat or prevent osteoporosis. Suppression of bone remodeling secondary to bisphosphonate use is the likely mechanism involved. In a review of 368 reported cases of osteonecrosis of the jaw linked to bisphosphonate use, 94% occurred following the use of intravenous bisphosphonates; 60% of cases occurred after tooth extraction and the remaining cases often involved a source of local trauma (e.g., wearing dentures). The American Dental Association recommends a dental evaluation for all patients starting intravenous bisphosphonate therapy and all those taking oral bisphosphonates for more than 3 months.[30]

Some evidence suggests a possible relationship between rheumatoid arthritis and periodontitis. People with rheumatoid arthritis are more likely to experience periodontal disease than those who do not have rheumatoid arthritis. Although no evidence

currently suggests that this relationship is causal, it is possible that dysregulation of the host immune response may underlie both conditions.[19]

Dental Infection and Fever

Apical dental abscesses and periodontal infections are now well-recognized potential causes of persistent fever.[31] Temperature elevation is a natural reaction to acute odontogenic infection and periodontal disease can sometimes cause a prolonged slight fever.[32] These oral conditions usually present with acute pain and localizing symptoms; however, in situations where they present with vague or nonlocalizing symptoms, they may be overlooked by health care providers and thus evade early detection.[33]

The assessment of persistent fever should include a careful evaluation of the oral cavity to identify gingival swelling and tenderness and teeth that are mobile or tender.[34] The physical examination should also include a systematic, gentle tapping over the teeth to elicit pain.[35] A dental consultation and routine panoramic radiograph should be considered in patients with persistent fever and a history of poor dental hygiene.[33] Diagnosing a dental source of fever is of value because extraction of affected teeth and drainage of pus routinely results in cure.[36]

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8. Nutrition and Oral Health

Nutrition and oral health are intimately connected because an unhealthy oral cavity can influence nutritional intake and poor nutritional status can affect oral health.[1] Poor oral health can contribute to compromised nutritional well-being by altering chewing and eating abilities.[2,3] Similarly, systemic diseases and medication side effects can result in a higher risk for oral disease and sequelae such as dry mouth and an altered sense of taste.[2] (See Chapter 7, **Systemic Complications of Oral Conditions**, and Chapter 9, **Medications and Oral Health**.)

Nutrient deficiencies and protein-calorie malnutrition are common in older adults.[4,5] Estimates of the rate of malnutrition among older patients in long term care (LTC) facilities range from 23% to 85%.[6-8] Oral conditions can contribute to malnutrition and decreased food intake in this population. Loss of teeth; reduced chewing ability; oral conditions such as painful mucosal disorders and xerostomia;[5,9] and the pain and discomfort associated with periodontal disease can lead to poor food selection, decreased meal intake, and an unbalanced diet.[5,9]

Findings from two studies published in 2012 support an association between malnutrition and oral health status in LTC patients. A systematic review found tentative evidence of an independent association between oral health status and malnutrition in an LTC population. A study involving more than 2,000 frail LTC patients found a strong association between malnutrition, poor oral health status, and oral health problems such as chewing and swallowing difficulties, mouth pain, and xerostomia.[10]

In an earlier study, patients with compromised oral function had a significantly lower body mass index and serum albumin concentration than patients whose oral function was not compromised.[5] Researchers who examined information coded in the Minimum Data Set 2.0 reported that among 100 institutionalized elderly patients aged between 65 and 100 years, those with oral health problems lost more weight than those who did not have oral health problems.[11] In the elderly population, unintentional weight loss of 4% to 5% within 30 days or less is associated with increased morbidity and a doubling of mortality within 1 to 3 years.[12,13] Edentulism, dentures, and poor oral health can contribute to decreased intake of calories and macro- and micronutrients and can lead to involuntary weight loss and malnutrition. Poor oral health also limits the patient's ability to make healthy food choices such as fruits and vegetables.

Oral health problems can hinder the ability to be free of pain and discomfort and to maintain a well-balanced and nutritionally adequate diet, and may diminish quality of life (QOL).[14] Research has shown that oral disorders frequently affect older adults' QOL, in particular their ability to eat several common types of foods.[15-18] In one study, people with 25 or more teeth had significantly better oral health–related QOL than people who had fewer than 25 teeth.[18] Other studies[19,20] have shown that the greater the number of teeth retained, the better the chewing ability maintained and the better the subjects' QOL.

Tooth loss has a significant effect on the development of chewing difficulties.[20] Although dental prostheses are not a perfect replacement for natural teeth, the use of prostheses can have a significant effect on overall QOL. In edentulous patients,

satisfaction with oral prostheses can result in improved food selections.[21] Patients who received implanted dental prostheses reported significant improvement in accepting both hard and soft foods; patients who requested and received conventional dentures also reported improvement in their ability to tolerate a variety of food textures.[21]

Specific Nutrient Deficiencies and Oral Health

Deficiencies in several specific nutrients may have oral effects (Table 8-1).

Vitamin C. More than 20% of the elderly population may be vitamin C–deficient; factors contributing to this deficiency include alcohol, drugs (e.g., antibiotics, salicylates, steroids), and tobacco.[22] Studies have shown a relationship between vitamin C deficiency and an increased risk for periodontal disease.[23] Oral health effects of vitamin C deficiency include gingivitis, bleeding gums, and weakened tooth enamel.[22]

A study by German researchers found reduced plasma levels of ascorbic acid in patients with periodontitis, especially smokers. Consumption of two grapefruit per day increased plasma vitamin C levels and improved scores for gingival bleeding.[23] Frequent consumption of grapefruit and other citrus fruits, however, may lead to dental erosion.[24] Practitioners should also be aware of the potential for serious adverse interactions between prescription drugs and grapefruit caused by inhibition of the drug-metabolizing CYP3A4 enzyme.[25] To boost vitamin C levels, practitioners may wish to encourage the consumption of other vitamin C–rich foods such as green vegetables.[24]

Vitamin D. Several studies published within the past decade have shown significant associations between periodontal health and intake of vitamin D and calcium and suggested that supplementation with these nutrients may improve periodontal health.[26] Results of a study that followed patients taking vitamin D and calcium supplements for a year and compared them with a control group not taking supplements suggested that vitamin D supplementation at daily doses of more than 800 to 1000 IU may reduce the severity of periodontal disease.[27] An emerging hypothesis suggests that vitamin D may be beneficial in the treatment of periodontitis because, in addition to its role in bone metabolism, it has anti-inflammatory properties that protect periodontal tissues.[26]

Coenzyme Q10. Coenzyme Q10 (CoQ10) is a naturally occurring coenzyme that is a powerful antioxidant as well as an essential part of the cellular machinery that enables the body to convert food into energy. Levels of CoQ10 decline with age. Deficiencies of CoQ10 have been found in the gingiva of patients with periodontal disease. Case reports, case series, and findings from small open-label clinical trials have suggested that oral or topical administration of CoQ10 to patients with periodontal disease increases CoQ10 concentrations in gingiva and suppresses periodontal inflammation.[28,29] Evidence from larger and more rigorous studies is needed to determine whether CoQ10 supplementation is beneficial for patients with periodontal disease.

Role of the Dietitian in the Long Term Care Setting

Dietitians play an important role in the oral health and overall well-being of elderly patients in the LTC setting[31] because nutritional assessment may point to

possible oral care needs and may improve clinical outcomes. Both professional standards of practice established by the Nutrition Care Process of the Academy of Nutrition and Dietetics (formerly the American Dietetic Association) and regulatory standards set by agencies such as the Centers for Medicare & Medicaid Services require the completion of a nutrition assessment for each patient, including a physical assessment component.

Nutritional assessment involves taking a dietary history (including history of chewing or swallowing problems and mouth pain or other dental problems), assessing food intake and weight, and reviewing laboratory test results. This assessment provides the dietitian with an opportunity to recognize features or risk factors that can contribute to nutrition problems. Timely identification of problems coupled with prompt intervention may prevent deterioration of function, reduce the severity of complications from acute and chronic diseases, help to expedite recovery from disease, and help to control patient-care resource utilization. A comprehensive nutrition assessment will assist caregivers and the interdisciplinary team in formulating an individualized oral health care plan for each patient. The oral health care plan may, in turn, identify the need for a referral for dental care that will help the patient to achieve his or her highest possible oral health status.

TABLE 8-1. Oral Manifestations and Mechanisms of Selected Nutrient Deficiencies

Nutrient Deficiency	Oral Manifestation	Possible Deficiency Mechanism
Riboflavin	Angular cheilitis, sore magenta tongue, shiny red lips	Reduced intake, malabsorption, liver disease, alcoholism
Niacin	Mucositis; aphthous ulcer; sore, denuded, beefy red tongue; angular cheilitis	Malabsorption, alcoholism, drug interactions (e.g. 6-mercaptopurine, azathioprine, chloramphenicol, ethionamide, isoniazid, phenobarbitone, phenytoin)
Folic acid	Mucositis, sore burning mouth, aphthous ulcer, glossitis (manifested as a swollen, bald tongue with redness at tip and borders)	Decreased intake, increased nutritional requirements, alcoholism, malabsorption, cancer, chemotherapy (e.g. 5-fluorouracil, 6-mercaptopurine, azathioprine, cytosine arabinoside, methotrexate), anticonvulsants
Vitamin B6	Glossitis, angular cheilitis, sore burning mouth	Malabsorption; liver disease; alcoholism; drug interactions with meds such as hydralazine, isoniazid, L-dopa, penicillamine
Vitamin B12	Mucositis, aphthous ulcer, sore burning mouth, halitosis, taste changes	Malabsorption (e.g. alcoholism, bacterial overgrowth, celiac sprue, diverticulosis, gastrectomy, scleroderma, tapeworm); decreased intrinsic factor secretion (common in older people); drug interactions of neomycin, colchicines

Adapted from: Rigassio Radler et al, 2005.[30]

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9. Medications and Oral Health

Many medications can affect the health of the oral cavity.[1] The effects of medications on oral health may include dental caries and tooth discoloration, hyposalivation and xerostomia, and dysphagia,[2-4] as well as abnormal hemostasis, altered taste sensation, alveolar bone loss, angioedema, aphthous ulcers and other lesions of the oral mucosa, and gingival enlargement.[5]

Dental Caries and Tooth Discoloration

Dental caries is the most common complication of salivary gland hypofunction.[6] Drugs that may cause xerostomia (Table 9-1) may also cause salivary gland dysfunction and dental caries.

Drugs associated with tooth discoloration include amoxicillin/clavulanic acid,[2] chlorhexidine,[2] ciprofloxacin,[7] oral iron salts in liquid form,[8] and tetracycline.[3]

Hyposalivation and Xerostomia

A decrease in salivary flow (hyposalivation), leading to a subjective sensation of dry mouth (xerostomia) is common in older adults,[9] with a prevalence as high as 60% in patients residing in LTC facilities.[10] Decreased salivary function in older adults is not a result of age per se; healthy, nonmedicated older adults demonstrate no decrement in salivary function compared with younger people.[11] Rather, decreased salivary function in older adults results from medication use, salivary gland dysfunction, and chronic illnesses that reduce salivation.[10,11] Medical conditions known to affect salivary function include depression, diabetes, hypothyroidism, rheumatoid arthritis, scleroderma, and Sjögren's syndrome.[6] Hyposalivation increases risk for dental caries and periodontal disease and for oral candidiasis and mucositis; creates difficulty speaking, chewing, swallowing, and wearing dental prostheses; and alters taste sensation.[5,10]

More than 500 medications are reported to cause xerostomia[3] (see Table 9-1); the incidence of this adverse effect increases with the number of medications taken.[12] Anticholinergic, antidepressant, and antipsychotic agents are common causes of xerostomia in the elderly. Many chemotherapeutic agents are likely to be associated with xerostomia; in addition, salivary tissue is highly vulnerable to radiation damage.[13,14] A radiation dose as low as 20 Gy can cause permanent cessation of salivary flow if given as a single dose. At doses above 52 Gy, salivary dysfunction is severe.

Recognition, Assessment, and Treatment

Early detection of hyposalivation and xerostomia may prevent or reduce the severity of the potentially severe complications of these disorders.[6] Because older adults may have hyposalivation without xerostomia, a comprehensive oral assessment is needed to ensure appropriate care (see Chapter 10, **The Oral Health Assessment**). Regardless of the patient's chief complaint, a series of questions (Table 9-2) has been shown to be helpful in identifying patients who have or are at risk for xerostomia.[6]

TABLE 9-1. Examples of Medications Causing Xerostomia

Medication Class	Agents
Anorexiants	Phendimetrazine Phentermine
Anti-anxiety agents	Diazepam Halazepam Hydroxyzine Lorazepam Oxazepam Prazepam
Anticholinergics/antispasmodics	Carbamazepine Felbamate Lamotrigine
Antidepressants	Amitriptyline Clomipramine Doxepin Fluoxetine
Antidiarrheal agents	Diphenoxylate with atropine Loperamide
Antihistamines	Diphenhydramine Loratadine Terfenadine
Antihypertensive agents	Captopril Prazosin Reserpine
Anti-inflammatory analgesics	Ibuprofen Naproxen Piroxicam
Antinauseants	Diphenhydramine Meclizine
Antiparkinsonian agents	Benztropine mesylate Biperiden Trihexyphenidyl
Antipsychotics	Chlorpromazine Clozapine Haloperidol Lithium
Bronchodilators	Albuterol Ipratropium
Decongestants	Pseudoephedrine
Diuretics	Chlorothiazide Furosemide
Muscle relaxants	Cyclobenzaprine Orphenadrine
Narcotic analgesics	Meperidine Morphine
Sedatives	Flurazepam Temazepam Triazolam

Modified from Registered Nurses' Association of Ontario. 2008. Oral Health: Nursing Assessment and Interventions. Toronto, Ontario.[15]

For patients complaining of a dry mouth, the practitioner should document the onset, frequency, and severity of the condition. Table 9-3 is an example of a visual analog scale for assessing the severity of xerostomia. Table 9-4 lists the elements of a clinical evaluation for xerostomia.

The first step in treating medication-associated hyposalivation or xerostomia is to document all prescription and nonprescription medications the patient is taking, including drug name, dose, indication for use, and frequency and duration of use. Consider substituting medications causing xerostomia with similar agents less likely to have hyposalivating effects. For example, in the treatment of depression, selective serotonin reuptake inhibitors may be less xerostomic than tricyclic antidepressants.[9] Adjusting the dosing schedule or time of administration of a medication may reduce xerostomic effects (e.g., give divided doses instead of a single large dose; give anticholinergic agents in the daytime to minimize nighttime symptoms of oral dryness).[9,10]

Taking frequent sips of water and chewing sugarless candy or gum may provide relief from xerostomia. Sialogogues (e.g., pilocarpine) may be prescribed to increase saliva flow. A multifaceted approach to xerostomia treatment increases the likelihood of success.[10]

TABLE 9-2. Recognizing Xerostomia

A "yes" response to any of the following questions indicates that the patient is at risk for complications of xerostomia:

- Does the amount of saliva in your mouth seem to be too little, too much, or do you not notice it?
- Do you have any difficulties swallowing?
- Does your mouth feel dry when you eat a meal?
- Do you sip liquids to help you swallow dry food?

Adapted from Navazesh, 2003.[6]

TABLE 9-3. Visual Analog Scale for Assessing the Severity of Xerostomia

Please place a mark on this line to rate how dry your mouth feels.

0	50	100
Not dry at all		**Very dry**

Adapted from Navazesh, 2003.[6]

Dysphagia

Dysphagia may be another oral health consequence of medication use[4] (Table 9-5). A range of medications from antihypertensive agents to chemotherapy drugs may cause dysphagia. In addition, medications may cause direct esophageal mucosal injury;[16] reduce lower-esophageal sphincter tone; cause reflux symptoms,[17] ulcerations, and odynophagia; and contribute to xerostomia and poor oral health.

TABLE 9-4. Elements of a Clinical Evaluation for Xerostomia

- Does the patient show signs of
  - Anxiety or depression
  - Malnourishment or obesity
  - Presence of an eating disorder
  - Adverse medication effects
- Document any of the following findings:

Salivary glands
  - Enlarged
  - Tender
  - No saliva on palpation
  - Saliva contaminated with blood or pus

Lips
  - Dry
  - Chapped
  - Fissured
  - Erythematous

Mucosa and tongue
  - Dry
  - Erythematous
  - Lobulated
  - Fissured

Teeth
  - Extensive restoration
  - Treated and untreated caries

Adapted from Navazesh, 2003.[6]

TABLE 9-5. Medications Associated with Drug-Induced Dysphagia

Agents that may cause direct esophageal mucosal injury[4,16]	Alendronate Antibiotics (e.g., clindamycin, doxycycline, tetracycline, trimethoprim-sulfamethoxazole) Ascorbic acid Chemotherapeutic agents Ferrous sulfate NSAIDs Potassium chloride tablets Quinidine gluconate Theophylline Zidovudine
Agents associated with reflux and reduced lower-esophageal sphincter tone[4,17]	Butylscopolamine Calcium antagonists Nitrates Theophylline

NSAIDs: nonsteroidal anti-inflammatory drugs.

Other Oral Effects of Medications[5]

Medications may have a variety of other oral effects (Table 9-6); the mechanisms for many of these effects are unclear.

- Certain medications predispose patients to lesions of the oral mucosa that may present as aphthous ulcers. Onset of these conditions may occur days to weeks after the patient begins taking a medication. The conditions usually resolve when the medication is discontinued. Topical steroids are recommended to treat swelling or ulceration and topical anesthetic ointments can be used to treat pain.
- Altered taste sensation has been associated with some medications; taste changes may range from bitter to metallic.
- Angiotensin-converting enzyme and angiotensin II inhibitors have been associated with angioedema.
- Several medications may cause gingival enlargement. Some studies have suggested that this effect can be minimized if patients are placed on a strict oral hygiene program within 10 days of being started on medications that promote gingival enlargement.
- Abnormal hemostasis may be seen with anticoagulants and antithrombotic agents, nonsteroidal anti-inflammatory drugs, and some herbal products. In these cases, it may be helpful to identify the rationale for anticoagulant therapy and consider the risks and benefits of altering the patient's drug regimen.
- Use of certain medications may result in alveolar bone loss.

TABLE 9-6. Examples of Other Oral Effects of Medications

Type of Oral Effect	Medication Category	Agents
Abnormal hemostasis	Anticoagulants	
	Antithrombotic agents	
	NSAIDs	
Altered taste sensation	Beta blockers	Atenolol Metoprolol
	Carbonic anhydrase inhibitor	Acetazolamide
	Cardiovascular agent	Diltiazem
	Central nervous system stimulant	Dextroamphetamine
	NSAIDs	Phenylbutazone
	Respiratory inhalants	Cromolyn
	Smoking-cessation agents	Nicotine skin patches
Alveolar bone loss	Corticosteroids (long-term use)	Methylprednisolone Prednisone
	Enzyme-inducing anti-epileptic agents	Carbamazepine Phenobarbital Phenytoin Primidone

TABLE 9-6. (continued)
Examples of Other Oral Effects of Medications

Type of Oral Effect	Medication Category	Agents
Angioedema	ACE inhibitors	Benazepril Captopril Enalapril Fosinopril Lisinopril Moexipril Perindopril Quinapril Ramipril Trandolapril
	Angiotensin II inhibitors	Candesartan Eprosartan Irbesartan Losartan Telmisartan Valsartan
Gingival enlargement	Enzyme-inducing anti-epileptic agent	Phenytoin
	Calcium channel blockers	Amlodipine Diltiazem Nifedipine Verapamil
	Immunosuppressant	Cyclosporine
Oral mucosal lesions	ACE inhibitor	Captopril
	Antibiotic	Clindamycin
	Antihypertensive agent	Methyldopa
	Enzyme-inducing anti-epileptic agents	Carbamazepine Phenobarbital Phenytoin Secobarbital
	Loop diuretic	Furosemide
	NSAIDs	Diflunisal Flurbiprofen Ibuprofen Phenylbutazone
	Sulfonylurea	Chlorpropamide

ACE: angiotensin-converting enzyme.

Adapted from Ciancio, 2004.[5]

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10. The Oral Health Assessment

Assessment of oral health is an integral component of the plan of care for the patient in the long term care (LTC) setting. The patient's oral status should be assessed in a routine and methodical manner[1] and at regular intervals—minimally, upon admission, quarterly (for completion of Section L of the Minimum Data Set 3.0), annually, and at any time follow-up of an oral finding is necessary.

In the LTC setting, oral health assessment is typically the responsibility of nursing staff. Although some LTC facilities may contract with oral health professionals to provide oral health assessments, develop oral health care plans, and generally manage patients' oral care, this is the exception rather than the rule.[2] With proper training, nurses and other direct caregivers can competently perform oral health assessments, monitor patients' oral health, evaluate oral hygiene interventions, and initiate referrals to oral health professionals when further evaluation or treatment is needed for an oral health condition.[3,4]

The oral health assessment by a nurse or other direct caregiver should be performed using approved infection control procedures (e.g., gloves, handwashing) and an extraoral light source (e.g., flashlight, penlight). Although specific dental equipment is usually not needed,[4] a disposable tongue depressor can be used to gently move the tongue for better visibility. The oral health assessment should encompass all components of the oral cavity: teeth, gums, cheeks, tongue, lips, and associated prosthetic appliances (e.g., full or partial dentures).

Table 10-1 presents recommended elements of an initial oral assessment of a new patient; Table 10-2 lists components of the routine oral assessment that should be conducted on all patients at regular intervals.

TABLE 10-1. Recommended Elements of the Initial Oral Assessment of a New Patient

Patient history and demographic information

- Patient's age
- Presence of risk factors for oral conditions (e.g., the patient wears partial or complete dentures, hyposalivation, caries)
- Usual daily oral hygiene practices
- Nutritional status
- History of oral problems and conditions
- History of care or treatment by a dentist
- Current and proposed treatment regimens (e.g., medications, recent or imminent medical or surgical procedures)

Initial oral assessment

Teeth or dentures	Clean and free of debris?	Yes ☐	No ☐
Tongue, gingiva, oral tissues	Pink and moist?	Yes ☐	No ☐
Salivation	Adequate?	Yes ☐	No ☐
Lips	Smooth and moist?	Yes ☐	No ☐

Adapted from: Malkin, 2009;[5] Stout et al, 2009.[6]

TABLE 10-2. Components of the Routine Oral Assessment

Extraoral examination

- Inspect the face and neck. Look for symmetry.
- Lips (smooth, pink, moist vs. dry, chapped, red at corners)
- Oral hygiene (per facility policy)

Intraoral examination

- *Lips:* Inspect labial mucosa for consistent pink, smooth surface that is wet with saliva. Feel tissue.
- *Buccal mucosa:*Tissue should be pink and moist with saliva. Feel for abnormal nodules. A white, homogenous line horizontally along the buccal mucosa (linea alba) is normal. White or red patches, bleeding, hardness, or ulcers are not normal.
- *Gums:* Gums should be pink (vs. red, inflamed, bleeding).
- *Floor of mouth:* Bimanual palpation may reveal abnormal nodules. Look for consistent color and salivary wetness from the submandibular salivary ducts (Wharton's ducts).
- *Dentition:* Observe and count decayed or broken teeth. How many teeth are missing? Is the patient edentulous? Look at condition of artificial teeth. If a denture is present, is it full or partial? Are the dentures loose, chipped, or cracked? Are partial dentures and bridges removable? Do the dentures fit properly?
- *Tongue:* Look for normal roughness, pink color, and moisture. Coated, smooth, patchy, and some redness are not normal.
- *Oral cleanliness:* Look for debris, food particles.
- *Oral pain:* Look for mouth or facial pain and any discomfort or difficulty chewing.

Source: Munoz et al, 2009.[7]

Findings from the oral assessment can be used to

- Help to determine what assistance the patient needs with oral hygiene care,
- Evaluate the effectiveness of oral hygiene interventions,
- Assist with prioritizing the patient's oral care needs,
- Monitor oral health conditions and problems, and
- Serve as a trigger for referring the patient to an oral health professional for further evaluation or treatment.

Assessment of "dental condition status (oral health)" is a mandated element of the comprehensive patient assessment that is conducted on admission and periodically as part of the Resident Assessment Instrument (RAI) evaluation. The Center for Medicare & Medicaid Services (CMS) State Operations Manual states that dental condition status "refers to the condition of the teeth, gums, and other structures of the oral cavity that may affect a resident's nutritional status, communication abilities, or quality of life. The assessment should include the need for, and use of, dentures or other dental appliances."[8] The LTC facility is expected to establish an individualized daily oral care plan for each patient that is consistent with the results of the assessment.

With proper training, physicians, nurses, and other members of the healthcare team can screen for oral diseases and make referrals to oral health professionals when treatment is needed.[3] The series of questions asked in Section L of the Minimum Data Set 3.0 (Oral Status) (Table 10-3) is useful in identifying oral health problems.[9] A video resource for performing oral exams, mapped to Section L (Oral/Dental Status) of the MDS 3.0, is available at http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/NursingHomeQualityInits/NHQIMDS30TrainingMaterials.html.

TABLE 10-3. Minimum Data Set 3.0 Section L (Oral Status)

Check all that apply

A. Broken or loosely fitting full or partial denture (chipped, cracked, uncleanable, or loose)
B. No natural teeth or tooth fragment(s) (edentulous)
C. Abnormal mouth tissue (ulcers, masses, oral lesions, including under denture or partial if one is worn)
D. Obvious or likely cavity or broken natural teeth
E. Inflamed or bleeding gums or loose natural teeth
F. Mouth or facial pain, discomfort or difficulty with chewing
G. Unable to examine
Z. None of the above were present

Validated Oral Assessment Tools

The use of a validated oral assessment tool facilitates the performance of the oral assessment in a consistent manner that enables the patient's oral status to be tracked and compared over time.[1] Several validated oral assessment tools are available. Facilities should select the instrument that best meets their needs, taking into account their patient population and staffing mix. The assessment tool selected should have the following characteristics:[1]

- Objective, validated, and reproducible across all clinical situations;
- Inter-rater reliability; and
- Simple to understand, easy to perform, and easily adaptable for use in multiple clinical settings.

In a systematic review of oral health assessment by nurses and others in the care of cognitively impaired institutionalized patients, the Brief Oral Health Status Examination (BOHSE)[10] (Appendix 10-1) was found to be the most comprehensive, validated, and reliable screening tool.[11,12] The BOHSE was designed to be used by nurses evaluating the oral condition of LTC patients with or without cognitive impairment.

Other oral assessment tools that have been validated in LTC settings or elderly hospitalized patients and that are appropriate for use by nurses include

- Oral Health Assessment Tool (OHAT), also known as the Modified Brief Oral Health Status Examination (a modified version of BOHSE)[12,13] (Appendix 10-2), which has been validated in LTC and residential care settings; and
- The Holistic and Reliable Oral Assessment Tool (THROAT)[14] (Appendix 10-3), which was developed and tested for use in elderly hospitalized patients.

These instruments are for screening purposes only and do not replace the need for a periodic examination by an oral health professional.[15]

The Oral Health Assessment in the Patient With Dementia

Oral health assessment generally relies on the patient's ability to self-report oral symptoms and to remain cooperative and communicative during the procedure. Older adults with dementia, however, may be unable to self-report, cooperate, or

communicate.[4] Cognitive impairment and resistive behavior have been cited as major barriers to the delivery of oral hygiene care to patients in the LTC setting.[15] With appropriate training and the use of behavior management strategies (see Table 11-4, *Behavior Management Strategies for Providing Oral Care to Care-Resistant Patients*), nurses and other direct caregivers can successfully perform oral health assessment in patients with dementia.

Oral Assessment Follow-Up

Oral assessment findings should be appropriately documented in the patient's record. Appendix 10-4 is an example of a tool for documenting the findings of a patient's oral health assessment over time. Any findings requiring follow-up should be flagged and a system should be in place to facilitate timely follow-up evaluation or treatment. If referral to an oral health professional is recommended but the patient or family declines the referral, the refusal and the reasons for it should be documented in the patient's record.

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APPENDIX 10-1. Brief Oral Health Status Examination (BOHSE)

The Kayser-Jones Brief Oral Health Status Examination (BOHSE)

Resident's Name _____ Date _____
Examiner's Name _____ Total Score _____

Category	Measurement	0	1	2
Lymph Nodes	Observe and feel nodes	No enlargement	Enlarged, not tender	Enlarged and tender*
Lips	Observe, feel tissue and ask resident, family or staff (e.g. primary caregiver)	Smooth, pink, moist	Dry, chapped, or red at corners*	White or red patch, bleeding or ulcer for 2 weeks*
Tongue	Observe, feel tissue and ask resident, family or staff (e.g. primary caregiver)	Normal roughness, pink and moist	Coated, smooth, patchy, severely fissured or some redness	Red, smooth, white or red patch; ulcer for 2 weeks*
Tissue Inside Cheek, Floor and Roof of Mouth	Observe, feel tissue and ask resident, family or staff (e.g. primary caregiver)	Pink and Moist	Dry, shiny, rough red, or swollen*	White or red patch, bleeding, hardness; ulcer for 2 weeks*
Gums Between Teeth and/or Under Artificial Teeth	Gently press gums with tip of tongue blade	Pink, small indentations, firm, smooth and pink under artificial teeth	Redness at border around 1-6 teeth; one red area or sore spot under artificial teeth*	Swollen or bleeding gums, redness at border around 7 or more teeth, loose teeth; generalized redness or sores under artificial teeth*
Saliva (Effect on Tissue)	Touch tongue blade to center of tongue and floor of mouth	Tissues moist, saliva free flowing and watery	Tissues dry and sticky	Tissues parched and red, no saliva*
Condition of Natural Teeth	Observe and count number of decayed or broken teeth	No decayed or broken teeth/roots	1-3 decayed or broken teeth/roots*	4 or more decayed or broken teeth/ roots; fewer than 4 teeth in either jaw*
Condition of Artificial Teeth	Observe and ask patient, family or staff (e.g. primary caregiver)	Unbroken teeth, worn most of the time	1 broken/missing tooth, or worn for eating or cosmetics only	More than 1 broken or missing tooth, or either denture missing or never worn*
Pairs of Teeth in Chewing Position (Natural or Artificial)	Observe and count pairs of teeth in chewing position	12 or more pairs of teeth in chewing position	8-11 pairs of teeth in chewing position	0-7 pairs of teeth in chewing position*
Oral Cleanliness	Observe appearance of teeth or dentures	Clean, no food particles/tartar in the mouth or on artificial teeth	Food particles/tartar in one or two places in the mouth or on artificial teeth	Food particles, tartar in most places in the mouth or on artificial teeth

Underlined* - refer to dentist immediately

Upper dentures labeled: Yes____ No ____ None ____ Lower dentures labeled: Yes____ No ____ None ____
Is your mouth comfortable: Yes _____ No _____ If no, explain: _____
Additional comments: _____

Source: Kayser-Jones J, Bird WF, Paul SM, et al. An instrument to assess the oral health status of nursing home residents. Gerontologist 1995; 35: 814-824. Reprinted by permission of The Gerontological Society of America.

Oral Health Assessment Tool (OHAT) for Dental Screening

modified from Kayser-Jones et al. (1995) by Chalmers (2004)

Patient: _____ **Completed by:** _____ **Date:** ____/____/____

Scores: The final score is the sum of scores from the eight categories and can range from 0 (very healthy) to 16 (very unhealthy). While the cumulative score is important in assessing oral health, the score of each item should be considered individually. Symptoms that are underlined require immediate attention.

*If any category has a score of 1 or 2, please arrange for the patient to be examined by a dentist.

Category	0 = healthy	1 = changes *	2 = unhealthy *	Category scores
Lips	Smooth, pink, moist	Dry, chapped, or red at corners	Swelling or lump, white/red/ulcerated patch; bleeding/ulcerated at corners	
Tongue	Normal, moist, roughness, pink	Patchy, fissured, red, coated	Patch that is red and/or white, ulcerated, swollen	
Gums and tissues	Pink, moist, smooth, no bleeding	Dry, shiny, rough, red, swollen, one ulcer/sore spot under dentures	Swollen, bleeding gums, ulcers, white/red patches, generalized redness or ulcers under dentures	
Saliva	Moist tissues, watery and free-flowing saliva	Dry, sticky tissues, little saliva present	Tissues parched and red, very little/no saliva present, saliva very thick	
Natural teeth Yes/No	No decayed or broken teeth/roots	1-3 decayed or broken teeth/ roots or teeth very worn down	4 or more decayed or broken teeth/roots, or fewer than 4 teeth, or very worn down teeth	
Dentures Yes/No	No broken areas or teeth, dentures regularly worn	1 broken area/ tooth or dentures only worn for 1-2 hrs daily, or loose dentures	More than 1 broken area/tooth, denture missing or not worn, needs denture adhesive	
Oral cleanliness	Clean, no food particles or tartar in mouth or on dentures	Food particles/ tartar/ plaque in 1-2 areas of the mouth or on small area of dentures or bad breath	Food particles/tartar/plaque in most areas of the mouth or on most of dentures or severe halitosis (bad breath)	
Dental pain	No behavioral, verbal, or physical signs of dental pain	Verbal &/or behavioral signs of pain such as pulling at face, chewing lips, not eating, aggression	Physical signs such as facial swelling, sinus on gum, broken teeth, large ulcers, and verbal and/or behavioral signs such as pulling at face, chewing lips, not eating, aggression	

☐ Arrange for patient to be examined by a dentist.
☐ Patient or family/guardian refuses dental treatment.
☐ Review this patient's oral health again on (date): ___/___/___

TOTAL SCORE: ____ **16**

Originally published in: Chalmers J, Johnson V, Tang JH, Titler MG. Evidence-based protocol: Oral hygiene care for functionally dependent and cognitively impaired older adults. J Gerontol Nurs 2004; 30(11): 5-12. Reprinted with permission of the Iowa Geriatric Education Center, University of Iowa. The Iowa Geriatric Education Center is supported by Grant Number UB4HP19054-03-00 from the U.S. Department of Health & Human Services, Health Resources & Services Administration. The contents are solely the responsibility of the authors and do not necessarily represent the official views of the U.S. Department of Health & Human Services.

APPENDIX 10-3. The Holistic and Reliable Oral Assessment Tool (THROAT)

Patient name:_____ Date:_____Completed by:_____

	Normal-0	Mild-1	Moderate-2	Severe-3	Score	Comments
1) Lips	Smooth/pink/ moist	Dry/no cracks	Dry/cracks	Ulceration/ sores/ bleeding		
2) Teeth	Clean	Film localized plaque over teeth	Film of plaque over teeth in moist areas	Heavy visible deposits of plaque on and between teeth		
• Dentures	Clean	Film localized plaque over teeth	Film of plaque over teeth in moist areas	Heavy visible deposits of plaque on and between teeth		
• Both	Clean	Film localized plaque over teeth	Film of plaque over teeth in moist areas	Heavy visible deposits of plaque on and between teeth		
3) Gums/ Gingiva	Coral pink/ moist	Mild inflammation/ slight redness/ slight edema	Moderate inflammation/ redness/ edema/ glazing	Severe inflammation/ marked redness/edema/ ulceration/ bleeding		
4) Mucous Membrane	Coral pink/ moist	Mild inflammation/ slight redness/ slight edema	Moderate inflammation/ redness/ edema/ glazing	Severe inflammation/ marked redness/edema/ ulceration/ bleeding		
5) Palate	Coral pink/ moist	Mild inflammation/ slight redness/ slight edema	Moderate inflammation/ redness/ edema/ glazing	Severe inflammation/ marked redness/edema/ ulceration/ bleeding/ thick mucous patches		
6) Tongue	Pink/moist/ no coating	Slight coating evident	Coating evident/ cracks/small ulcers	Thick coating/ discoloured/ blistered/ ulcerations/ cracks/bleeding		
7) Floor of Mouth	Pink/moist/no coating	Slight coating evident	Coating evident/ cracks/small ulcers	Thick coating/ discoloured/ blistered/ ulcerations/ cracks/bleeding		
8) Smell	No smell	Slight smell on breath only noticed close up	Noticeable smell on breath	Strong smell on breath		
9) Saliva	Watery consistency	Slight thickening	Thick and ropy	No saliva		

Source: Dickinson H, Watkins C, Leathley M. The development of the THROAT: The holistic and reliable oral assessment tool. Clinical Effectiveness in Nursing 5(3); 104-110: 2001. Reprinted with permission.

APPENDIX 10-4. Sample Tool for Documenting Oral Assessment Findings

Oral cavity assessment tool															
Name: Medical record number:															
Date:															
Time:															
Lips: 1 = Pink, smooth, intact 2 = Dry/cracked 3 = Bleeding 4 = Ulcerated															
Teeth/dentures: 1 = Clean and free from debris 2 = Plaque/localised debris 3 = Generalised plaque/debris 4 = Ill-fitting dentures/caries															
Gingiva: 1 = Pink, moist, firm 2 = Red, oedematous 3 = Tender/spongy 4 = Ulcerated/bleeding															
Tongue: 1 = Pink, moist papillae 2 = Coated 3 = Shiny, red/plaque, white spots 4 = Ulcerated, cracked, dry															
Mucous membranes: 1 = Pink, moist, smooth 2 = Red/coated 3 = White area 4 = Ulcerated/bleeding															
Hard palate: 1 = Pink and moist 2 = Coated with moist secretions 3 = Coated with dry secretions 4 = Coated with crusty layer															
Soft palate: 1 = Pink and moist 2 = Coated with moist secretions 3 = Coated with dry secretions 4 = Coated with crusty layer															
Saliva: 1 = Present/watery 2 = Thick 3 = Insufficient 4 = Absent															
Airway: 1 = Self-ventilating 2 = Humidified oxygen/ nebuliser therapy 3 = Open mouth breathing 4 = Artificial airway/ intubated															

APPENDIX 10-4. (continued)
Sample Tool for Documenting Oral Assessment Findings

Oral cavity assessment tool (continued)															
Name: Medical record number:															
Date:															
Time:															
Nutritional status: 1 = Full diet 2 = Inadequate diet 3 = Fluids only 4 = No oral intake/ swallowing difficulties															
Level of dependence: 1 = Independent 2 = Needs supervision 3 = Needs assistance 4 = Dependent															
Mouth pain: 1 = Pain free 2 = Mild pain 3 = Intermittent pain 4 = Uncontrolled pain															
Specific risk factors: 2 = Antibiotic, steroid, antidepressant and/or antihistamine therapy 2 = Radiotherapy of the head and/or neck 2 = Immunosuppression 2 = Diabetes mellitus 2 = Anaemia															
Total oral cavity score (12-58):															
Nurse's signature:															

Total oral cavity score:	Oral care risk category:	Recommended frequency of oral care:
12	Self-caring	Oral care when necessary
13-25	Mild	3-hourly oral care
26-37	Moderate	2-hourly oral care
38 or more	Severe	1-hourly oral care

(Adapted from Jenkins 1989, Heals 1993, Roberts 2001)

Source: Stout M, Goulding R, Powell A. Developing and implementing an oral care policy and assessment tool. Nurs Stand 2009; 23(49):42-48. Reprinted with permission.

11. The Comprehensive Oral Health Program in the Long Term Care Setting

*NOTE: Throughout this chapter, the term **oral health professional** is used to encompass dentists, dental hygienists, and other individuals with knowledge and training in oral health care.*

Maintaining the oral health of the long term care (LTC) patient is essential to ensure comfort, health, and well-being.[1] An abundance of epidemiological evidence suggests, however, that the oral health status of LTC patients is poor and that the oral care provided in the LTC setting can be greatly improved.[2-6] The 2000 report of the U.S. Surgeon General, *Oral Health in America*, highlighted LTC facilities' limited capacity to deliver needed oral health services to their patients and called for the implementation of preventive oral health programs in these settings.[7]

Although most LTC facilities include oral health in their mission to provide for the overall care of their patients, oral health care is too often inadequately addressed, either because its importance is not recognized or the care team is not able to help patients to achieve and maintain good oral health.[8] Most LTC providers do have programs and policies in place to provide emergency dental services; however, most oral health experts feel that better results can be achieved with a program of periodic oral assessments performed in a routine and systematic fashion.[9] Indeed, LTC facilities are required by federal regulations to conduct "an admission and annual inspection of the oral cavity for signs of disease."[10]

The implementation of holistic, comprehensive approaches to oral health care in LTC facilities presents daunting challenges; such programs can, however, overcome many obstacles to the provision of high-quality oral health programs in these settings.[9] Successful oral health programs in the LTC setting include four central pillars:[5,8]

- Initial and periodic clinical assessments of oral health coordinated by an oral health professional,
- Collaborative participation with oral health professionals to the extent feasible,
- A program of effective daily oral hygiene,
- A well-developed education and training program, and
- Referral (if indicated) to a dentist when the patient is discharged from the LTC facility.

Developing a Comprehensive Oral Health Program

Organizational Commitment

LTC settings noted for their success in maintaining the oral health of their patients have in common administrative and clinical leadership commitment that places an explicit priority on oral health care.[9] High-level commitment to oral health creates an enabling environment for caregiving staff and a genuine commitment to providing daily oral care. By explicitly emphasizing oral care as an integral component of overall patient assessment and care, the leadership is then in a position to create an oral health plan that[5]

- Is clear to all;
- Communicates commitment to oral health;
- Increases staff awareness and understanding of the relationship between oral care, illness risk, and care management;
- Increases staff members' awareness of their individual and shared responsibilities in oral health maintenance; and
- Outlines a simple, clear process for achieving a facility-wide oral health care program.

Participation by Oral Health Professionals

The availability and support of oral health professionals can help LTC providers to develop and implement oral health assessments and oral hygiene, training, and treatment programs.[3] Dentists and dental hygienists are the primary categories of licensed oral health professionals who can help with this endeavor. These professionals can work with LTC facility staff to[9]

- Assist in the planning and development of a comprehensive oral health program;
- Assist in the development and implementation of education and training programs in oral health and hygiene for facility staff;
- Assist LTC practitioners and staff in making care-planning and medication decisions that affect oral health;
- Provide initial and periodic assessments of oral health;
- Develop guidelines for the delivery of dental services within the facility and provide ongoing review to ensure that these guidelines continue to reflect current best practices in dental care;
- Develop and implement treatment programs that facilitate the timely provision of appropriate care;[11] and
- Perform individual emergent, preventive, restorative, and maintenance oral procedures.

(Also see Chapter 13, **Role and Responsibilities of the Oral Health Professional**.)

Education and Training

An education and training program is needed to help ensure that all direct and indirect caregiving staff are current and competent in oral care. Caregiving staff must be empowered with the knowledge, skills, and training they need to assume responsibility for the critical components of oral assessment and daily oral hygiene care, as well as with the necessary time and tools to be effective oral care providers.

All new direct-care employees should receive oral health training; existing staff can benefit from oral health refresher training two to four times per year.[12] The use of video or photography of real-life situations can markedly enhance the effectiveness of training. A focus on *why* quality oral care is important should be thematic, and mastery of approaches to the patient who presents obstacles to oral care should be a primary objective.[13] Effective training programs require hands-on practice and coaching. Learners can practice on each other and role play some of the obstacles encountered during the daily provision of oral care.[11]

Although making the commitment to ongoing comprehensive oral health education presents challenges, the success of an oral health program depends on devoting adequate time to education and training. The participation of an oral health professional (dentist or dental hygienist) in the planning, development, and implementation of the oral health training program can bring additional expertise to the learning activities and may help to integrate them into the facility's oral health team.

Role of the Oral Health Advocate

Many successful comprehensive oral health care programs have found value in the identification of an oral health champion or advocate. Where comprehensive care programs seemed to be operating smoothly and effectively, an oral health advocate was identified early in the program's development.[9] Although the presence of an advocate may be an important factor that contributes to the effectiveness of an oral care program,[9] facilities can still have a successful program without an advocate. Whether the facility has a designated oral health advocate or not, it is the responsibility of the facility administration, medical director, and director of nursing services to help support the comprehensive oral health program, as the importance of oral health maintenance can easily be overlooked in the context of the overwhelming daily demands on LTC care providers.

The advocate may be an outside oral health professional (community dentist or dental hygienist) or a member of the facility staff. The professional background of the advocate does not appear to be particularly important to his or her value. The qualities that appear to be most important are passion for oral health and the ability to infiltrate the institution's culture and lead the LTC care team in implementing and executing a comprehensive oral health program.[5] Training in leadership skills is essential to enable the oral health advocate to engage with top-level facility administrators and directors to foster institutional "buy in" to the importance of developing and maintaining the oral health care program. The advocate's activities may include promoting the value of oral health maintenance, interacting with patients and families, and coordinating collaboration with oral health professionals.

Steps in Developing a Comprehensive Oral Health Program[11]

The success of an oral health program depends on institutional commitment (including commitment by the facility administration) to oral care, on implementing policies that create a shared vision of the importance of oral health, and on obtaining professional oral care coverage. The effectiveness of an oral health care program in the LTC setting is also influenced by the organizational structure. An oral health program can be organized in many ways; the following steps offer a possible framework on which to customize a program to meet the needs of a specific facility or setting.

STEP 1: Make oral health a priority

- Involve top-level administrators and directors in the early planning phase.
- If possible, identify an oral health advocate. (See *Role of the Oral Health Advocate*, above.)
- Consider partnering with an oral health professional who has experience providing care to older adults or with an institution or company with oral health expertise in geriatric care settings for help in developing the comprehensive oral health program.

STEP 2: Make a plan

- The LTC facility's leadership team and the oral health professional partner, if applicable, should meet to develop the plan.
- The goal of the plan should be to integrate the oral health program into the facility's overall program of daily patient care.
- Determine the best times of day to focus on oral hygiene care.
- Develop a plan to train direct care staff and monitor their progress in the provision of daily oral hygiene care.
- Identify and train a staff member who will monitor and supervise the direct care staff in their delivery of oral hygiene care. (This could be the oral health advocate.)
- Develop a plan to order, distribute, and replenish supplies needed for an effective oral health program. Identify the person responsible for this activity. In many successful programs, this is the responsibility of the oral health advocate.
- Determine whether oral care can be delivered on site and identify the space and equipment required to do so.
- If it becomes necessary to transfer a patient to an off-site dental office for care, determine how facility staff will be assigned to assist with the transfer and with patient support during the dental visit.
- Develop a written oral health protocol, including policies and procedures, that describes each element of the comprehensive oral health care plan. Allow enough flexibility in the protocol to accommodate adjustments as the program evolves. See Appendix 11-1 for an example of an oral health policies and procedures document for the LTC setting.

STEP 3: Conduct ongoing training

- Determine a training schedule.
- Identify and develop the desired content of the training program or obtain proprietary training materials. (See Table 14-1 for a list of the minimum recommended content areas that should be addressed in an education and training program in oral health and oral hygiene for nurses. See Tables 15-2, 15-3, and 15-4 for the components of oral health training for nursing assistants, a pre-test/post-test, and a list of desired oral hygiene competencies for nursing assistants. See AMDA's Oral Health Clinical Corners page [http://www.amda.com/OH] for additional resources and training materials.
- Involve facility staff and the oral health professional partner in planning, developing, leading, and participating in training activities.
- Obtain needed demonstration supplies (e.g., mouth props, toothbrushes, floss holders, proxy brushes, oral care products).
- Develop methods to offer as much hands-on participation and coaching as possible.

STEP 4: Perform follow-up, monitoring, and coaching

- Establish a system for ongoing monitoring and follow-up.
- Work with the oral health care professional partner, if available, at regular intervals to observe caregivers during the provision of oral health care and suggest strategies for overcoming obstacles.

- Empower the oral health advocate, if available, to track the progress and effectiveness of the comprehensive oral health program. Assess whether protocols are being followed correctly. Prepare an individualized daily oral care plan for each patient and monitor to see that this plan is being followed and updated at appropriate intervals.

Implementing the Comprehensive Oral Health Program

Daily Oral Hygiene Care

Although the oral hygiene program is usually a less visible component of the comprehensive oral care program, **it is essential** and represents the process that is most likely to prevent infection and oral health problems.[9] The facility should develop and implement policies and procedures for providing daily oral hygiene care or integrate oral assessment and care into other clinical policies and procedures to demonstrate that oral care is an integral part of the overall plan of care for each patient.

It is recommended that oral hygiene care be provided at least twice a day. Usually this will be in the morning and after dinner/before bedtime; however, the timing of oral care should be personalized to the extent possible. The "best" time to provide oral hygiene care is whatever time the individual patient is most receptive to that care.

The Centers for Medicare & Medicaid Services (CMS) *Guidance to Surveyors for Long Term Care Facilities* defines oral hygiene as "maintaining the mouth in a clean and intact condition and treating oral pathology such as ulcers of the mucosa" and states that services "to maintain oral hygiene may include brushing the teeth, cleaning dentures, cleaning the mouth and tongue either by assisting the resident with a mouth wash or by manual cleaning with a gauze sponge; and application of medication as prescribed."[10] It should be noted that not all experts recommend all of these services; for example; there is debate over the use of gauze sponges and the effectiveness of regularly cleaning the tongue.

Key elements of success in the implementation and maintenance of an oral hygiene program that have been identified in surveys of direct caregivers include the following:[10]

- An enabling environment,
- A well-developed education program,
- A strong sense of institutional responsibility for oral care, and
- A genuine commitment by the LTC facility to provide daily oral care.[8]

Having a clear system of provider and staff accountability for oral hygiene care may also be helpful in sustaining an oral hygiene program. Generally, the director of nursing services or designee identifies the caregiving staff assigned to assist patients with oral hygiene care or perform this care for patients unable to do so. Using a checklist (Table 11-1), the assigned caregiving staff records what oral hygiene care was performed and at what time, any abnormalities noticed, any pain apparent during care, and any patient behaviors that may interfere with care delivery. At the end of each shift, the checklist is handed in to the appropriate nursing supervisor. The director of nursing services or designee monitors the performance of oral hygiene care in the same way that vital signs and other medical services are monitored.

Table 11-2 presents an example of an individualized oral hygiene care plan. Recommended best practices for daily oral hygiene care are presented in Table 11-3. Behavior management strategies for providing oral care to care-resistant patients are addressed in Table 11-4. For recommendations on providing oral hygiene care to patients in hospice care, see Table 11-5.

TABLE 11-1. Example of a Daily Oral Hygiene Care Checklist

Patient name: _____ Week of (month) _____ (date)_____

Remember: *Put on a fresh pair of disposable gloves before beginning patient's oral hygiene care.*

Check boxes to indicate appropriate oral hygiene tasks for the patient/resident. Each time care is performed, note the time (e.g. "9a" for 9:00 in the morning; "8p" for 8:00 in the evening) and initial. Place NA in a task area if it does not apply to that patient/resident.

Task	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Sunday	
	a.m.	p.m.	a.m.	p.m.	a.m.	p.m.	a.m.	p.m.	a.m.	p.m.	a.m.	p.m.	a.m.	p.m.
☐ Brush teeth (2x per day)	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:
☐ Floss teeth (1x per day)	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:
☐ Clean partial dentures (2x per day)	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:
☐ Clean full dentures (2x per day)	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:
☐ Dentures removed and soaked overnight	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:	Time: Initials:
Replace patient's toothbrush on (date) _____ *(at least every 3 months)*														
Notes *(Note any findings or issues during oral hygiene care, e.g., bleeding gums; crusting at edge of lips; patient resisted care, appeared to be having discomfort)*														
Mon														
Tues														
Wed														
Thurs														
Fri														
Sat														
Sun														

Initials:___ Signature _____ Initials:___ Signature _____

Initials:___ Signature _____ Initials:___ Signature _____

Initials:___ Signature _____ Initials:___ Signature _____

TABLE 11-2. Example of an Individualized Oral Hygiene Care Plan

		Resident:	
Completed by:		Date:	
Dentist:	Dentist Phone #:		
Date of last dental appointment:		Date for next oral hygiene care plan review:	

Assessment of Dentures: *(please circle)*	UPPER	FULL PARTIAL NOT WORN NO DENTURE ***Name on denture:*** Yes No	**Level of Assistance** *(please circle)* **Denture Cleaning:** Independent some assistance fully dependant
	LOWER	FULL PARTIAL NOT WORN NO DENTURE ***Name on denture:*** Yes No	
Assessment of Natural Teeth: *(please circle)*	UPPER	YES NO Root tips present	**Teeth Cleaning:** Independent some assistance fully dependant
	LOWER	YES NO Root tips present	

Interventions for oral hygiene care *(check all that apply and indicate frequency as needed)*	◻ Mouth swab..... ◻ a.m. ◻ p.m. ◻ Electric toothbrush..... ◻ a.m. ◻ p.m. ◻ Suction toothbrush..... ◻ a.m. ◻ p.m. ◻ Regular toothbrush ..... ◻ a.m. ◻ p.m. ◻ Use 2 toothbrushes..... ◻ a.m. ◻ p.m. ◻ Interproximal toothbrush / floss.... ◻ a.m. ◻ p.m. ◻ Regular fluoride toothpaste..... ◻ a.m. ◻ p.m. ◻ Do not use toothpaste ◻ Scrub denture/s with denture brush..... ◻ a.m. ◻ p.m. ◻ Soak denture/s over night in water with denture tablet ◻ Scrub denture bath weekly ◻ Dry mouth products as needed _____ ◻ Fluoride varnish or other fluoride products (Rx by dentist or physician) ◻ Chlorhexidine mouth rinse (Rx by dentist or physician) ◻ Other:	**Regular barriers to oral care** *(check all that apply)*	◻ Forgets to do oral hygiene care ◻ Refuses oral hygiene care ◻ Won't open mouth ◻ No compliance with directions ◻ Aggressive / kicks / hits ◻ Bites toothbrush and/or staff ◻ Can't swallow properly ◻ Can't rinse / spit ◻ Constantly grinding / chewing ◻ Head faces downwards / moves ◻ Won't take dentures out at night ◻ Dexterity or hand problems / arthritis ◻ Requires financial assistance ◻ Other:

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TABLE 11-3. Recommended Best Practices for Daily Oral Hygiene Care

General

1. Assess the patient's ability to provide his/her own oral hygiene care and what type of assistance he or she needs.
2. When oral neglect is found, teach patients/families about the importance of daily oral care in maintaining general health and preventing disease-related conditions such as diabetes and gingivitis.
3. When assisting the patient with oral hygiene care, use standard precautions at all times. Always wear disposable gloves when working in the patient's mouth. After each patient, remove gloves, dispose of them, and put on a new pair.
4. Use a memory aide such as a card that outlines the steps in the patient's individualized daily oral hygiene routine depending on his or her needs (e.g., has natural teeth, has a partial denture and some natural teeth, has full dentures).*

Toothbrushing

1. Use a toothbrush with a small head, soft bristles, and a large handle with a rubberized grip.
2. For patients who bite down during oral care, consider using two toothbrushes – one to prop the mouth open and one for cleansing.
3. Avoid using foam swabs to clean teeth. Toothbrushes are more effective than foam swabs at removing plaque from teeth.
4. Use a pea-sized amount of fluoride toothpaste for most patients. For patients who are prone to gagging or choking, moisten the toothbrush with a mouth-rinsing product instead of using toothpaste.
5. To promote adequate brushing time, set an egg timer to gradually longer intervals (e.g., begin at 30 seconds; increase to 60 seconds, then to 90 seconds, and finally to 120 seconds).
6. Consider using a modified or special toothbrush to better meet the patient's needs. For example
   - A child's brush may be more effective for a patient with a small oral cavity or limited ability to open the mouth.
   - A patient who cannot manipulate a manual toothbrush may be able to use an electric toothbrush.
   - A patient with dysphagia or who is being fed enterally may benefit from the use of a suction toothbrush.
7. Replace the patient's toothbrush at least every 3 months. Replace the toothbrush more frequently if
   - The bristles become softened or misshapen
   - The patient has an oral infection

Tips for Assisted Toothbrushing

1. Be sure the patient is seated comfortable and securely. Place a cloth across the patient's chest and around the shoulders to protect clothing.
2. If possible, stand behind the patient. Cradle the patient's head gently with your arm and hand. If standing behind the patient is not possible or if the patient finds it too uncomfortable, stand at the patient's side.
3. Retract the lips gently. If the patient has difficulty keeping the mouth open, use a mouth-propping device (e.g., wedge, second toothbrush) to prop the mouth open.
4. Apply the brush to the patient's teeth gently, using small movements. Clean no more than two teeth at a time. Work slowly and systematically until all tooth surfaces have been cleaned.

Flossing Technique

1. When using dental tape, dental floss, or an interdental brush to clean between the patient's teeth, be gentle to avoid causing discomfort or damage to the oral tissues.

TABLE 11-3. (continued)
Recommended Best Practices for Daily Oral Hygiene Care

2. Use about an 18-inch piece of dental floss. Wind the two ends of the floss around your middle or ring fingers, leaving a little more than an inch to work with. This enables the thumb and index fingers to be used to manipulate the floss between the teeth.
3. Using a see-saw motion, gently slide the floss between the teeth without "snapping" it onto the gums.
4. Using a C-shaped curve, guide the floss along the tooth surface up and down several times on each side. Repeat for all teeth.

Denture Care

1. If possible, remove dentures from the mouth overnight and soak them in a dilute solution to disinfect them and reduce the risk of denture stomatitis. (Soaking dentures in water overnight may promote microbial growth).
2. *Plastic dentures:* Soak in a dilute solution of sodium hypochlorite.
   Dentures with metal parts: Soak in a dilute solution (0.2%) of chlorhexidine gluconate. (Do not use sodium hypochlorite because it may discolor the metal parts of the denture.)
3. Brush dentures at least twice daily, using vinegar or denture paste and warm water. (Avoid using toothpaste, which contains abrasives that may leave bacteria-harboring pits within the denture.) If the patient has some natural teeth, use separate brushes to clean the natural teeth and the dentures.
4. Always use denture cleaning tablets in lukewarm, tepid, or cool (never hot) water. Hot water may warp the denture. Also, if a denture cleaning tablet is placed in a container with hot water and the container lid is closed tightly, the tablet may dissolve too quickly and cause the container to explode.
5. Always rinse dentures well under running water before replacing them in the patient's mouth.
6. After every meal, remove the patient's dentures and rinse them under running water. Before reinserting the dentures, check the lining of the mouth and remove any food debris.

After Every Meal

Patients who can rinse the mouth	Rinse to remove food debris.
Patients who cannot rinse the mouth	Clean the gums with water-moistened gauze or a foam stick. If necessary, stabilize the tongue by holding it gently with gauze.

Storage of Oral Care Supplies

1. Store each patient's oral care supplies in a basket or other container that is used exclusively for that patient's oral care supplies. Supplies that may be stored in this container include
   - Toothbrush and toothpaste
   - Mouth-rinsing agents
   - Dental floss, dental tape, interdental brush
   - Mouth prop
   - Cup or other container for storing/soaking dentures
   - Denture brush, denture cleaning agents
2. Label all oral care supplies with the patient's name. Tools for marking items such as dentures can be obtained from dental supply companies.

* For examples of oral care cards, see *Brushing Up on Mouth Care,* an oral health resource for those who provide care to older adults. Available at http://www.ahprc.dal.ca/projects/oral-care/. Accessed 03/29/13.

Adapted from: McNally et al, 2011;[14] Stein and Henry, 2009;[4] Sweeney, 2005;[15] van der Horst and Scott, 2008.[16]

TABLE 11-4. Behavior Management Strategies for Providing Oral Care to Care-Resistant Patients

- If possible, develop a routine in which oral hygiene care is performed at the same times every day in a quiet location free of distractions.
- Two or more caregivers may work as a team if necessary.
- Wear eye and face protection if splashing or spitting is anticipated.
- Approach the patient from the front. Maintain eye contact and sit or stand at the same level as the patient.
- Identify yourself, speaking slowly and clearly.
- Explain what you are doing. Assume that the patient hears and understands more than he or she can express.
- Be patient and reassuring. Smile and touch the patient gently. Move slowly and calmly.
- Break the task down into a series of simple steps. Encourage the patient, as able, to do one or more steps unassisted. Provide assistance with steps the patient cannot do without help.
- Use gestures to model what you would like the patient to do. For example:
  - Say: "Can you open your mouth wide for me, like this?" and open your mouth wide.
  - Place a toothbrush in the patient's dominant hand. Mime the action of tooth-brushing and encourage the patient to copy your action.

Bridging
Engage the patient's senses, especially sight and touch, to help her to understand what you are doing. For example, place a toothbrush in the patient's hand. (Do not use this technique with a patient who is aggressive and may throw the toothbrush or use it inappropriately.)

Chaining
Begin to perform the oral hygiene task. Encourage the patient to help with the task and allow him to finish the task himself.

Distraction
Play familiar music or place a familiar item (e.g., activity board, cushion, towel) in the patient's hands to relax and distract her.

Hand over hand
Place your hand over the patient's. Begin to perform the oral hygiene task (e.g., brushing teeth).

Rescuing
If the patient is not cooperating, stop and walk away. After a brief interval, have another caregiver begin the process again.

Adapted from: Iowa Geriatric Education Center;[17] Pearson and Chalmers, 2004.[18]

TABLE 11-5. Oral Hygiene Care for Patients in Hospice Care

1. Focus on maintaining the patient's comfort. Discontinue any intervention that distresses or appears to distress the patient.
2. Know your patient. Individualize the frequency of oral hygiene care with the patient's comfort in mind. Some patients may need oral care every 1–2 hours to maintain comfort; others need care less frequently.
3. Apply water-based lubricants to relieve dry oral tissues. Water-based lubricants are more effective than water and need to be applied less frequently.
4. Use non-foaming agents (e.g., chlorhexidine gluconate gel) to clean the teeth of patients at risk for aspiration.

Adapted from: Sweeney, 2005.[15]

The Comprehensive Oral Assessment

Assessment of "dental condition status (oral health)" is a mandated element of the comprehensive patient assessment that is conducted on admission and periodically as part of the Resident Assessment Instrument (RAI) evaluation. The CMS State Operations Manual states that dental condition status "refers to the condition of the teeth, gums, and other structures of the oral cavity that may affect a resident's nutritional status, communication abilities, or quality of life. The assessment should include the need for, and use of, dentures or other dental appliances."[10] The LTC facility is expected to establish an individualized daily oral care plan for each patient that is consistent with the results of the assessment. (See Chapter 10**, The Oral Health Assessment**, for a thorough discussion and guidance relating to the oral health assessment.)

The series of questions asked in Section L of the Minimum Data Set 3.0 (Oral Status) (see Table 10-2, *Components of the Routine Oral Assessment*) is useful in identifying oral health problems.[8] With proper training, however, physicians, nurses, and other members of the health care team can screen for oral diseases and make referrals to oral health professionals when treatment is needed.[19]

Assessment of Nutritional Status

Assessment of the patient's nutritional status is a crucial aspect of the comprehensive oral assessment. Oral conditions can contribute to malnutrition and decreased food intake in older adults. Loss of teeth; reduced chewing ability; oral conditions such as painful mucosal disorders and xerostomia;[20,21] and the pain and discomfort associated with periodontal disease can lead to poor food selection, decreased meal intake, and an unbalanced diet. (See Chapter 8, **Nutrition and Oral Health**. For causes and treatment of xerostomia, see Chapter 9, **Medications and Oral Health**.)

Role of the Practitioner

The practitioner is responsible for the direct medical care of patients in the LTC facility. It is the practitioner's responsibility, depending on regulations, to give medication orders and to see patients on admission, monthly for the first 3 months, and every 30 or 60 days thereafter, as well as when medically indicated. An

effective oral health care program depends on the interaction of practitioners, the interdisciplinary team, and the facility's dental staff or consultants.

The assessment of the patient on admission and when indicated should include an assessment of the oral cavity, including the gums, teeth, and hard and soft palates. The practitioner should assess for pathology, pain, dryness, or other oral-cavity abnormalities that could influence the patient's overall health and well-being. To properly assess the patient's oral cavity, the practitioner should have the proper tools available, including a flashlight and tongue blade to facilitate viewing the oral cavity.

Other practitioner responsibilities relevant to oral health include the following:

- Work closely with the medical director, director of nursing services, and dental consultants on the development and implementation of the facility's oral health program;
- Know and understand the facility's oral health protocols, policies, and procedures;
- Work closely with all facility staff, but especially with CNAs, nurses, and dietitians, to promote good oral health care for patients;
- Write orders in the physician's order sheet concerning any problems in the patient's oral cavity; and
- Consider referring the patient to an oral health professional for any emergent or routine dental issues.

Practitioners should know who the facility's dental consultants are and how to contact them for both emergency and routine consultations. If dental consultants make regularly scheduled visits to the facility, practitioners should know or be able to find out when these visits take place so that they can determine, depending on the acuity of the problem, the best course of action for a patient with a dental condition (e.g., transfer to an outside dental professional, or schedule the patient for a bedside dental consultation on the dental consultant's next visit to the facility).

The facility should have systems in place to help to ensure that oral health problems or dental consultations are documented in the patient's permanent medical record and communicated to practitioners in a timely fashion.

Options for Delivering Dental Care in the Long Term Care Setting

Several approaches are available for the delivery of dental care to patients in the LTC setting:

- A fixed on-site clinic
- A portable dental operatory that can be taken to the patient's bedside
- Use of a mobile dental van
- Transporting patients to an off-site dental office

Table 11-6 summarizes the advantages and disadvantages of these four approaches, which are discussed in greater detail below.

TABLE 11-6. Options for Delivering Dental Care to Patients in the Long Term Care Setting: Advantages and Disadvantages

Delivery Option	Advantages	Disadvantages
Fixed on-site dental clinic	• Convenient for patients and caregivers • No transportation costs for patients • Comfort, convenience for dental team • Minimizes patient stress • Facilitates provision of full range of dental services • Facilitates emergency care • Facilitates interdisciplinary consultations • Emphasizes importance of oral health • Marketing appeal for facility	• Cost to facility or dental provider • Permanent, dedicated space required
Portable dental equipment	• Convenient for patients and caregivers • No transportation costs for patients • Facilitates bedside care • Reduces patient stress • Operating room use	• Cost of equipment for dental practice • Limited range of dental services • Scheduling limitations • Emergency/follow-up care? • Ergonomic, psychological comfort for dental staff? • Space and set-up/tear-down time needed • Durability? • Infection control?
Mobile dental van	• Convenient for patients and caregivers • No transportation costs for patients • Minimizes patient stress • Requires no facility space • High visibility for dental provider • On-site laboratory and x-ray capability • Facilitates serving multiple populations	• Cost of equipment for dental practice • Scheduling limitations • Continuity of care? • Emergency care? • Maintenance, upkeep? • Storage and security? Comfort for providers? Disability access? • Maneuverability, weather?
Transport to dental office	• Full range of services available • Open scheduling • No facility space needed • Convenient, comfortable for dental staff	• Transportation cost for patients • Patient stress caused by travel, change of environment • Need for facility staff to escort patient to and from dental office

Adapted with permission from Stephen K. Shuman, DDS, MS, Associate Professor and Director, Oral Health Services for Older Adults Program, University of Minnesota.[22]

Option 1: Fixed On-Site Clinic

Optimal delivery of dental care in the LTC facility requires sufficient space to accommodate large dental equipment (see Table 11-6) and allow the dentist to work on both the right and left sides of the patient. The average dimensions required for a fully functional dental operatory are 10.5 feet by 11 feet. Table 11-7 lists the recommended equipment in a dental operatory; Table 11-8 presents other considerations in designing an on-site dental clinic.

A variation on the fixed dental clinic is the shared clinic, a procedure-oriented space that can be used by multiple providers (e.g., audiology, dentistry, optometry, podiatry). In this model, one space provides enhanced access to a variety of specialized health services, improving cost efficiency for all involved.[22]

TABLE 11-7. Recommended Equipment in a Dental Operatory

- Dental chair
- Dental delivery system*
- Air compressor
- Vacuum system
- Dental light
- Radiograph system (conventional or digital)
- Sterilizer

*Consists of a unit—fixed or portable—that delivers power, suction, and irrigation for dental procedures. This system can be independently powered by its own compressor or attached to a multiuse power system. The dental delivery system powers a dental handpiece.

TABLE 11-8. The On-Site Dental Clinic: Site Considerations

Primary

- Adequate space (122–144 square feet per chair)
- Utility access (water, electricity, drainage)
- Climate control
- Ventilation
- Room enclosure (contents of walls, ceilings, floors)
- Adequate lighting
- Wide doorways (42–48 inches)

Secondary

- Access to patient records
- Desk space
- Telephone
- Nursing/medical access
- Convenience for patients
- Waiting area
- Soundproofing
- Rest rooms
- Cleansable floors
- Natural light
- Additional doors

Adapted with permission from Stephen K. Shuman, DDS, MS, Associate Professor and Director, Oral Health Services for Older Adults Program, University of Minnesota.[22]

Option 2: Portable Dental Operatory

When a facility lacks permanent space that can be dedicated to dental or other specialist care, one alternative is the use of a portable dental operatory, which allows the dentist to deliver routine and emergency dental services when a dedicated on-site operatory is not available (Figure 11-1). Portable dental operatories are generally priced in excess of $10,000. One limitation of a portable dental operatory is that it may not be able to accommodate patients who are severely obese.

Option 3: Mobile Dental Van

A mobile dental van offers an excellent alternative approach to providing dental care to patients residing in an LTC facility. The van generally contains all of the equipment that would be found in a fully equipped fixed dental operatory. A fully equipped mobile dental van typically costs about $500,000. A limitation of a mobile dental van is that services may not be accessible to patients who are bedridden, have extremely limited mobility, or are housed in high-security or lock-down units.

FIGURE 11-1. Example of an Operational Mobile Dental Office

Photo courtesy of Michael J. Helgeson, DDS, Apple Tree Dental, Minneapolis, MN.

Option 4: Off-Site Dental Office

An additional option, if neither a portable dental operatory nor a mobile dental van is available or practical, is to contract with one or more dentists or dental practices who agree to accept and treat facility patients in their offices. If possible, the dental practice should have experience treating elderly LTC patients or patients who have physical or mental challenges. The facility also needs to have a plan to address the logistics of transporting patients to outside dental offices. The prevalence of physical disabilities and cognitive impairment among LTC patients significantly complicates this task.

Dental Instruments and Supplies

The purpose of the dentist's visit to the LTC facility will determine the minimal equipment he or she needs to carry to accomplish the service. Table 11-9 presents examples of the instruments and supplies the dentist will need to provide different, but limited, types of service. These instruments and supplies will ***not*** be sufficient to deliver comprehensive dental services to LTC patients.

TABLE 11-9. Dental Instruments and Supplies

Initial assessment of new patient
- Mouth mirror
- Intraoral lighting
- Examination gloves
- Disinfection products

Assessment of dental emergency or pain
As above, plus
- Portable radiograph system with sensor
- Radiograph software and computer

Palliative treatment
As above, plus
- Disposable products
- Anesthetic products
- Dental instruments
- Dental restorative products

Communication Between the Facility and Dental Professionals

Clear communication among LTC care staff and providers and dental professionals is essential. Facilities may find it helpful to treat the referral of a patient to a dental professional as a transition of care and to employ communication tools and strategies that would be appropriate in any transition of a patient to a different setting or level of care. (See AMDA's clinical practice guideline *Transitions of Care in the Long-Term Care Continuum*.[a])

Table 11-10 lists patient information that the facility should provide to the dental professional when a patient is referred for dental evaluation or treatment. Table 11-11 offers suggestions for how the facility can facilitate a successful dental visit for the patient.

TABLE 11-10. Patient Information That the Facility Should Provide to the Dental Professional

- Basic demographic information (name, age, responsible party, insurance/Medicaid coverage)
- Comprehensive medical history and problem list (e.g., diagnoses, allergies, advance directives)
- Complete medications list (including any blood thinners [e.g., aspirin, warfarin] and any oral care regimens)
- Comprehensive problem list (diagnoses, allergies, advance directives)
- Name and contact information for patient's attending physician
- Information about special care needs (e.g., behavior management, patient transfer, sensory deficits)
- Treatment authorization (as decided by dental provider(s) and LTC facility)

Adapted with permission from Stephen K. Shuman, DDS, MS, Associate Professor and Director, Oral Health Services for Older Adults Program, University of Minnesota.[22]

[a]AMDA. Transitions of Care in the Long-Term Care Continuum. Clinical Practice Guideline. Available as a free download at http://www.amda.com/resources/index.cfm.

TABLE 11-11. Steps to a Successful Dental Visit for a Patient in the Long Term Care Setting

- Schedule the appointment for early in the day
- Before the visit
  - Toilet the patient
  - Brush the patient's teeth
- If the patient has significant mobility issues, strategize with the dental provider before the appointment. Options may include:
  - Taking the patient to the dental office in a reclining wheelchair
  - Sending a facility staff member with the patient to assist with transferring the patient to the dental chair
  - Assess whether the patient needs a sedative prior to the dental visit
- If the patient has potential behavioral issues (e.g., confusion, wandering), have a caregiver or family member accompany the patient throughout the visit
- If the patient wears partial or full dentures, make sure the dentures go with the patient to the dental visit
- Send appropriate documentation (as decided by the LTC facility and the dental provider), including information about any specific oral health concerns
- Allow sufficient time for the consultation. Do not restrict the time window for return transportation to the facility. Procedures may take longer than anticipated, especially for patients with special needs.

Adapted with permission from Stephen K. Shuman, DDS, MS, Associate Professor and Director, Oral Health Services for Older Adults Program, University of Minnesota.[22]

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APPENDIX 11-1. Sample Oral Care Policies and Procedures Document for the Long Term Care Setting

Facilities may use this sample document as a template to assist them in creating a policies and procedures document that addresses their specific needs.

POLICIES

1. An oral health history will be completed as part of the patient admission assessment and will include oral hygiene beliefs, practices and current state of oral health.
2. Assessment of oral health will be included in all patient health assessments
   - Within 24 hours of admission,
   - At least quarterly and annually, and
   - As oral health status changes.
3. Patients' oral health status will be assessed using the Oral Health Assessment Tool (OHAT) for Long Term Care.
   - For LTC facilities using MDS-RAI 3.0: Complete Sections K and L as necessary. Complete the OHAT to supplement the RAI.
4. An individualized Oral Hygiene Care Plan will be determined and implemented for each patient based on the completed OHAT, MDS Dental Care Resident Assessment Protocol, patient's preferences, functional ability, cognition, and ability to cooperate and follow instructions.
5. Staff will provide, remind, or cue oral care for patients at least twice daily. If possible, oral care should be completed in the patient's own bathroom because of the physical cues available there.
6. Prior to initiating oral care, staff should review the oral hygiene care plan and be aware of the patient's cognitive status; responsive behaviors; communication, sensory, or functional impairments; and dysphagia.
7. Patients are encouraged to be independent in oral care. Staff will complete any oral care that the patient is unable to complete. Staff will provide or supervise the provision of oral care for patients at risk of aspiration.
8. Staff will communicate with the patient at all times during oral care, ensuring that the patient is aware of the steps of the procedure and of any independent tasks required.
9. The effectiveness of oral care interventions will be evaluated at least quarterly. Additional or alternative interventions will be conducted as necessary.
10. At admission and throughout their stay, patients will have access to oral health professionals, including a dentist, denturist, and dental hygienist, as needed.
11. Referrals to an oral health professional (dentist, denturist, dental hygienist) will be made on the basis of the nursing assessment and in consultation with the patient and/or his/her legally authorized representative.

Education

1. ***Orientation:*** New staff, registered nursing staff, and nursing assistants (full- and part-time) will receive oral hygiene care education and information during their orientation.
2. ***Continuing Education:*** Staff education sessions regarding oral hygiene care will be provided annually and additionally as required.

Quality Assurance and Monitoring

The quality assurance process will include an annual evaluation of

- Patients' satisfaction with oral hygiene care received
- Family or legally authorized representative's satisfaction with oral hygiene care provided

PROCEDURES

- Properly position the patient to receive oral care.
- For patients who are unable to keep the mouth open, use mouth-propping devices (e.g., two-toothbrush technique, wedges).
- Never use lemon glycerine swabs in oral care.

APPENDIX 11-1. (continued)
Sample Oral Care Policies and Procedures Document for the Long Term Care Setting

Denture Care

Introduction

- Plaque and tartar form on dentures just as they form on natural teeth.
- Brush dentures (as you would brush natural teeth) at least twice daily.
- Remove dentures for at least 3 hours daily to permit gums to rest; overnight is easiest.
- Use a separate brush to clean any remaining natural teeth.
- Ask the patient to remove his/her dentures. Provide assistance if the patient is unable to do this.
  - *For upper and lower dentures*
    - Slide index finger along the denture's side, then push gently against the back of the denture to break the seal. Grasp it and remove it by rotating it. Grasp lower dentures at the front and rotate.
  - *For* partial dentures
    - Place thumbnail over or under the clasps. Apply pressure, being careful not to bend the clasps and catch them on lips or gums.

Cleaning Dentures

1. Wear gloves.
2. Line the sink with a towel in case the dentures slip and fall. Fill the sink with cool water. (Hot water can warp dentures.)
3. Rinse dentures to remove food debris.
4. Scrub dentures using a denture brush and denture paste. Never use abrasive cleansers or scouring powders. Thoroughly brush all surfaces, especially those that touch the gums. Rinse well.
5. At bedtime, place dentures in denture cup in a 50/50 solution of cool water and vinegar.
   - Soaking dentures overnight with a cleansing tablet only is not sufficient as a cleansing tablet does not remove plaque.
   - Never use denture tablets to soak the dentures of patients with dementia. Ingestion of tablets/solution is serious.
   - Label denture cup with patient's name. Replace it every 3 months or as required.
6. Never use vinegar on dentures that contain any metal as this will cause the metal to turn black.

Toothbrushing

Toothpaste

- Use a pea-sized amount of toothpaste. Be aware that
  - Patient may dislike the taste of toothpaste.
  - Foaming action of toothpaste increases salivary flow and may cause the patient to spit, choke, or gag.
- ***Do not*** use toothpaste for patients who have dysphagia, cannot swallow or spit/rinse properly, or have severe dementia. Use water or an oral cleansing gel instead.

Toothbrushes

- Use a toothbrush with a small head, soft bristles, and a large handle with a rubberized grip.
- For patients who bite down during oral care, consider using two toothbrushes—one to prop the mouth open and one for cleansing.
- Replace toothbrush every 3 months or after an oral infection.

Adapted with permission from: van der Horst ML, Scott D. Best Practices Approach to Oral Care in LTC Homes Resource Kit. 2008. Ontario (Canada) Ministry of Health, Central South/South West, Best Practice Coordinators in Long-Term Care Initiative. Available at http://www.rgpc.ca/rgpc_resource_library/oral care resource kit for ltc march 2008.pdf. Accessed 5/30/13.

12. Role and Responsibilities of the Medical Director

Medical directors are uniquely positioned to influence the oral health care of patients residing in the long term care (LTC) setting. Because of their key role in policy oversight and implementation, medical directors can promote high-quality oral health care through staff education, training, and leadership. Their advocacy on this issue can significantly affect the quality of programs to improve oral health in the LTC facility.

To promote awareness among practitioners, other health professionals, and frontline caregivers of the potential consequences of poor oral health in the LTC setting, medical directors may first need to educate themselves and their clinical and administrative teams about this issue and about local, state, and national policies and initiatives that relate to oral health. Medical directors may also evaluate resource utilization, programs, and interventions for improving oral health and advise the facility administration of potential opportunities for resource sharing.

Needs assessment. Medical directors can request that the facility provide them with baseline information about the oral health status and needs of patients in their facilities. It is also helpful to identify existing oral hygiene protocols. This information can be used to build a case for providing or enhancing oral health care services and for determining what kinds of services would benefit patients most. Questions that may be part of a needs assessment include the following:

- How many patients in the facility have all or most of their natural teeth? How many have full or partial dentures?
- Are patients' teeth brushed twice a day? Are patients' dentures removed and cleaned every day?
- How many patients currently receive regular dental care? How do they obtain that care?
- How many patients have private insurance coverage for dental care?

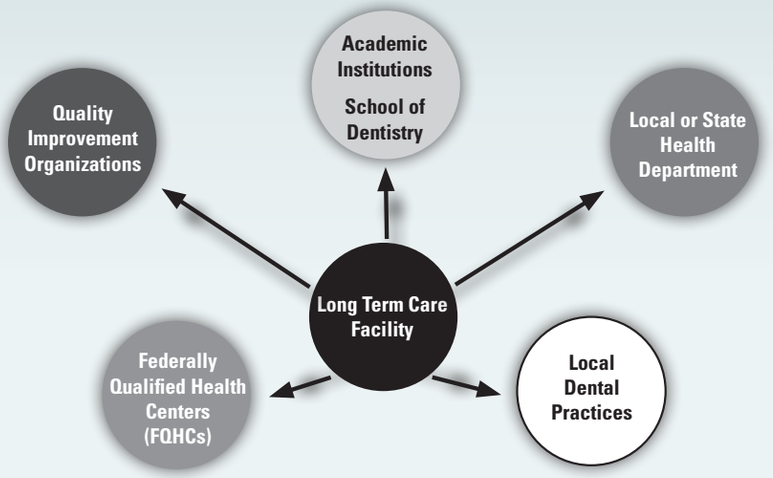
Partnerships. Partnerships are crucial to the development of oral health programs. Medical directors can develop partnerships by exploring existing oral health care resources in their communities and by reaching out to potential partners, including organizations such as the following, some of which may already be playing a role in the provision of dental care to underserved community-dwelling populations:

- Federally qualified health centers,
- A school of dentistry affiliated with a local university,
- A local or state health department,
- Private community-based dental practices, and
- Health-care quality improvement organizations.

See Figure 12-1 for a proposed model of partnership building and resource utilization to improve oral health in the LTC setting.

Training and education. Periodic focused training in oral health and hygiene for facility staff, including but not limited to certified nursing assistants and other direct caregiving staff, can be valuable in improving both staff awareness of the importance of oral health and competence in the performance of oral hygiene care. (See Chapter 14, **Role and Responsibilities of the Director of Nursing Services**, and Chapter 15, **Role and Responsibilities of the Nursing Assistant**.)

FIGURE 12-1. A Proposed Model of Partnership Building and Resource Utilization to Improve Oral Health in the Long Term Care Setting



Policy and procedure development. Medical directors can initiate the development and implementation of policies and procedures that address oral health care needs within the facility. (See Appendix 11-1, *Sample Oral Care Policies and Procedures Document for the Long Term Care Setting*.)

Benchmarking. Medical directors can facilitate the establishment of oral health benchmarks, which can be a key step toward improving oral health within a facility. Benchmarks should be simple, consistent, and easy to measure. The following are examples of possible benchmarks:

- Oral health training sessions will be offered every 6 months to instruct nursing assistants and other direct caregiving staff in basic dental care and toothbrushing for elderly patients with cognitive impairment.
- The proportion of long-stay patients in the facility who receive routine examinations by a dentist at least once a year will increase at a rate of 20% per year until at least 70% of patients are receiving such routine examinations.
- All patients in whom a finding of weight loss or decreased food consumption is noted in the medical record will be referred for an oral health assessment to rule out the presence of an oral health condition as the cause of the patient's symptoms.
- For all patients with missing teeth, loose dentures, or oral lesions, the condition will be noted in the medical record and the patient will be referred to a dentist.
- All short-stay patients with noted poor attention to oral hygiene and care will receive training and a recommendation for professional follow-up upon discharge from the facility.

Review. Medical directors may periodically review the effectiveness of oral health programs and policies, using process or outcome measures. (See Chapter 17, **Quality Assurance.**)

Funding. Medical directors may provide leadership in identifying possible sources of funding for oral health programs (e.g., grants for educational programs, evidence-based research, community health outreach activities, quality improvement initiatives). (See Chapter 16, **Options for Financing Dental Care.**)

Table 12-1 provides additional examples of the types of activities that medical directors may engage in to promote oral health in their facilities.

TABLE 12-1. Examples of Activities Medical Directors May Engage in to Promote Oral Health

- Developing relationships with oral health professionals, institutions of excellence in oral health care, and companies offering oral health care services (Figure 12-1)
- Helping to facilitate the training of staff members in oral health care assessment and delivery
- Reviewing the credentials of oral health professionals who deliver care to facility patients (e.g. experience, licensure, malpractice insurance)
- Providing guidance regarding oral health care performance expectations, including the importance of having a system in place to refer patients with oral complications and diseases for timely treatment
- Developing and evaluating the facility's oral health policies and procedures
- Serving as a resource for information about geriatric oral health and related topics and sharing oral health educational resources with the facility's professional staff
- Serving as a resource for information about the relationship between disease and oral hygiene/care
- Providing oversight of the facility's comprehensive oral health program
- Helping to implement a system for documentation of oral care assessment and treatment
- Maintaining up-to-date knowledge of state and national standards concerning oral care in LTC facilities
- Helping to ensure that the facility meets acceptable standards of oral care
- Helping to ensure that the facility's quality assurance program addresses issues germane to the quality of patient oral care (e.g., evaluating for oral causes of pain or infection) (see Chapter 17, **Quality Assurance**)
- Analyzing and evaluating the oral health implications of social, regulatory, political, and economic changes that affect patient care
- Acquiring an understanding of LTC-related municipal, county, state, and federal regulations and providing feedback to legislators, policy makers, and local decision makers concerning existing and proposed rules and regulations relevant to oral health in the LTC setting
- Understanding reimbursement mechanisms and establishing relationships with organizations involved in reimbursement to help ensure that patients' oral care needs are met

13. Role and Responsibilities of the Oral Health Professional

As discussed in Chapter 4, skilled nursing facilities are required by federal regulations to provide or obtain from an outside resource routine and emergency dental services to meet each patient's needs and to provide oral hygiene care to patients who cannot carry out this activity without assistance. Partnerships with one or more oral health professionals who have expertise in providing care to older adults or with an institution or company with oral health expertise in geriatric care settings can strengthen facilities' capacity to meet these regulatory requirements and their obligation to help patients to maintain their highest practicable level of well-being.

The availability and support of oral health professionals can help facilities to develop and implement a comprehensive range of oral health services, including oral health assessments and oral hygiene, training, and treatment programs.[1] Dentists and dental hygienists are the primary categories of licensed oral health professionals who can help with this endeavor. These professionals can work with long term care (LTC) facility staff to[2]

- Assist in the planning and development of a comprehensive oral health program;
- Assist in the development and implementation of education and training programs in oral health and hygiene for facility staff;
- Provide initial and periodic assessments of oral health;
- Develop guidelines for the delivery of dental services within the facility and provide ongoing review to ensure that such guidelines continue to reflect current best practices in dental care;
- Develop and implement treatment programs that facilitate the timely provision of appropriate care;
- Perform individual emergent, preventive, restorative, and maintenance dental procedures; and
- Provide patients who are being discharged from the LTC facility with oral care recommendations and information about obtaining dental care in the community.

Dental hygienists are licensed oral health professionals who specialize in preventive oral health care. In the United States, dental hygienists must be licensed by the state in which they practice after graduating from an accredited dental hygiene program that is at least 2 years in length and passing a board examination and both written and clinical licensing examinations.[3]

Each state enacts its own laws determining the services dental hygienists can perform, the settings in which they can practice, and the level of supervision under which they practice.[4] In addition to cleaning teeth to promote and maintain oral health, dental hygienists may—subject to state regulations—be licensed to perform procedures such as conducting oral assessments, scaling and root planing for patients with periodontal disease, taking x-rays, performing some dental restorations (e.g., fillings, crowns), administering local anesthesia, and providing education about oral health and hygiene. Although dental hygienists often work with dentists, 35 states permit dental hygienists to practice independently (i.e., not under the direct supervision of a dentist) in defined circumstances. (This information was current as of October 2012. See http://www.adha.org/resources-docs/7513_Direct_Access_to_

Care_from_DH.pdf [accessed 03/28/13] for an up-to-date summary of state laws and regulations governing direct access to dental hygienists.)

A study published in 2007 found that LTC patients who received professional oral health care provided by dental hygienists had significantly lower levels of respiratory pathogens, as well as reduced rates of fatal aspiration pneumonia, fever, and influenza, compared with patients who received no professional oral health care.[5]

In the LTC setting, among the most important services that dentists or dental hygienists can provide are to educate all members of the interdisciplinary team about oral health, train practitioners and nurses to perform oral assessments, and train direct caregivers to brush patients' teeth and perform or assist patients with other daily oral hygiene practices. All new employees should receive oral health training; existing staff can benefit from oral health refresher training two to four times per year.[6] Cleaning patients' teeth at regular intervals (frequency determined by the patient's needs) and conducting comprehensive annual oral assessments are other vital services that dentists or dental hygienists can offer. In some cases, they may be able to provide expertise on ways to cover the costs of dental care for LTC patients. (See Chapter 16, **Options for Financing Dental Care**.)

Most skilled nursing facilities contract with individual oral health professionals or with institutions or companies that specialize in providing dental care to frail older adults. Facilities also have the option of employing a dentist or dental hygienist. Recommended and desirable credentials for oral health professionals working in the LTC setting are shown in Table 13-1.

The expertise that oral health professionals bring to the LTC facility makes them a valuable component of the interdisciplinary team. Working together, oral health professionals and LTC facility staff can help to ensure that patients obtain the oral care they need to maintain comfort, health, and well-being.

TABLE 13-1. Recommended and Desirable Credentials for Oral Health Professionals Working in the Long Term Care Setting

Minimum recommended requirements:

- Current state dental license (verify with State Dental Board)
- Malpractice coverage (suggested $1,000,000 per occurrence/$3,000,000 aggregate)
- Current DEA license (for dentists)
- Collaborative practice agreement with a licensed dentist (for hygienists/others as required by State Dental Board)

Additional desirable credentials:

- Advanced training, such as:
  - Geriatric fellowship program
  - General practice residency (for dentists)
  - Advanced education in general dentistry residency (for dentists)
  - Continuing education courses in geriatric dentistry
- Practice experience with elderly and/or medically compromised patients
- Membership in state, local dental societies, Special Care Dentistry Association
- Letters of recommendation

Courtesy of Stephen K. Shuman, DDS, MS, Associate Professor and Director, Oral Health Services for Older Adults Program, University of Minnesota.

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14. Role and Responsibilities of the Director of Nursing Services

The director of nursing services (DNS) in the long term care (LTC) setting is charged with facilitating the provision of care and services necessary to enable patients to achieve their "highest practicable" level of function. Specifically regarding the provision of oral care services, the DNS is responsible for the following:

- Promoting oral health as an institutional value,[1]
- Setting standards of oral care by nursing staff based on current best practices,
- Implementing an ongoing oral health training program that provides both existing and newly hired nursing and other direct caregiving staff with the knowledge and skills they need to provide appropriate daily oral hygiene care to patients,
- Defining and monitoring the implementation of a facility-wide system to document the provision of oral hygiene care (see Chapter 11, **The Comprehensive Oral Health Program in the Long Term Care Setting**), and
- Devising and implementing a method of assessing the quality and effectiveness of oral care within the facility and modifying care processes when shortfalls or inadequacies in oral care provision are identified (see Chapter 17, **Quality Assurance**).

The identification of oral care as an essential component of nursing care within the facility begins with the DNS. Studies show that the views of nursing staff concerning oral health depend on the knowledge, commitment, and enthusiasm of their supervisors and the facility administration.[2] Thus, it is very important for the DNS to emphasize to nursing staff that the facility's standards of nursing care encompass the maintenance of good oral hygiene practices and that it is unacceptable to disregard oral care because of a perceived shortage of time to complete all patient care regimens.[1] See Appendix 14-1 for an example of a nursing standard of practice protocol on providing oral health care to older adults. Appendix 14-2 presents a summary of recommendations and implementation strategies for nursing best practices in oral health.

The DNS is responsible for determining the content of oral health and oral hygiene education and training programs for nursing staff and for establishing systems to help ensure that all newly hired nursing staff receive appropriate oral health and oral hygiene training and that all existing staff receive regular inservice training to reinforce and update their skills and knowledge related to oral health and oral hygiene. Ongoing learning activities foster sustained behavioral change and enable nursing staff to keep abreast of new developments in the field.[2] Furthermore, educational programs have been shown to improve nursing assistants' attitudes to oral hygiene care.[1] Table 14-1 lists the minimum recommended content areas for an education and training program in oral health and oral hygiene for nurses. (Also see Table 15-2, *Components of Oral Health Training for Nursing Assistants*; Table 15-3, *Oral Health Training Program for Nurses and Nursing Assistants: Pre-Test/Post-Test*; and Table 15-4, *Competencies for Nursing Assistants in Provision of Oral Hygiene Care in the Long Term Care Setting.*)

The DNS should take responsibility for ensuring that the facility has adequate oral hygiene supplies. A survey of nursing assistants found that lack of supplies was one of the greatest barriers to the provision of oral hygiene care.[1] Table 14-2 provides examples of and usage notes for typical oral hygiene supplies.

TABLE 14-1. Minimum Recommended Content Areas That Should Be Addressed in an Education and Training Program in Oral Health and Oral Hygiene for Nurses

Content Area	Tool Kit Chapter
Anatomy, physiology, and normal aging of the oral cavity	Chapter 5, **Oral Health**
Pathology of the oral cavity (e.g., angular cheilitis, herpes zoster, oral cancer)	Chapter 6, **Oral Conditions**
Periodontal disease process and systemic implications (e.g., diabetes, heart disease, stroke)	Chapter 7, **Systemic Complications of Oral Conditions**
Adverse oral side effects of medications (e.g., xerostomia) and other treatments such as chemotherapy or radiation (e.g., mucositis)	Chapter 9, **Medications and Oral Health**
Valid and reliable oral assessment tools and protocols	Chapter 10, **The Oral Health Assessment**
Assessment of the oral cavity	
Criteria for making referrals to the attending physician or practitioner or to an oral health professional (e.g., dentist, dental hygienist)	Chapter 11, **The Comprehensive Oral Health Program**
Availability of resources for consultation with an oral health professional	
Appropriate oral care products	
Appropriate oral care techniques and infection control considerations	
Appropriate denture care techniques (with hands-on demonstrations)	
Documentation of daily oral hygiene care	
Hands-on training in oral hygiene care delivery, particularly to care-resistant patients	
Roles of members of the interdisciplinary care team in oral health and oral hygiene	Chapter 12, **Role and Responsibilities of the Medical Director** Chapter 13, **Role and Responsibilities of the Oral Health Professional** Chapter 14, **Role and Responsibilities of the Director of Nursing Services** Chapter 15, **Role and Responsibilities of the Nursing Assistant**
Cultural traditions and beliefs of caregivers and patients	Table 3-1, *Examples of Misconceptions About Oral Health in Older Adults*
Educational support for the patient and family	–
Appropriate preventive measures to support patient health maintenance and promote functional independence to the extent feasible	–

Adapted with permission from: Registered Nurses' Association of Ontario, 2008[2] (modified with permission); Stein et al, 2009.[1]

TABLE 14-2. Oral Hygiene Supplies

Products		Usage	Note
Toothbrushes	Manual	■ Soft bristled toothbrushes are preferred to avoid injuring the teeth and gingiva (gums) ■ Small headed toothbrushes (pediatric) may be more effective at reaching difficult areas (the shape and size of the toothbrush should be chosen to suit the patient's mouth for optimal delivery of oral care) (Darby & Walsh, 2003; [Online] Available at http://www.cda-adc.ca/en/oral_health/cfyt/dental_care/flossing_brushing.asp)	■ Toothbrushes should be replaced at least every three months ■ Place toothbrushes upright and allow to air-dry ■ All oral tissues should be brushed not just teeth. Those with dentures need to brush oral tissues with a soft brush.
	Powered	■ Oscillating, rotating powered toothbrushes can be more effective in removing plaque than traditional manual toothbrushes (Robinson, Deacon et al, 2005)	
	Suction	■ Clinical reports suggest the use of suction toothbrushes in individuals diagnosed with dysphagia or those who are intubated	
Oral Rinses	Regular	■ Alcohol-based oral rinses should be avoided for patients who experience dry-mouth ■ Compounded oral rinses should be avoided ■ Oral rinses should contain fluoride for dentate individuals	■ Fluoride is a chemical agent which remineralizes and protects teeth from demineralization (Wyatt and MacEntee, 1997) ■ Products containing fluoride (toothpastes and oral rinses) are only necessary for dentate patients
	Chlorhexidine	■ Chlorhexidine rinse or gel is an antimicrobial agent	■ Consult with pharmacist, dental team and/or physician before using this product. A prescription is required ■ Long term use of chlorhexidine oral rinses can result in taste alterations and brown staining of oral hard tissues and dentures ■ Fluoride products should be used a minimum of two hours apart ■ Preferred concentration of product is 0.12% (without alcohol for individuals with dry mouth)
Foam Swabs		■ Foam swabs may be used to topically apply other products for patients who experience sensitive mucosa ■ May be used to remove surface debris, but is ineffective for plaque removal; toothbrushes are more effective in plaque removal and gingival stimulation, even when combined with water alone (Grap, Munro, Ashtioni & Bryant, 2003; Pearson & Hutton, 2002)	■ Using a toothbrush to remove debris is more effective (Pearson & Hutton, 2002) ■ Use with caution in those exhibiting reactive behaviours who are at risk of biting and swallowing/choking on swab
	Lemon glycerin	■ DO NOT use lemon and glycerin swabs	■ Lemon and glycerine swabs cause softening and erosion of the tooth enamel (Meurman, Sorvari et al., 1996)

TABLE 14-2. (continued)
Oral Hygiene Supplies

Products		Usage	Note
Saliva Substitutes		■ Can facilitate chewing, swallowing, speaking and lessen night time awakenings due to dry mouth (Furumoto, Barker, Carter-Honson & Barker, 1998) ■ Medicated gum with chlorhexidine acetate/xylitol shown to reduce denture stomatitis and chelitis (Simons, Brailsford, Kidd & Beighton, 2002)	
Moisturizers		■ Water-based products are recommended over petroleum products (e.g. vaseline)	■ Water-based products hydrate the dry tissues while petroleum products primarily serve to prevent further moisture loss ■ If safe, sips of water can be the best hydrator
Tongue Cleaners		■ The tongue should be brushed or cleaned to reduce bad breath ■ Tongue scrapers or cleaners are more effective in reducing bad breath than brushing alone (Outhouse, Al-Alawi, Fedorawicz & Kennan, 2003)	
Toothpastes		■ The choice of toothpaste should depend on the individual needs of the patient/client	■ Non-foaming pastes should be used for individuals diagnosed with dysphagia or for those who cannot tolerate foam ■ Fluoridated pastes for dentate individuals. Fluoridated pastes are not required for those who are edentulous ■ Use a toothpaste for sensitive teeth if required
Interproximal Cleaning		■ Flossing will clean unexposed surfaces of the teeth that are not accessible by tooth brushing alone ■ Examples of this product include traditional string floss, floss wands, interdental stimulators, and proxabrushes	■ Patients should be reminded to floss regularly
Nystatin		■ An antifungal agent commonly prescribed to treat candidal infections	■ Consult with pharmacist, dental team and/or physician before using this product
Analgesics		■ Single agent products should be used ■ Pain resulting from oral complications should be treated systemically when local measures are ineffective	■ Compounded analgesic oral rinses should be avoided as these can delay healing of conditions such as oral mucositis

Source: Registered Nurses' Association of Ontario. 2008. Oral Health: Nursing Assessment and Interventions. Toronto, Ontario.

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APPENDIX 14-1. Example of a Nursing Standard of Practice Protocol: Providing Oral Health Care to Older Adults

Updated July 2012

I. Overview: The promotion of oral health through good oral hygiene is an essential of nursing care. The registered nurse (RN) or designee provides regular oral care for functionally dependent and cognitively impaired older adults.

II. Background

A. Oral hygiene is directly linked with systemic infections, cardiac disease, cerebrovascular accident, acute myocardial infarction, glucose control in diabetes, nutritional intake, comfort, ability to speak, and a patient's self-esteem and overall well-being.

B. Definitions
   1. *Oral:* refers to the mouth (natural teeth, gingival and supporting tissues, hard and soft palate, mucosal lining of the mouth and throat, tongue, salivary glands, chewing muscles, upper and lower jaw, lips).
   2. *Oral cavity:* includes cheeks, hard and soft palate.
   3. *Oral hygiene:* the prevention of plaque-related disease, the destruction of plaque through the mechanical action of toothbrushing and flossing or use of other oral hygiene aides.
   4. *Edentulous:* natural teeth removed.

III. Patient Assessment

A. An RN/LPN conducts an oral assessment/evaluation on admission, quarterly, and as needed. This includes assessment of
   1. The oral cavity (lips, oral mucosa, and tongue): The oral cavity should be pink, moist, and intact.
   2. The presence or absence of natural teeth and/or dentures: Natural teeth should be intact and dentures (partial or full) should fit comfortably and not be moving when the older adult is speaking.
   3. Ability to function with or without natural teeth and/or dentures.
   4. Patient's ability to speak, chew, and swallow.
   5. Any abnormal findings (e.g., dryness, swelling, sores, ulcers, bleeding, white patches, broken or decayed teeth, halitosis, ill-fitting dentures, difficulty swallowing, signs of aspiration, pain) are documented by the nurse and the health care team is informed.

B. Assessment Tool: The Oral Health Assessment Tool (OHAT). (See Appendix 10-2, *Oral Health Assessment Tool*).

IV. Nursing-Care Strategies

A. Oral Hygiene Plan of Care: Dependent Mouth Care of the Edentulous Patient
   1. Oral care is provided during morning care, evening care, and as needed (PRN).
   2. Wash hands and don gloves.
   3. Wear eye and face protection if splashing/spitting is anticipated.
   4. Remove dentures.
   5. Brush dentures with toothbrush/toothpaste using up and down motion.
   6. Clean the grooved area that fits against the gum with the toothbrush. Rinse with cool water.
   7. Brush the patient's tongue.
   8. Reinsert dentures.
   9. Apply lip moisturizer.

APPENDIX 14-1. (continued)
Example of a Nursing Standard of Practice Protocol: Providing Oral Health Care to Older Adults

B. Dependent Mouth Care: Patient with Teeth or Partial Dentures
   1. Oral care is provided during morning care, evening care, and PRN.
   2. Wash hands and don gloves.
   3. Wear eye and face protection if splashing/spitting is anticipated.
   4. Place soft toothbrush at an angle against the gum line. Gently brush teeth in an up and down motion with short strokes using the toothbrush.
   5. Brush the patient's tongue.
   6. Apply lip moisturizer.

For partial dentures, follow procedure for full denture cleaning and insertion.

C. Assisted/Supervised Care
   1. Oral care is provided during morning care, evening care, and PRN.
   2. Assess patient abilities and provide assistance as needed.
   3. Set up necessary items.

V. Evaluation of Expected Outcomes

A. Patient will:
   1. Receive oral hygiene a minimum of once every 8 hours while in the acute-care, long term care, or home setting.
   2. Be referred (with family) to dental services for follow-up treatment.
   3. Be educated (with family) on the importance of good oral hygiene and follow-up dental services.

B. Professional caregiver/RN will:
   1. Conduct an assessment/evaluation of the oral cavity on admission and at any time a nursing assistant reports finding an abnormality during oral hygiene care.
   2. Notify the physician and dentist of any abnormalities present in the oral cavity.
   3. Assess what each patient can do independently.
   4. Observe aspiration precautions while providing care.
   5. Provide oral care and dental care education to patients and families.

C. Institution will:
   1. Provide access to dental services as appropriate.
   2. Provide ongoing education to health care providers.
   3. Provide annual oral health and dental care inservice training to health care providers.

Source:

Evidence-Based Geriatric Nursing Protocols for Best Practice, Fourth Edition
Marie Boltz, PhD, RN, APRN-BC; Elizabeth Capezuti, PhD, RN, FAAN; Terry Fulmer, PhD, RN, FAAN; DeAnne Zwicker, DrNP, APRN, BC - Editors
Ardis O'Meara, MA - Managing Editor

ISBN: 9780826171283

APPENDIX 14-2. Nursing Best Practices in Oral Health: Summary of Recommendations and Implementation Strategies

Recommendation	Level of Evidence*
Practice Recommendations	
1. Nurses should be aware of their personal oral hygiene beliefs and practices, as these may influence the care they provide to their clients.	III
2. As part of their client admission assessment, nurses obtain an oral health history that includes oral hygiene beliefs, practices, and current state of oral health.	IV
3. Nurses use a standardized, valid, and reliable oral assessment tool to perform their initial and ongoing oral assessments.	III
4. Oral health status information is regularly reviewed with all members of the health care team to monitor client progress and facilitate the development of an individualized plan of care.	IV
5. Nurses provide, supervise, remind, or cue oral care for clients at least twice daily, on a routine basis. This includes clients who • Have diminished health status, • Have a decreased level of consciousness, and • Who have teeth (dentate) or do not have teeth (edentate).	IV
6. Nurses provide or supervise the provision of oral care for clients at risk for aspiration.	III
7. Nurses provide ongoing oral care education to the client and/or family members.	III
8. Nurses are knowledgeable of oral hygiene products and their applications to their specific client populations.	IV
9. Nurses are aware of treatments and medications that affect oral health of clients.	IV
10. Nurses use appropriate techniques when providing oral care to clients.	IV
11. Nurses advocate referral of those clients who require consultation with an oral health professional (e.g. dental hygienist, denturist, dentist).	IV
12. Nurses ensure that all oral health-related history, assessment, and care be documented.	IV
Educational Recommendations	
13. Nurses require appropriate oral health knowledge and skills acquired through entry-level nursing education programs, workplace orientation programs, and ongoing professional development opportunities.	IV
14. Nurses who provide oral hygiene care to their clients, either directly or indirectly, must participate in and complete appropriate oral hygiene education and training.	IV
Organization and Policy Recommendations	
15. Health care organizations develop oral health care policies and programs that recognize [that] the components of oral health assessment [and] oral hygiene care and treatment are integral to quality client care.	IV
16. Health care organizations develop partnerships and increase capacity among providers to deliver collaborative practice models that improve the oral health care they provide to their clients.	IV

APPENDIX 14-2. (continued)
Nursing Best Practices in Oral Health: Summary of Recommendations and Implementation Strategies

17. Health care organizations implement continuing education opportunities for nurses and support them to complete oral hygiene education and training that is applicable to their health care setting.	IV
18. Health care organizations develop oral hygiene care standards that are based on the best available evidence and ensure they are implemented and monitored as part of the organization's commitment to providing quality oral health care and services.	III
19. Organizations should encourage and offer support, including time and resources, for nurses to participate in oral hygiene research to assist in better understanding the issues related to oral hygiene care provision in various health care settings.	IV
20. Oral hygiene care is monitored and evaluated as part of the organization's quality management program, utilizing a variety of quantitative and qualitative approaches.	IV
21. Organizations develop a plan for implementation of best-practices guideline recommendations that includes • An assessment of organizational readiness and barriers/facilitators, • Involvement of all members (whether in a direct or indirect supportive function) who will contribute to the implementation process, • Ongoing opportunities for discussion and education to reinforce the importance of best practices, • Dedication of a qualified individual to provide the support needed for the education and implementation process, • Ongoing opportunities for discussion and education to reinforce the importance of best practices, • Opportunities for reflection on personal and organizational experience in implementing guidelines, and • Strategies for sustainability.	IV

* **Levels of Evidence**	
Ia	Evidence obtained from meta-analysis of randomized controlled trials
Ib	Evidence obtained from at least one randomized controlled trial
IIa	Evidence obtained from at least one well-designed controlled study without randomization
IIb	Evidence obtained from at least one other type of well-designed quasi-experimental study, without randomization
III	Evidence obtained from well-designed non-experimental descriptive studies, such as comparative studies, correlation studies, and case studies
IV	Evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities

Implementation Strategies

- Have at least one dedicated person such as an advanced practice nurse or a clinical resource nurse who will provide support, clinical expertise, and leadership. This individual should also have good interpersonal, facilitation, and project management skills.

APPENDIX 14-2. (continued)
Nursing Best Practices in Oral Health: Summary of Recommendations and Implementation Strategies

- Conduct an organizational needs assessment related to oral hygiene to identify current knowledge base and further educational requirements.
- Initial needs assessment may include an analysis approach, survey and questionnaire, group format approaches (e.g. focus groups), and critical incidents.
- Establish a steering committee comprising key stakeholders and interdisciplinary members committed to lead the change initiative. Identify short- and long term goals. Keep a work plan to track activities, responsibilities, and timelines.
- Create a vision that helps to direct the change effort and develop strategies for achieving and sustaining the vision.
- Program design should include
  - Target population,
  - Goals and objectives,
  - Outcome measures,
  - Required resources (human resources, facilities, equipment), and
  - Evaluation activities.
- Design educational sessions and ongoing support for implementation. The educational sessions may comprise presentations, facilitator's guide, handouts, and case studies. Binders, posters, and pocket cards may be used as ongoing reminders of the training. Plan educational sessions that are interactive, include problem solving, address issues of immediate concern, and offer opportunities to practice new skills.[1]
- Provide organizational support (i.e., have structures in place to facilitate implementation). For example,[1]
  - Hire replacement staff so that participants in educational sessions will not be distracted by concerns about work.
  - Have an organizational philosophy that reflects the value of best practices through policies and procedures. Develop new assessment and documentation tools.
- Identify and support designated best practices champions on each unit to promote and support implementation. Celebrate milestones and achievements, acknowledging work well done.[1]
- Organizations implementing this guideline should adopt a range of self-learning, group-learning, mentorship, and reinforcement strategies that will, over time, build the knowledge and confidence of nurses in implementing this guideline.
- Beyond skilled nurses, the infrastructure required to implement this guideline includes access to specialized equipment and treatment materials. Orientation of the staff to the use of specific products and technologies must be provided and regular refresher training planned.
- Teamwork, collaborative assessment, and treatment planning with the client, family and interdisciplinary team are beneficial in implementing guidelines successfully. Referral should be made as necessary to services or resources in the community or within the organization.

APPENDIX 14-2. (continued)
Nursing Best Practices in Oral Health: Summary of Recommendations and Implementation Strategies

Reference

1. Davies B, Edwards N. RNs measure effectiveness of best practice guidelines. Regist Nurse J 2004; 16(1): 21-23. Available at http://rnao.ca/resources. Accessed 03/19/13.

Source: Registered Nurses' Association of Ontario. 2008. Oral Health: Nursing Assessment and Interventions. Toronto, Ontario. Available at: http://rnao.ca/bpg/guidelines/oral-health-nursing-assessment-and-intervention. Accessed 02/22/13.

15. Role and Responsibilities of the Nursing Assistant

Good oral health in long term care (LTC) patients is not possible without the help of nursing assistants. As providers of direct care, nursing assistants serve an essential role in the prevention of oral disease and maintenance of good oral health in their patients. Without the help of nursing assistants, most patients residing in LTC facilities are unable to provide basic toothbrushing or denture care for themselves.

Because of the unique and personal relationships nursing assistants develop with patients, they can observe and report changes in behavior, eating, sleeping, or new onset of resistance to care, all of which may be signs of a toothache or other oral health problem. When professional dental services are necessary, nursing assistants can help facilitate patient cooperation with treatment by offering reassurance and by communicating to the dental team special concerns (e.g., hearing or vision difficulties) and strategies that may increase the likelihood of cooperation (e.g., time of day when the patient is most likely to be cooperative). Table 15-1 presents examples of the specific responsibilities of nursing assistants that promote oral health in LTC patients.

TABLE 15-1. Examples of Nursing Assistant Responsibilities That Promote Oral Health

- Participate in oral health training sessions
- Provide or assist with (e.g., supervise, remind, cue) daily oral cleaning of all natural teeth and oral prostheses (dentures)
- Practice appropriate infection control while delivering oral hygiene care
- Adhere to safety precautions to prevent choking or aspiration during oral care
- Utilize appropriate strategies for care-resistant patients while providing oral care
- Properly store oral hygiene tools to prevent contamination
- Report the need for oral hygiene supplies to the supply manager
- Document the provision of daily oral care for each patient
- Look for oral problems while providing oral care (e.g., broken dentures, mouth sores, tooth decay)
- Report specific oral health and oral health care concerns to the medical director, director of nursing services, or nurse supervisor in a timely manner. (Facilities may consider using the INTERACT Stop and Watch Early Warning Tool [http://interact2.net/index.aspx] to facilitate the reporting of oral health concerns.)

Attitudes and Behaviors

The beliefs, practices, and anxieties of nursing assistants regarding their own oral health often influence the advice and oral care they provide for their patients. One study found that nursing assistants provided daily oral care for less than 20% of LTC patients and that no nursing assistants wore clean gloves while performing oral care.[1] Nursing assistants report that they are ill-prepared to provide oral hygiene care for patients and lack an understanding of the importance of oral care.[2] Some nursing assistants report experiencing feelings of disgust, distaste, and fear while providing oral hygiene care.

Educational programs that have addressed these issues have demonstrated some positive clinical outcomes. The most successful educational programs have included hands-on training and demonstrations, addressed strategies for care-resistant

patients, received support from the facility administration regarding time for oral health education and provision of oral care, and provided oral hygiene supplies and documentation forms.[3,4]

Training Strategies

Oral health training for nursing assistants should include both didactic and clinical components (Table 15-2). After the initial didactic and clinical training, ongoing learning activities should be planned to enhance the sustainability and efficiency of the oral care provided by nursing assistants. Training is often provided by a dental professional (dentist or dental hygienist). Table 15-3 lists competencies for nursing assistants in the provision of oral hygiene care in the LTC setting.

TABLE 15-2. Components of Oral Health Training for Nursing Assistants

Phase 1

- Administration of a pre-test to assess prior knowledge (Table 15-3)
- Overview of the importance of oral health for self and LTC patients
- Basics of safely providing daily oral hygiene care
- Oral health problems to look for, how to report problems, and when to refer
- Special concerns and strategies for addressing care resistance
- Administration of a post-test to evaluate learning outcomes (Table 15-3)

Phase 2

- Proper infection control procedures and personal protective equipment
- Correct positioning of the patient for oral care
- Oral care procedures, including proper toothbrushing, interdental cleaning, mouth swabbing, tongue cleaning, cleaning and storage of full and partial dentures, and proper storage of oral hygiene supplies
- Oral assessment utilizing the Oral Health Assessment Tool (see Appendix 10-2, *Oral Health Assessment Tool*)
- Documentation of oral care in a daily log, existing care-tracking system (see Table 11-1, *Example of a Daily Oral Hygiene Care Checklist*), or in the patient's care plan (see Table 11-2, *Example of an Individualized Oral Hygiene Care Plan*)
- Management of care-resistant behavior and using patient's family to help succeed (see Table 11-4, *Behavior Management Strategies for Providing Oral Care to Care-Resistant Patients*)

Phase 3

In the third phase of training the nursing assistant will provide oral care for patients with trainer supervision and coaching. Table 15-4 lists competencies that may serve as a checklist for this portion of the training. (Also see Table 11-3, *Recommended Best Practices for Daily Oral Hygiene Care*.)

TABLE 15-3. Oral Health Training Program for Nurses and Nursing Assistants

Pre-Test/Post-Test [answer key on following page]

Name: _____ Date: _____

1. _____ causes tooth decay and gum disease.

2. **True or False:** Patients who have diabetes who also have severe gum disease have more trouble controlling their blood sugar levels.

3. Which of the following is true?
   a. Even if the patient has no natural teeth, the inside of the mouth should still be cleaned with a toothbrush or swab.
   b. A swab is effective for removing plaque from the teeth.
   c. Ideally, natural teeth should be brushed for 20–30 seconds.

4. How often should natural teeth be brushed?
   a. Once a week
   b. 2–3 times per week
   c. Once per month
   d. At least twice per day

5. After you have washed your hands and put on gloves, you should
   a. Adjust the bed to the correct position.
   b. Turn on the light over the bed.
   c. Touch only the patient's own oral hygiene supplies.

6. Which of the following is a **false** statement about toothbrushes?
   a. Always choose a brush with medium bristles.
   b. Toothbrushes should be allowed to air dry.
   c. A Collis Curve toothbrush cleans all three sides of the teeth at the same time.

7. Fifteen studies have shown that brushing the teeth reduces _____ in nursing home patients.
   a. Dementia
   b. Pneumonia
   c. Oral cancer

8. When brushing the sides of teeth, the brush should be
   a. Moved in an up and down motion.
   b. Moved in a circular motion.
   c. Pressed lightly to spread the bristles under the gum.
   d. More than one of the above answers is correct.

9. In what position should the patient be for toothbrushing?
   a. It doesn't matter–whatever is most comfortable.
   b. If possible, sitting up. If bedridden, elevate the head of the bed.
   c. Lying flat in bed.

10. Which of the following is **not** a true statement about dentures?
    a. They should be protected by placing a towel in the sink while cleaning them.
    b. They should be cleaned once a week.
    c. They may cause redness and irritation in the mouth if left in overnight.
    d. They should be checked for cracks, sharp edges, and missing teeth each time they are cleaned.

Reprinted with minor modifications from: Nursing Home Staff Resources.[5]

Answer Key for Table 15-3 Oral Health Training Program for Nurses and Nursing Assistants: 1-Plaque; 2-True; 3-a; 4-d; 5-c; 6-a; 7-b; 8-d; 9-b; 10-b

TABLE 15-4. Competencies for Nursing Assistants in the Provision of Oral Hygiene Care in the Long Term Care Setting

1. Understand the consequences of poor oral care for older adults in long term care settings, including the increased risk of systemic conditions as well as oral problems.
2. Perform daily hygiene care to prevent oral disease, including
   - Proper tooth brushing,
   - Interdental cleaning,
   - Antimicrobial rinse/swab,
   - Mouth swabbing,
   - Tongue cleaning,
   - Denture/partial cleaning, and
   - Proper storage of oral hygiene supplies.
3. Practice proper infection control, including handwashing and appropriate use of barriers such as gloves, face mask, and safety glasses.
4. Understand safety precautions in providing oral care, including knowledge of when mouthwash, water, and toothpaste should **not** be used.
5. Document oral care in daily log or on care plan.
6. Know when to make an appropriate referral to a nurse or practitioner.
7. Understand best practices in handling resistance to care.
8. Perform correct and optimal positioning for oral care.

Reprinted with minor modifications from: Nursing Home Staff Resources.[5]

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4. Charteris P, Kinsella T. The oral care link nurse: A facilitator and educator for maintaining oral health for patients at the Royal Hospital for neuro-disability. Spec Care Dentist 2001; 21: 68-71.
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16. Options for Financing Dental Care

Private payment. Most patients in the long term care (LTC) setting pay out of pocket for dental care. A facility social worker or financial counselor may be able to help the patient and his or her family or legally authorized representative identify low-cost dental clinics or nonprofit community-based dental clinics that may provide free dental care.

Medicaid. Medicaid, the U.S. health program for certain people and families with low incomes and resources, is a means-tested program that is jointly funded by the state and federal governments, but managed by the states. Although comprehensive dental benefits for children enrolled in Medicaid are mandated in all states, there is no requirement for adult dental coverage. Many state Medicaid programs that cover adults do so only for emergency situations, often limited to extractions only. Fewer than 20% of states provide comprehensive dental care to adults enrolled in Medicaid.

Medicare. The Medicare program specifically excludes coverage of most dental care for older adults (the "statutory dental exclusion"). The only exceptions are that Medicare will pay for dental services that are an integral part of a covered *medical* procedure (e.g., reconstruction of the jaw following accidental injury) or for extractions done in preparation for radiation treatment for neoplastic diseases involving the jaw. Medicare will also, under certain circumstances, pay for oral examinations, but *not* for treatment, preceding kidney transplantation or heart valve replacement. These examinations are covered under Medicare Part A if performed by a dentist on the hospital's staff or under Medicare Part B if performed by a physician.[1] In addition, federal regulations (42 CFR §483.55, F411) permit skilled nursing facilities to charge a Medicare patient an additional amount out of pocket for routine and emergency dental services (see Chapter 4, **Overview of Federal Regulations**). Some Medicare managed care plans, however, may provide some dental coverage.

Private dental insurance. Long term care (LTC) patients may be able to purchase dental insurance. A facility social worker or financial counselor may be able to provide more information about this option.

Incurred medical expense option. Patients residing in LTC facilities who are enrolled in Medicaid generally receive Social Security or other retirement income monthly; this income is used to pay the LTC facility's bill, with the Medicaid program paying any remaining balance. Under Federal law, this income may also be used to pay for medically necessary health services not covered by Medicaid, including dental care. This is known as the "incurred medical expense" option.

The federal regulations relating to IME can be downloaded at http://edocket.access.gpo.gov/cfr_2004/octqtr/pdf/42cfr435.725.pdf (accessed 03/19/13).

The American Dental Association's (ADA's) National Elder Care Advisory Committee (NECAC) has produced a series of how-to guides to help dentists, state and county Medicaid caseworkers, and LTC patients and their families or legally authorized representatives to understand and use the IME mechanism to pay for medically necessary dental care. These guides and an archived video of a 2012 ADA webinar on how to use IME billing to pay for dental care can be accessed at http://www.ada.org/IME. (Also see box, **Incurred Medical Expenses – Paying for Dental Care: A How-To Guide**.)

Incurred Medical Expenses - Paying for Dental Care: A How-To Guide

Incurred Medical Expenses

Paying for Dental Care: A How-To Guide

American Dental Association, National Elder Care Advisory Committee, Council on Access, Prevention and Interprofessional Relations

Suggested Steps for State and County Medicaid Caseworkers

Overview

The Incurred Medical Expense regulations[1] can help most nursing facility residents who are enrolled in Medicaid pay for dental care.[2] Medicaid residents with Social Security or other retirement income[3] may be able to pay for medically necessary dental care that is not covered by Medicaid.[4]

The following illustrates how the Incurred Medical Expense regulations may operate in practice:

Paying the Nursing Facility's Bill: Upon admission to a nursing facility, a Medicaid Caseworker determines how much income a resident receives each month and applies that income to pay their Nursing Facility's bill, except for an amount for personal needs and certain other required deductions. Generally, residents on Medicaid don't have enough income to pay the total amount of the Nursing Facility's Bill, so the Caseworker notifies Medicaid to pay the remaining balance each month.

Paying the Dental Bill: When a resident receives a Dental Bill for services that are not covered by Medicaid or another third party payer, the bill may qualify as an Incurred Medical Expense. The resident's Medicaid Caseworker plays an important role in this process. He or she would review the Dental Bill, approve it as an Incurred Medical Expense, and then notify the resident or the resident's financial representative to pay the Dental Bill instead of the portion of the Nursing Facility's bill. At the same time the Caseworker approves payment of the Dental Bill, he or she would also notify the state requesting an increase in the amount that Medicaid pays towards the Nursing Facility's Bill to make sure that the facility continues to be paid in full. If the total amount of the Dental Bill is less than the resident's total monthly income, then the Dental Bill can be paid in full with just one payment. If the total amount of the Dental Bill is greater than the monthly income, then several monthly payments will need to be approved so that the entire Dental Bill gets paid. During each of those months, the Nursing Facility's payment from Medicaid would be increased in the amount of the Dental Bill payment.

Each state will have variations in the procedures. Refer to your state's own policies for details.

1. http://edocket.access.gpo.gov/cfr_2004/octqtr/pdf/42cfr435.725.pdf
2. If the resident has applicable income and pays for medically necessary dental care that is not covered by Medicaid or another third party payer, the state Medicaid agency may be permitted to increase its payment to the institution in the amount that the resident incurred for the care.
3. Medicaid beneficiaries with certain forms of income must generally apply that income, less certain deductions, to the cost of institutional care. The state Medicaid agency reduces its payment to the facility in the amount of such income less the deductions.
4. One required deduction is for expenses that the patient incurred for certain non-covered dental care. The agency may establish reasonable limits on the amounts of these expenses.

Caseworker Considerations:

When a Dental Bill is presented for a Medicaid recipient:

1. Verify that dental services listed in the Dental Bill are not covered by Medicaid or any other third party payer, and that the dental services are medically necessary. These points may be highlighted in the Dental Bill. If not, the dental office could be contacted for information about these two requirements.
2. Confirm that the nursing facility resident has applicable income that is currently used to pay for some or all of the resident's nursing facility care. Some states refer to this as Patient Liability Income (PLI).
   a. Residents **without** such income will not be able to use this method to pay for dental services. Inform the resident and/or the dental office. Other arrangements will need to be made regarding this bill.
   b. Residents **with** applicable income can use that income to pay the dental bill.
3. If the resident has applicable income, speak with the resident or the resident's financial representative about how to pay the Dental Bill.
   a. If the Dental Bill *is less than* or *equal to* the resident's monthly income, the Dental Bill should be paid in full. Adjust the amount to be paid by Medicaid towards the Nursing Facility's Bill by an amount equal to the Dental Bill, so the nursing facility is paid in full.
   b. If the Dental Bill *is greater than* the resident's monthly income, several monthly payments may be needed to pay the Dental Bill in full. Regular monthly payments can be made until the Dental Bill is paid in full. In each of these months, increase the amount paid by Medicaid towards the Nursing Facility's Bill by an equal amount.

Source: National Elder Care Advisory Committee, American Dental Association. Reprinted with permission.

Reference

1. Centers for Medicare & Medicaid Services. Medicare Dental Coverage. Available at: http://www.cms.gov/Medicare/Coverage/MedicareDentalCoverage/index.html?redirect=/MedicareDentalCoverage/. Accessed 02/22/13.

17. Quality Assurance

Quality assurance (QA) is the organizational structure, processes, and procedures designed to ensure that a facility meets or exceeds an expected standard of quality. Quality assurance includes the implementation of principles of continuous quality improvement. Long term care (LTC) facilities should use the QA process to monitor the effectiveness of their oral health programs.

The QA committee is the interdisciplinary committee responsible for overseeing the facility's quality improvement process and for performing or overseeing the following functions:[1]

- Tracking facility trends and patterns relating to quality of care and quality of life to identify quality concerns or issues;
- Identifying potential quality concerns or issues and selecting those that need investigation;
- Analyzing selected quality concerns or issues, including identifying underlying causes or contributing factors (i.e., root-cause analysis);
- Developing action plans (including lists of action items, responsible persons, and due dates) to address selected quality concerns or issues;
- Monitoring the implementation of action plans and their effect on quality concerns or issues; and
- Modifying the action plan as needed to achieve the intended goals.

The facility should establish benchmarks for oral care and should have both a process and appropriate forms or tools for measuring care delivery against these benchmarks over time. Tables 17-1 and 17-2 are examples of tools for, respectively, monitoring the delivery of oral hygiene care on a quarterly basis and performing a quarterly chart audit. Table 17-3 offers two examples of tools for use in performing an annual review of oral care provision.

Performance indicators help organizations to define and measure progress toward organizational goals. Table 17-4 lists possible indicators that facilities may wish to use to measure the performance of their oral health program. Facilities need not measure all of these indicators but may choose those most practical or appropriate to their circumstances.

A case study (see p. 118) illustrates the importance of considering oral health issues when evaluating a patient's acute change of condition and offers an example of an oral health-related quality problem that could be addressed through a systematic QA process.

Facilities that wish to make oral health a project under the Center for Medicare and Medicaid Services' Nursing Home Quality Assurance and Performance Improvement initiative can obtain tools and resources for doing so at http://cms.gov/Medicare/Provider-Enrollment-and-Certification/QAPI/NHQAPI.html.

TABLE 17-1. Example of an Oral Health Quarterly Observation Tool

Observe delivery of oral hygiene care to 10 patients or 10% of all patients, whichever is greater, once per quarter and as needed.
Totals row: Insert total number of "yes" and "no" responses for each patient observed.
Percentage (Pct) row: Divide number of "yes" responses by number of patients observed (e.g., 6 "yes" responses out of 10 patients observed = 60%)

Date of observation: (m/d/y) _____

	All patients			Patient able to communicate	Patient unable to communicate			Comments
	1. Oral care given	2. Teeth/dentures appear clean	3. Face clean, lips moist	4. Patient denies oral pain or discomfort	5. Cooperative with oral hygiene care	6. No signs of distress while eating or drinking	7. No signs suggesting oral pain or discomfort (e.g., grimacing, holding mouth)	
Patient #1	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	
Patient #2	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	
Patient #3	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	
Patient #4	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	
Patient #5	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	
Patient #6	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	
Patient #7	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	
Patient #8	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	
Patient #9	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	
Patient #10	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	
Patient #11	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	
Patient #12	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	
TOTALS	Yes ____ No ____	Yes ____ No ____	Yes ____ No ____	Yes ____ No ____	Yes ____ No ____	Yes ____ No ____	Yes ____ No ____	
PCT (%)								

Name of observer: _____
Signature of observer: _____

TABLE 17-2. Example of an Oral Health Quarterly Chart Audit

Review 10 charts or 10% of all patients' charts, whichever is greater, once per quarter and as needed.

Totals row: Insert total number of "yes" and "no" responses for each quality criterion.
Percentage (Pct) row: Divide number of "yes" responses by number of charts audited (e.g., 6 "yes" responses out of 10 charts audited = 60%)

Date of audit: (m/d/y) _____

	1. Oral health assessments are documented	2. Individual health plan is documented	3. Individual health plan is reviewed and updated as needed	4. Professional visits are documented	5. Oral hygiene care is documented (minimum of 2x/day)	6. No weight loss related to oral health issues is noted	7. No infection related to oral health issues is noted	Location of documentation	Comments
Patient #1	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐		
Patient #2	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐		
Patient #3	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐		
Patient #4	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐		
Patient #5	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐		
Patient #6	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐		
Patient #7	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐		
Patient #8	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐		
Patient #9	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐		
Patient #10	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐		
Patient #11	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐		
Patient #12	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐		
TOTALS	Yes ____ No ____	Yes ____ No ____	Yes ____ No ____	Yes ____ No ____	Yes ____ No ____	Yes ____ No ____	Yes ____ No ____		
PCT (%)									

Name of auditor: _____

Signature of auditor: _____

TABLE 17-3. Examples of Tools for Annual Review of Oral Care Provision

A. Observation

1. For each observation, transcribe the percentage from each quarterly observation tool into the appropriate column.
2. Total the quarterly percentages and divide by 4 to obtain the average.
   For example:
   Quarter #1 60%
   Quarter #2 50%
   Quarter #3 70%
   Quarter #4 60%
   Total 240
   Average 240/4 = 60%
3. Compare the average percentage for each observation with the facility's benchmark. Averages that fail to meet or exceed the benchmark indicate potential problem areas.

Observation		Quarter #1 Date: Pct (%)	Quarter #2 Date: Pct (%)	Quarter #3 Date: Pct (%)	Quarter #4 Date: Pct (%)	Total	Average
All patients	1. Oral care is given						
	2. Teeth/ dentures appear clean						
	3. Face clean, lips moist						
Patients able to communicate	4. Patient denies oral pain or discomfort						
Patients unable to communicate	5. Patient cooperates with oral hygiene care						
	6. Patient shows no signs of distress while eating or drinking						
	7. Patient shows no signs suggesting oral pain or discomfort (e.g., grimacing, holding mouth)						

TABLE 17-3. (continued)
Examples of Tools for Annual Review of Oral Care Provision

B. Chart Audit

1. For each quality measure, transcribe the percentage from each quarterly chart audit tool into the appropriate column.
2. Total the quarterly percentages and divide by 4 to obtain the average.
   For example:
   Quarter #1 70%
   Quarter #2 50%
   Quarter #3 60%
   Quarter #4 70%
   Total 250
   Average 250/4 = 62.5%
3. Compare the average percentage for each observation with the facility's benchmark. Averages that fail to meet or exceed the benchmark indicate potential problem areas.

Quality Measure	Quarter #1 Date: Pct (%)	Quarter #2 Date: Pct (%)	Quarter #3 Date: Pct (%)	Quarter #4 Date: Pct (%)	Total	Average
1. Oral health assessments are documented						
2. Individual health plan is documented						
3. Individual health plan is reviewed and updated as needed						
4. Professional visits are documented						
5. Oral health care is documented (minimum of 2x day)						
6. No weight loss related to oral health issues is noted						
7. No infection related to oral health issues is noted						

TABLE 17-4. Sample Performance Measurement Indicators—Oral Health

Process indicators

- The facility has in place a formal oral health plan, policies, and procedures, and an ongoing process for monitoring and evaluating the quality of oral health care.
- A designated staff member is responsible for overseeing oral health care in the facility.
- All new facility employees receive oral health training.
- Existing employees receive oral health refresher training at least twice per year.
- Every patient receives an oral health assessment upon admission or readmission to the facility.
- Every patient receives an oral health assessment quarterly, annually, and at any time follow-up of an oral finding is necessary.
- Every patient has an individualized oral hygiene care plan that is followed and reviewed at regular intervals.
- Every patient receives oral hygiene care twice per day.
- The facility has an ongoing relationship with one or more oral health professionals who provide routine and emergency dental treatment to patients and actively participate in the implementation and monitoring of the facility's oral health plan.

Outcome indicators

- Decrease in aggressive behaviors (e.g., care resistance, combativeness resulting from oral pain) during oral hygiene care
- Decrease in the number/proportion of patients experiencing weight loss related to oral pain, poorly fitting dentures, etc.
- Increase in the number/proportion of patients who receive routine examinations by a dentist at least once a year
- Decrease in
    - number/proportion of patients diagnosed with serious oral infections
    - number/proportion of patients diagnosed with extraoral infections subsequent to oral health conditions
- Decrease in the number/proportion of patients who develop pneumonia secondary to suspected oral suppuration

Case Study: A Missed Diagnosis of an Oral Health Problem

Mrs. A has been diagnosed with Alzheimer's disease and is nonverbal. She is frequently confused but generally compliant with care. A recent behavior change triggered an alert to staff.

Day 1: Mrs. A was noted to have unexplained agitation both in the morning and at bedtime, striking out during care (swatting the nursing assistant's hands away when she attempted to wash Mrs. A's face, comb her hair, or brush her teeth) and crying without staff being able to console her.

Days 2 and 3: Mrs. A's agitated behavior continued. A behavioral monitor was put in place for 30 days.

Comment: No formal assessment or care conference was instituted in response to the reported change in Mrs. A's behavior. Because Mrs. A had been compliant with oral care in the past, an oral health assessment should have been completed when she began resisting oral care. The changes in Mrs. A's behavior should have triggered a physical examination to rule out causes such as pain or infection, with particular attention to the face and mouth because the nursing assistant had reported that Mrs. A resisted toothbrushing.

Day 5: Agitated behavior and distress were now noted at lunchtime as well as in the morning and at bedtime.

Day 10: A total of 22 instances of Mrs. A refusing care had now been documented. Interventions, including verbal redirection, toileting, moving the patient to a new location, and substituting different staff when agitated behavior occurred, had had little or no success.

Comment: Although a behavioral monitor had been put in place and various interventions initiated, as yet no individualized assessment or care planning had occurred.

Day 11: Mrs. A's monthly weight check revealed that she had lost six pounds (15% of her body weight) since the previous month. Review of Mrs. A's food acceptance records showed a history of refusing entrees but accepting meal-replacement enhanced milk shakes. During the previous 2 weeks, however, she had been declining the shakes as well.

Comment: The decline in Mrs. A's food acceptance was not reported until her weight loss triggered further examination.

Day 14: At a special care-planning meeting it was decided to start Mrs. A on a psychotropic medication for a 30-day trial period. Frequent side effects of the medication were listed as constipation, lethargy, and weight gain.

Comment: Behavior changes and a decline in food acceptance are causes for concern; however, neither warranted the initiation of psychotropic medication without first conducting a complete physical examination.

Days 15–28: Agitated behavior, resistance to care, and food refusal continued. Three episodes of increased sleep and one episode of constipation were noted; however, no consistent pattern of possible psychotropic medication side effects was observed.

Days 29–32: Mrs. A became increasingly tearful, holding the side of her face at meals and refusing to open her mouth for ice cream, which had been a favorite food in the past. Upon further examination, a swelling above a molar with a dental cavity was noted.

Pain medication and an antibiotic were given and an urgent dental appointment was obtained. Mrs. A had to be sedated to allow the dentist to treat the molar. The molar was diagnosed as abscessed and was removed.

After her dental appointment Mrs. A was placed on short-term scheduled pain medication and as-needed medication for breakthrough pain. Her diet orders were changed to soft, textured foods with no straws or extreme temperatures for 1 week. Daily pain assessments and follow-up behavioral monitoring were initiated for 30 days. Orders were also given to check Mrs. A's weight weekly for 4 weeks.

Comment: Pain was not identified as an underlying cause of Mrs. A's behaviors. The psychotropic medication was continued.

Day 33: At a care conference to evaluate Mrs. A's behavioral monitoring, it was decided to discontinue the psychotropic medication.

Day 48: On reassessment, Mrs. A showed no new agitated behaviors and a decline was noted in her previous behaviors. Food acceptance records indicated an increase in food intake. Weight records indicated a slight weight gain.

Comments: Changes in behavior or food acceptance in confused patients call for a pain assessment and a physical examination to rule out physical causes. In addition, psychotropic medication should not be initiated without first conducting a physical examination to rule out physical causes for the behavior changes.

Staff are to be commended for initiating behavioral monitoring; however, the important step of conducting a physical examination when Mrs. A's behavior changes were first noted was missed. Furthermore, the sudden change in her behavior from compliance with oral care to care resistance should have triggered an oral assessment.

Reference

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Summary

As a growing body of evidence links poor oral health with several systemic medical conditions common in older adults,[1] poor oral health is increasingly recognized as presenting a serious threat to the health status of this population.

Many older adults have poor oral health at the time of admission to a long term care (LTC) facility and many patients in the LTC setting have chronic medical conditions or physical or cognitive disabilities that limit their ability to perform oral hygiene care without assistance.[2] Although an abundance of evidence demonstrates a need for substantial improvement in the oral care provided to patients in the LTC setting, a variety of barriers must be overcome to make such improvement a reality.

Providing oral hygiene care to dependent and cognitively impaired older adults is a challenging task[3] for which many caregivers feel inadequately prepared as oral health has been given low priority in the education of most LTC providers. Cognitive impairment and resistive behavior in older adults are major barriers to the delivery of oral hygiene care in the LTC setting.[4] Most LTC facilities lack adequate facilities, equipment, and dedicated space for the provision of dental services. Furthermore, the financing of dental care in the LTC setting is a major challenge.

The Omnibus Budget Reconciliation Act of 1987 (OBRA '87) requires all LTC facilities that receive Medicaid or Medicare reimbursement to provide patients with access to a range of dental services. If followed, federal regulations can provide a framework on which to structure a comprehensive oral care program that offers routine assessment, oral hygiene care for dependent patients, and access to dental services.

The success of an oral health program depends on institutional commitment (including commitment by the facility administration) to oral health care and on the implementation of policies and plans that create a shared vision of the importance of oral health. LTC settings noted for their success in maintaining patients' oral health have in common administrative and clinical leadership commitment that places an explicit priority on oral health care.[5] Caregiving staff must be empowered with the knowledge, skills, and training they need to assume responsibility for oral assessment and daily oral hygiene care, as well as with the necessary time and tools to be effective oral care providers. The availability and support of oral health professionals can help LTC providers develop and implement oral health assessments, oral hygiene, training, and treatment programs.[6]

The implementation of holistic, comprehensive approaches to oral health care in LTC facilities presents many challenges. This tool kit offers practical guidance and concrete steps that will assist care providers in LTC facilities in overcoming many of the obstacles to the provision of high-quality oral health programs.

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Resources

A compendium of additional resources is available through AMDA's Clinical Corners page at http://www.amda.com/OH.

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