Nurses must provide better oral care to older adults and patients with severe disabilities.

OVERVIEW: The poor oral care given to vulnerable patients in long-term care settings can have serious consequences, including increased risk of stroke, heart disease, and pneumonia. But improving oral care must begin with education, especially of providers who encounter resistant behavior in elderly and disabled residents. Nurses should make sure that the appropriate supplies are in place, promote the importance of oral care to all direct care staff and administrators, and make evidence-based recommendations during resident care conferences.

Poor oral hygiene is not the first thing that comes to mind when considering the challenges long-term care residents face. But evidence links poor oral health to serious systemic illnesses, including diabetes, stroke, hypertension, myocardial infarction, and aspiration pneumonia. And despite their need for help in performing oral care, residents often receive little of it.

For example, in a 2006 study that examined the oral care given to nursing home residents by nursing assistants who were blinded to the focus of the study, only 16% of residents received any oral care, with an average toothbrushing time per resident of only 16.2 seconds. Although this is woefully inadequate, some might consider it fortunate, given that none of the nursing assistants wore clean gloves while performing oral care, and they often brushed or swabbed residents’ teeth immediately after cleaning the perineal area or changing soiled garments.¹

The Centers for Disease Control and Prevention reports that in 2004, 1.5 million people in this country lived in nursing homes, 1.3 million of them over the age of 65.², ³ Much literature points to the poor oral health of residents in long-term care settings.¹, ⁴, ⁵, ⁶, ⁷ Even nursing home executive directors rate residents’ oral health as fair to poor.⁴
Many institutionalized people cannot perform their own oral care. In a study conducted in the United Kingdom, Frenkel and colleagues reported that 72% to 84% of nursing home residents had difficulty brushing their own teeth, and 78% to 94% of denture wearers found it difficult or impossible to clean their dentures themselves. And in another UK study, only 5% of residential home dwellers who requested assistance with oral care ever received it.

**Figure 1. Positioning for Oral Care**

First, approach the patient face to face, introduce yourself, and explain what you’re about to do. Next, with the patient sitting as upright as possible (to prevent aspiration), walk behind the patient. Cradle the head with one arm and with your forefinger and thumb retract the lips and cheeks. With your other hand, use a toothbrush or other instrument as needed. Illustration by Denny Bond.
In 1987 the Omnibus Reconciliation Act (OBRA) was signed into law. Among other mandates, OBRA requires long-term care facilities that receive Medicare or Medicaid funds to annually assess the oral health of residents using a Minimum Data Set questionnaire, and to provide or arrange for the provision of routine and emergency dental treatment to meet residents’ needs.11

In a study of 413 nursing home residents in Kentucky, nearly 80% were found, upon examination by a dentist, to have fair to poor overall oral health; answering a survey, 37% reported tartar on their teeth; 18% reported current dental problems; 14% reported bleeding gums; and 13% reported pain in their teeth, gums, or jaws.12 One-third of the residents hadn’t seen a dentist in more than five years. At many facilities, clearly, the OBRA requirements for oral care aren’t being met.

IN ONE STUDY NURSING ASSISTANTS OFTEN BRUSHED OR SWABBED RESIDENTS’ TEETH IMMEDIATELY AFTER CLEANING THE PERINEAL AREA.

It may be challenging to provide for the oral health needs of elderly and disabled institutionalized residents, but a failure to do so can result in serious consequences, as this month’s “Case Study: Asphyxia Caused by Inspissated Oral and Nasopharyngeal Secretions,” shows. The case described may seem extreme, but in particularly vulnerable populations poor oral health can contribute to significant illness and even death.

CONSEQUENCES OF POOR ORAL HEALTH

Most clinicians accept that there’s a link between aspiration pneumonia and poor oral health. Terpenning and colleagues found a significant association between the presence of pathogenic oral bacteria and the incidence of aspiration pneumonia.13 A similar study conducted in Japan found that poor oral hygiene in institutionalized patients significantly increased both the risk of pneumonia and the number of febrile days.14 In another Japanese study of nursing home residents, oral care (including weekly sessions with hygienists and dentists, as needed) greatly reduced the risk of developing or dying from pneumonia.15 Several Japanese studies have shown that professional oral health care is effective in reducing respiratory pathogens.15-17 And Canadian researchers who conducted a metaanalysis of 19 studies on the association between respiratory diseases and oral health found strong evidence that improved oral hygiene significantly decreases the incidence of respiratory diseases among nursing home residents.18

The American Academy of Periodontology estimates that “at least half” of noninstitutionalized people ages 55 and older have periodontitis and that “almost one out of four” ages 65 and older have lost all of their teeth.19 Periodontal disease (chronic bacterial infection of the tissues surrounding the teeth) adversely affects glycemic control in diabetic patients.20 Thorstensson and colleagues found a significantly higher prevalence of cardiovascular complications, including stroke, transient ischemic attack, angina, and myocardial infarction, in subjects with diabetes who had severe periodontal disease than in those who had minimal or no periodontal disease.21 In a longitudinal study of more than 600 participants with type 2 diabetes, those with severe periodontal disease had 3.2 times the risk of death from ischemic heart disease and diabetic nephropathy that a reference group with moderate, mild, or no periodontal disease had.22

In the past 20 years researchers have investigated possible links between periodontal and vascular diseases. Although more research is needed to establish cause and effect, findings from numerous studies are compelling. Data from the First National Health and Nutrition Examination Survey (NHANES I) suggest that periodontal disease is a significant risk factor for stroke.23 Grau and colleagues found that subjects with severe periodontal disease had a risk of stroke 4.3 times greater than that in control subjects.24 And in a study of more than 4,000 subjects, severe periodontal disease was significantly related to hypertension and myocardial infarction.25 Other research found a nearly six-fold increase in the risk of coronary heart disease in subjects with severe periodontal disease after controlling for age and smoking.26 Further, periodontal disease has been shown to increase the risk of death from coronary heart disease.27

A CALL TO ACTION

This strong evidence calls for a response from the nursing profession. According to Patricia Ryan Coleman, writing in the Journal of Gerontological Nursing, “Nurses have a professional duty to ensure basic oral health care for patients.”28 Oral care, like bathing, toileting, and feeding, is essential to the holistic care that nurses and nursing assistants
provide to residents who can't care for themselves. Although the oral cavity is generally thought to be the realm of the dentist, many residents in long-term care facilities never see one. Coleman and others have offered recommendations for nurses on addressing the problem of poor oral health in long-term care facility residents.28-31

**Training and education.** Many factors contribute to poor oral health among nursing home residents, but a lack of day-to-day oral care is likely the most important. Coleman suggests that nursing schools collaborate with dental and dental hygiene schools so that nurses and nursing assistants are well trained in providing oral care to this vulnerable population. Curricula should cover oral pathology, oral examination, adverse oral effects of drugs, and guidelines for prevention and referral.30 Coleman also suggests that such information be integrated into other commonly taught nursing topics such as health assessment, nutrition, and palliative care.

Continuing education can also provide practicing nurses and nursing assistants with similar training. Successful programs that improved oral clinical measures in patients have been described.1, 6, 32 Such training addresses attitudes such as disgust, distaste, and fear that may act as a barrier to the provision of care; educational programs have been shown to improve nursing assistants’ attitudes toward oral care.13, 24

In addition, studies show positive clinical outcomes when nursing home administrators support attendance at training sessions.9 Not surprisingly, educational programs with low attendance have poorer results. In one such study, no significant improvement in oral health was seen in residents of 14 long-term care facilities when attendance at educational sessions was poor (15%).34 Recommendations for successful educational programs include

- the provision of oral hygiene supplies.9
- the provision of forms for daily documentation of oral care.35
- education on oral diseases.9
- instruction on oral assessment.35
- education on the importance of oral care.35
- training conducted in small groups.5
- limits on interruptions.30
- hands-on training for delivery of oral care, particularly to care-resistant patients.36, 37

**HANDLING RESISTANCE TO CARE**

Resistance to receiving care is a significant barrier to good oral care among long-term care residents.30, 38 The Southern Association of Institutional Dentists provides specific guidelines on oral hygiene in residents with mental and developmental disabilities.39 Its Web site (www.saiddent.org/modules.asp) provides several self-study modules; Module 11, in particular, addresses the delivery of oral care to those who might resist it.40 The following recommendations summarize its best practices.

**Toothbrushing** is the gold standard of oral hygiene and is advised in almost all patients. Even in residents who need help, caregivers should encourage as much independence as possible. In fact, residents exhibit less resistance when caregivers encourage them to perform their own oral care.7 Patients, particularly cognitively impaired older adults, may be cued to remember tasks learned in early childhood.41 Placing a toothbrush in the dominant hand of the resident and providing nonverbal cues, such as pictures, modeling, and pantomiming, can be an effective strategy for overcoming resistance to toothbrushing in some residents.36 Using an egg timer and setting it for gradually longer intervals (30, 60, 90, and finally 120 seconds) may promote adequate brushing time.39 Independent brushers should be supervised and encouraged daily. The resident or a nursing assistant can use a checklist to ensure that toothbrushing is being performed effectively.

Modified or specially designed toothbrushes are recommended for use in special-needs populations. Soft bristles prevent oral injury and reduce discomfort. An infant’s or child’s brush is preferable for use in those with a small oral cavity or limited opening capacity. Bending the toothbrush handle back approximately 45° may improve access for caregivers who are trying to perform oral care in resistant residents. The angled brush head may be inserted between the cheek and teeth to facilitate toothbrushing.42 The Collis Curve toothbrush, with its curved bristles of differing lengths, is designed to clean all tooth surfaces simultaneously. And electric toothbrushes and spin brushes may be more effective than manual brushes in removing plaque and controlling gingivitis in vulnerable patients.43, 44 Suction toothbrushes may benefit more debilitated patients, including those with dysphagia or who receive enteral feeding.45

A small (pea-size) amount of fluoride toothpaste is recommended for use in most patients. But toothpaste should not be used in those who have severe disabilities and are prone to gagging and choking. Instead, the toothbrush can be moistened with a minty mouthwash.39

**Toothbrush alternatives.** A small minority of severely debilitated patients (for example, those who are intubated and have severe ulcerations around the mouth or who have profound clotting disturbances that may cause gingival hemorrhage) may require an alternative to toothbrushing. In these instances, a foam stick (such as the Toothette) soaked in alcohol-free 0.12% chlorhexidine mouth rinse (such as Perio-Aid) can be effective in reducing plaque. All outer and inner surfaces of the teeth...
Nurses can and should push for oral hygiene supplies, including toothbrushes, fluoride toothpaste, mouthwashes, and moisturizing gels, as well as brushes, cleaning tablets, and denture-storage containers. A recent survey of nursing assistants found that one of the greatest barriers to providing oral care to residents is a lack of supplies.36 Nurses, particularly directors of nursing and charge nurses, can and should promote oral health as an institutional value to direct-care nurses and nursing assistants.30 Expectations should be clear and staff held accountable. Nursing staff may argue that they don’t have enough time for oral care. In fact, care aides have admitted that when there’s insufficient time to complete all care regimens, oral care is the first to go.48 This is unacceptable. Oral care should receive the same priority as other kinds of care.29

If oral care cannot be carried out during a normal shift, the nursing home administrator should be approached to provide solutions. It’s been suggested that directors of nursing should appoint one nursing assistant to care for the oral health of residents as her or his sole duty.49 In fact, hiring an additional nursing assistant to provide oral care can be cost-effective, possibly reducing costly outcomes such as pneumonia.29 According to a 2002 estimate, if each of the roughly 19,000 nursing homes in the United States hired an aide as an “oral care specialist” at a salary of $25,000 per year plus benefits and this intervention reduced the incidence of pneumonia by only 10%, the net cost savings would exceed $300 million.30

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**WHAT NURSES CAN DO**

There are several steps nurses can take to improve the oral care of older and disabled residents.

**RESIDENTS EXHIBIT LESS RESISTANCE WHEN CAREGIVERS ENCOURAGE THEM TO PERFORM THEIR OWN ORAL CARE.**

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improve glycemic control\(^1\) and reduce death from diabetes complications.\(^2\),\(^3\) Because of strong evidence that improved oral hygiene decreases the incidence or progression of respiratory diseases,\(^4\) nurses should advocate the same diligent oral hygiene routine in those at risk for or with respiratory disease.\(^5\) Finally, the role of oral problems in nursing home residents who are underweight, malnourished, depressed, or socially isolated should be considered. An oral examination can be performed to rule out problems with teeth, dentures, or oral mucosa.

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