A LITERATURE REVIEW ON
WOMEN’S ORAL HEALTH
ACROSS THE LIFE SPAN

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Almost two decades ago, in the preface to a landmark report published by the U.S. Department of Health and Human Services (2000, paragraph 2), the former U.S. Surgeon General, David Satcher, described a “silent epidemic” of dental and oral diseases that significantly affected various population groups. The health of the mouth reflects general health and well-being; thus, poor oral health among the U.S. population can have a substantial impact on the overall health of U.S. citizens and the nation.

Abstract: The importance of women’s oral health and its association with overall systemic health cannot be overemphasized. Poor oral health can have several detrimental effects on a woman’s health across her life span. This article reviews the literature and describes how nurses, nurse practitioners, and nurse-midwives can incorporate oral cavity examinations into their care of women. http://dx.doi.org/10.1016/j.nwh.2017.02.010

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Despite the availability of effective treatment and prevention methods, only slight gains have been made, and oral health status has declined for some populations. It is imperative that nurses, advanced practice nurses, nurse-midwives, and other health care providers understand their role in the promotion of oral systemic health, its impact on the health of women, and the importance of integrating the oral health examination into care across the life span.

BACKGROUND

In 2014, faculty from the College of Dentistry at the University of Florida presented evidence for the need to create a diverse dental workforce. There is a quantitative shortage of dentists, both generally and among those representing the racial/ethnic diversity of the people they serve. Subsequently, there is a significant untreated population, and this results in health consequences (sometimes fatal) that ensue from lack of adequate dental treatment. A holistic approach by health care providers to embrace the oral health needs of the public they serve is called for (Catalanotto, 2014).

Senator Bernie Sanders, in his role as Chair of the Health, Education, Labor and Pensions Subcommittee, reported in 2012 that 17 million children have no dental services. Furthermore, 25% of adults ages 65 years and older have lost all of their teeth (Sanders, 2012). The Healthy People 2020 (U.S. Department of Health and Human Services, 2011), the Centers for Disease Control and Prevention (CDC), and the HRSA also recognize the existence of a significant problem, particularly with regard to disparities as they relate to dental care (HRSA, 2014). The Patient Protection and Affordable Care Act (ACA; 2010) addressed dental disparities and made provisions for pediatric dental care. Despite this, many individuals might not receive services or they might receive services at the wrong time and in the wrong setting, such as when a person seeks care for a toothache in the emergency room, which is inefficient, expensive, and untimely. That type of health care visit could be eliminated with preventive health care and coordinated care. The growing population of midlevel providers, called dental therapists, may help expand access to care. Although at the time of this writing the future of the ACA is unknown, many people will continue to struggle to find dentists who accept public insurance (Grant, 2017).

What can nurses and other health care providers do? First, we can become part of the interprofessional dental health
workforce. Performing an oral health examination takes approximately 2 minutes and can be easily incorporated into the physical examination. By raising a woman’s awareness of the need to care about oral health and by educating her on how she can take care of her oral health, we can help influence health outcomes. It is incumbent upon clinicians to facilitate referrals to both private-practice and Medicaid-participating dentists or dental schools.

ORAL HEALTH EXAMINATION

An oral health examination is easily incorporated into examination of the head, ears, eyes, nose, and throat, commonly referred to as HEENT. Recent recommendations suggest that it would be more beneficial to use the acronym HEENOT, which adds the O for oral cavity (Haber et al., 2014). The examination is conducted to determine the health status of the teeth and gums and to note any precancerous or cancerous lesions (see Boxes 1 and 2).

As in any physical examination, the face should be examined for asymmetry or abnormal lesions. Lips must be thoroughly examined for evidence of herpes, impetigo, or angular cheilitis, which can also be caused by vitamin B12 deficiency, candidiasis, or poor-fitting dentures. Nonhealing lesions could indicate skin cancer and should be followed-up on with referral to a specialist.

Clinicians should check the inside of the lips by folding the upper lip up and folding the lower lip down. A healthy mouth has smooth, pink, moist mucosa. Ulcerations or white/grey discolored patches are causes for concern. Inflammation of the gums, plaque or debris at the gum line, or any gingival recession evidenced by gums shrinking away from teeth should be noted. This process is repeated for the inside of the cheeks, looking for the same evidence of smooth, pink, and moist mucosa and gums. Again, ulcerations are cause for concern, particularly in someone who uses any type of tobacco, including smokeless. During this part of the examination, clinicians can provide education regarding regular dental visits and proper oral health habits.

The gums should be examined for periodontal disease, an inflammatory disease that affects the soft and hard structures that support teeth (American Academy of Periodontology, 2016). In early stages it is called gingivitis and is characterized by red and edematous gums. Periodontitis is a deep inflammation of the gums, ligaments, and bony structures.

Clinicians should examine the anterior and posterior surfaces (if possible) of the teeth, noting discoloration, caries, plaque, trauma, and damaged or missing teeth. If a mouth mirror is not available, the woman can be asked to tilt her head backward. While the head is tilted, the hard and soft palate can be inspected; these areas can be high-risk areas for oral cancers.

The presence of saliva should be observed. It should be transparent and obvious to the naked eye. Saliva balances the oral flora, helps in the maintenance of enamel, and prevents some oral infections with its antibacterial and antifungal properties. It is mainly produced by three pairs of glands and contributes enzymes for the digestion of food (Furness, Bryan, Birchenough, & Worthington, 2013).

The tongue is an area that is common for the development of precancer or cancer and is often missed during an oral examination. During examination, the clinician can ask a woman to protrude her tongue; then the clinician grasps it with gauze and moves it to one side while retracting the cheek with a tongue blade, finger, or mouth mirror to visualize posterior lateral margins of the tongue (a cancer-prone area). This process is repeated in the opposite direction for the opposite margin of the tongue.

The posterior pharynx should be examined for symmetry of size, and supporting structures should also be examined. A tongue blade will help with holding down the tongue to assist with visualization. Any areas of erythema, exudate, or

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**BOX 1**

### BRIEF ANATOMY OF THE ORAL CAVITY

There are eight different types of teeth and 32 in the permanent dentition:
- 4 central incisors
- 4 lateral incisors
- 4 canines
- 4 first premolars (first bicuspid)
- 4 second premolars (second bicuspid)
- 4 first molars
- 4 second molars
- 4 third molars

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**BOX 2**

### EQUIPMENT NEEDED FOR ORAL EXAMINATION

- Gloves
- Light source
- Tongue blade
- Gauze (2×2 or 4×4)
- Mouth mirror (optional)
ulceration should be noted. A woman should be asked to say “Ahhhh” to allow observation of movement of the uvula. Then the floor of the mouth can be inspected and palpated by asking the woman to lift her tongue to the roof of her mouth.

Any white lesions in the mouth warrant referral to a dental professional or ear, nose, and throat specialist to rule out cancer. Oral cancer is the sixth most common cancer globally, and the large majority of oral cancers are in an advanced stage at the time of detection, leading to approximately 10,000 deaths per year in the United States (Brocklehurst, Kujan, O’Malley, Shepherd, & Glenny, 2013; Oral Cancer Foundation, 2016). Infection with human papilloma virus 16 is associated with oral cancer that is more likely to be treatable if caught early (Gil-lison, Chaturvedi, Anderson, & Fakhry, 2015). The danger of oral cancer is that early growth can be painless and unnoticed by women, thus increasing the risk of development of secondary primary tumors.

**PUBERTY**

Surging levels of estrogen and progesterone during puberty change the oral environment, predisposing adolescents to an increased risk of gingivitis and periodontal problems. Increased circulation and high concentrations of estrogen and progesterone allow for increased bacterial colonization, which can lead to gingivitis (Thomas & Chitra, 2013). Mild cases of gingivitis will respond quickly to scaling and improved oral hygiene.

Approximately 50% of adolescents ages 12 to 15 years suffer from tooth decay (Hummel, Phillips, Holt, & Hayes, 2015). Almost all oral disease is preventable. The American Dental Association (ADA) recommends the application of fluoride varnish every 6 months to prevent caries in primary and permanent teeth (ADA Center for Evidence-Based Dentistry, 2013). The application of fluoride varnish is not a difficult procedure and can be accomplished outside a dental office. Fluoride varnish can be and continues to be applied by nurses in schools and by nurse practitioners and other health care providers in clinics and private offices (Kaplan et al., 2009; Marinho et al., 2013). In places where fluoride varnish programs are in place, there is an 81% decrease in the prevalence of dental caries (Kaplan et al., 2009). Prevalence of dental caries increases as age increases, so prevention is key.

Health care providers should perform an oral examination on all young women during puberty, referring them for further follow-up as necessary. Young women with eating disorders are at increased risk for mucositis (mouth sores), cheilitis (inflammation of the lips), hypertrophy of the salivary glands, and dental erosions (ADA, 2016b).

**SEXUAL ACTIVITY AND ORAL HEALTH**

An intact and healthy mucosal membrane is an essential barrier/protector from bacteria and viruses including syphilis, gonorrhea, herpes, HIV, chlamydia, and human papilloma virus (Saini, Saini, & Sharma, 2010). Although transmission rates of sexually transmitted infections are lower through oral–genital contact than through sexual intercourse, oral sex still carries infection risks. For those who participate in oral sex without protection, the mouth is the primary barrier/protector. When the mucosal surface has been broken by periodontal disease (gingivitis, lesion, or a tear) an entryway to the entire bloodstream is created, leaving the individual susceptible to over 150 species of bacteria. Clinicians should discuss barrier protective methods for use during oral sex with women who engage in oral sex (see Box 3 for other recommendations).

Sexually active women with preexisting gum disease may have an increased response to bacterial plaque while taking hormonal contraceptives, when they are pregnant, or while using hormone replacement therapy (Case Western Reserve University, 2012). An increase in gingival irritation and a decrease in saliva, contributing to periodontitis, may be statistically significant (Saini et al., 2010). Dental examinations should be an integral part of women’s health care to prevent future dental complications.

**WOMEN OF REPRODUCTIVE AGE**

An understanding of hormonal changes and how they influence oral health will provide a foundation for health care providers. A woman’s oral health environment is extremely important to her overall systemic health. The mouth is the gateway to the body. Oral health problems can surface when women experience a normal elevation or decreased level of sex hormones (estrogen and progesterone). Menses may have no effect on a woman’s oral health if she has healthy gingiva (Shourie et al.,

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**BOX 3**

**HEALTH EDUCATION REGARDING ORAL HEALTH AND ORAL SEX**

Avoid oral sex with anyone who has a sexually transmitted infection, sores, or lesions on their genitals or sores or lesions on and in their mouths.

Wait to have oral sex at least 30 minutes after brushing or flossing teeth.

Avoid oral sex after recent dental treatment or periodontal therapy (such as dental scaling and periodontal surgery).

If body fluids are in the mouth, rinse with antibacterial mouthwash.


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Women with gingivitis may experience swollen gingival tissues, activation of herpes labialis, aphthous ulcers (canker sores), prolonged hemorrhage after oral surgery, and swollen salivary glands because hormones may exaggerate preexisting inflammation (Shourie et al., 2012). Once menses begins, bleeding gums should resolve, but treatment for gingivitis is recommended (Shourie et al., 2012).

Women taking hormonal contraceptives (oral, transdermal, or implanted) are particularly vulnerable to oral health concerns. Hormonal contraceptives mimic a state of pregnancy, and a higher level of progesterone and estrogen influence an increase in bacterial colonization (Thomas & Chitra, 2013). Hormonal contraceptive users experience changes in the composition of the saliva and a decrease in the amount of saliva, leading to oral health problems that can range from irritated gingiva to aggressive periodontitis (Thomas & Chitra, 2013). Low-dose hormonal contraceptives will lessen oral irritation, but any long-term use of low- or high-dose hormonal contraceptives may lead to an increased risk of periodontitis. Women should be advised to inform their dentist of hormonal contraceptive use, particularly if they need to have a tooth extracted. Hormonal contraceptive users are more likely to develop a painful condition after extraction known as dry socket (Indian Dental Association, 2012). For women taking oral contraceptives, extraction should take place on days that a woman is not taking pills or is taking placebo pills, at approximately days 23 through 28 of the menstrual cycle (Indian Dental Association, 2012).

Fertility
A study of more than 3,000 women points to a correlation between poor oral systemic health and the amount of time that it takes a woman to become pregnant (Hart, Doherty, Pennel, Newnham, & Newnham, 2012). Chronic periodontitis is associated with increased time to conception (Nwhator et al., 2014). Women without periodontal disease take approximately 5 months to conceive, whereas those with periodontal disease take 7 months or more. Non-White women were the most affected in the study by Hart et al. (2012) because they appeared to have the highest level of inflammatory response when suffering from gum disease. A non-White woman with periodontal disease can take more than 12 months to conceive. Consultation with a dentist should be part of each woman’s preconception counseling visit.

Pregnancy
The well-being of a pregnant woman and that of her fetus are integrally related and may be affected by the woman’s oral health. Dental care during pregnancy is often delayed because of fear on the part of the woman, the health care provider, or the dentist, but poor maternal oral health can have significant consequences for the pregnancy and pregnancy outcomes. Evidence shows that dental care, including radiographs, local anesthesia, and oral pain medication, is safe throughout pregnancy (Hummel et al., 2015). All pregnant women should have dental consultations to evaluate their own oral health and to reduce the risk of their offspring developing caries (American Academy of Pediatric Dentistry, 2011).

Dental treatment for tooth decay can be performed throughout pregnancy, but the ideal time is in the second trimester of pregnancy (14–28 weeks). During the second trimester the gravid uterus is still small enough not to cause much pressure on the vena cava while a woman reclines in a dentist’s office.
Poor maternal oral health can have significant consequences for the pregnancy and pregnancy outcomes

(Bansal & Kumar, 2013). In addition, periodontal disease during pregnancy has been associated with development of preeclampsia (Varshney & Gautam, 2014).

Approximately 40% of pregnant women have some form of periodontal disease (Srinivas & Parry, 2012). Periodontitis has been shown to contribute to premature birth, thus increasing the risk for low birth weight, and preeclampsia. Pregnant women with periodontitis have bacteria that may cause systemic inflammation leading to preterm labor. Studies have not yet shown that treatment of periodontal disease during pregnancy will improve outcomes; however, they do show that dental treatment of periodontal disease during pregnancy is safe. Women should be seen by a dentist early in the pregnancy to prevent or correct any oral health conditions (Thomas & Chitra, 2013).

During pregnancy, gingival alterations occur as the gums become highly vascularized, hyperplastic, and edematous, yet only 63% of women visit a dentist during pregnancy (Manchir, 2016). Bleeding gums, mediated by elevated estrogen, are often associated with pregnancy. Nonetheless, bleeding gums are often a sign of periodontal disease and should not be ignored. During pregnancy, it is estimated that 40% of women have some form of periodontal disease (Srinivas & Parry, 2012).

Nausea and vomiting in pregnancy can contribute to the erosion of tooth enamel. Women should be encouraged to rinse after vomiting with a solution of baking soda and water (American College of Nurse-Midwives, 2014). Prescription-strength topical fluoride may also be recommended by a dentist to prevent caries caused by erosion.

Gestational diabetes mellitus is a condition of carbohydrate intolerance that is detected during pregnancy (Nainggolan, 2013). A bidirectional relationship is apparent between periodontal disease and gestational diabetes mellitus. Cytokines released from inflamed periodontal tissues are known insulin antagonists, have the potential to affect blood glucose control, and may contribute to the progression of the disease. Both diabetes mellitus and gestational diabetes mellitus add to a woman’s risk for periodontitis and increased tooth loss as well.

Pregnancy is a time of growth. Pyogenic granuloma, or pregnancy tumor, is a benign inflammatory lesion that is the most commonly found lesion in the oral cavity. Influenced by the hormones of pregnancy, pyogenic granuloma can be found on the gingiva, tongue, lips, or buccal mucosa but most commonly appears on the labial aspect of the anterior maxillary region (Sun, Lei, Chen, Yu, & Zhou, 2014). Pyogenic granuloma, if present, is usually noticed during the second month of pregnancy, reaching maximum growth at 8 months. Removal of a pregnancy tumor is recommended only when the tumor interferes with mastication or causes pain. Pyogenic granuloma usually resolves and disappears by 12 weeks postpartum. It is imperative that care providers are aware of this condition that can occur in 10% of pregnancies (Sun et al., 2014).

During pregnancy it is imperative that providers incorporate an oral examination. At the first prenatal
visit, a woman should be counseled to see her dentist. The importance of dental care during pregnancy for the health of both the woman and fetus should be emphasized. Both the oral examination and referral should be documented on the health record. Discussion of proper oral health habits is an integral part of pregnancy education.

**Postpartum**

The postpartum visit is the perfect time for clinicians to encourage women to follow up with their own dental care (if it was delayed) and to educate them regarding how to take good care of their newborn's mouth. It is well documented that vertical transmission from mother to child of *Streptococcus mutans*, the bacteria that causes caries, is common. Unfortunately, *Streptococcus mutans* can live in infants' mouths, putting them at a disadvantage even before their teeth erupt (American Academy of Pediatric Dentistry, 2011). Women with high rates of caries will pass those oral bacteria to their newborns, and the bacteria can survive in an infant's mouth to create caries when teeth erupt (American Academy of Pediatric Dentistry, 2011). Bacteria can easily be transferred from mother to infant through saliva-sharing activities (e.g., sharing utensils, cleaning the pacifier with the mother's saliva, prechewing food for the child). Parent education, along with encouragement, will contribute to the prevention of childhood caries.

The postpartum visit is an ideal time to discuss the oral health of the newborn. It is recommended that a newborn's mouth be wiped out each day with a piece of damp cotton gauze or a clean soft cloth before the eruption of baby teeth (Clark et al., 2012). This is best done before sleep, when bacteria multiply. It is important to discourage parents from putting infants to sleep with a bottle or with a breast in their mouth. Fluoride products should be encouraged, along with a diet low in sugar. Saliva-sharing activities (food, pacifier, bottles, etc.) should be strongly discouraged. Dental visits should begin early in life. “First visit by the first birthday” is the recommendation of the American Academy of Pediatric Dentistry (2011). Awareness of good oral habits has the potential to affect the future health of each child.

**Menopause**

Oral mucosa contains estrogen receptors (Suri & Suri, 2014). Menopause (the cessation of menses for 12 months) results in a decrease in the amount of systemic estrogen directly affecting the oral cavity. The subsequent oral systemic changes make women more susceptible to periodontal disease. With all periodontal disease, if detected early, treatment can contribute to the avoidance of tooth loss. Oral pain and discomfort, burning sensation, mucosal atrophy, and osteoporosis resulting in a decrease of alveolar height and systemic bone loss (thus tooth loss) are not unusual (Suri & Suri, 2014). The decrease in estrogen can lead to loss of bone in the spine and hips, which can also result in tooth loss. Many oral conditions are attributed to menopause.

“Burning mouth syndrome” is common in postmenopausal women. An increase in follicular stimulating hormone and a decrease in estradiol may be contributing factors, along with decreased salivary flow rate (xerostomia). The discomfort is often felt at the tip of the tongue and is relieved by eating or drinking.

Women taking hormone therapy may not experience oral problems as readily as their untreated counterparts, although hormone therapy has mixed results depending on the oral systemic health of each individual. Several studies have indicated that estrogen therapy protects against mandibular bone loss and diminishes the severity of periodontal disease in postmenopausal women (Haskin & Mobley, 2013; Mutneja, Dhawan, Raina, & Sharma, 2012).

The decrease in estrogen contributes to the drying of the oral mucosa and can lead to menopausal gingivostomatitis, which is characterized by gingiva that bleed readily, with an abnormally pale dry/shiny erythematous appearance (Mutneja et al., 2012). Unchecked, gingivitis leads to periodontitis. Periodontitis leads to progressive and irreversible loss of bone and the periodontal ligament attachment as inflammation extends from the gingiva to the bone and ligament (Buencamino, Palomo, & Thacker, 2016). Although there are no official recommendations for postmenopausal women, an oral examination (as part of the physical examination) and basic dental treatment protocol should be standard, because the CDC reports that one in five adults age 65 years and older have untreated tooth decay (CDC, 2014).

**OTHER ORAL HEALTH CONSIDERATIONS**

**Cancer Therapy**

Oral health assessment and pretreatment are key in preventing untoward oral health adverse effects for those undergoing head or neck radiation, chemotherapy, or hematopoietic stem cell transplant treatments. There is evidence that laser therapy may prevent oral mucositis for those undergoing radiotherapy (Migliorati, 2013). Ice chips and keratinocyte growth factor
also offer benefits in preventing mucositis (Worthington et al., 2011).

**HIV Infection**
The number of women living with HIV has increased because of the use of antiretroviral medications (Younai & Vincent-Jones, 2014). Low CD4 counts and high viral loads may manifest in oral soft tissue lesions and may be the first sign of HIV infection, a sign that care providers need to be aware of (Ryder, Nittayananta, Coogan, Greenspan, & Greenspan, 2012). Approximately 20% of women who begin antiretroviral therapy develop oral candidiasis and parotid enlargement. Oral herpes, oral ulcers, and hairy leukoplakia (from the Epstein–Barr virus) are also commonly noted (Patton, 2014).

**Diabetes**
Proinflammatory mediators can affect insulin release in people with diabetes suffering from periodontal disease. It is suggested the mediators increase the secretion of fatty acids, thus weakening glycemic control and raising insulin resistance (Telgi et al., 2013). Healthy periodontal tissue effectively decreases the hemoglobin A1C level, improving it by a 10% to 20% reduction (Telgi et al., 2013). Health counseling for women with diabetes should include information on periodontal disease prevention.

**Cardiovascular Disease**
Cardiovascular disease is the leading cause of death for both men and women and are responsible for 25% of all deaths in the United States (CDC, 2015). The link between periodontal disease and cardiovascular disease has been studied for decades. Because of the unknown mechanisms in both diseases, causation cannot be proven, but what is known is that periodontal disease creates systemic inflammation and that inflammation is a major risk factor for cardiovascular disease (American Academy of Periodontology, 2016).

**Osteonecrosis of the Mandible**
It is not unusual for women diagnosed with osteopenia or osteoporosis to use bisphosphonates to slow bone loss or prevent bone damage. They are also used when bone-weakening cancers are detected, such as myeloma, breast cancer, and lung cancer. Many of these women experience adverse effects from this drug class that can affect oral systemic health. Using bisphosphonates for longer than 1 year can result in osteonecrosis, a condition characterized by pain, swelling, or gum infections, loosening of the teeth, poor gum healing, and possibly numbness of the jaw. The condition has been noted more frequently in those who wear dentures or had dental treatment in the previous year (Cancer Research UK, 2013).

**Sjögren’s Syndrome**
Sjögren’s syndrome is an autoimmune disease that overwhelmingly affects middle-age women. Dryness of the oral and ocular mucosa is affected in this chronic inflammatory disease. A decrease in the amount of saliva can increase the level of caries, causing bacteria and candidiasis, which can also create difficulty with speaking, chewing, and swallowing (Gonzalez et al., 2013). Symptom relief, through the use of lozenges or sugarless gum, hydration, and excellent oral hygiene, is called for.

**LIFESTYLE CONSIDERATIONS**
Lifestyle behaviors such as tobacco use, heavy alcohol use, and poor diet can adversely affect oral health, and every health care provider can play a role in promoting healthier lifestyles for improved oral and general health (Steinberg, Minsk, Gluch, & Giorgio, 2008).

**Tobacco, Marijuana, and Hookah Pipes**
Tobacco as a risk factor in numerous diseases is well known. The role it plays in oral systemic health warrants more attention. Smoking tobacco has been determined to be a significant factor in gum disease. Although most tooth loss is due to caries, this is not necessarily true for smoking perimenopausal women, who may develop chronic and accelerated periodontal disease that can lead to the development of cancer.

Recent times have seen a rise in the number of people willing to return to the century-old rituals involving the smoking of water pipes, commonly known as hookahs. The CDC has reported on the rising use of hookahs in the college-age population, from 22% to 40% (CDC, 2016). Although there is widespread undocumented popular belief that the use of hookahs is less harmful than cigarette smoking, the CDC states that hookah use has more detrimental consequences than the already known devastating consequences of cigarette smoking. Hookah smoking sessions are much longer than the time it takes to smoke a cigarette, so the exposure to toxins including nicotine, carbon monoxide, and other substances is greater, and these toxins are absorbed in greater quantities with hookah smoking (CDC, 2016).

With the recent legalization of medical and recreational use of marijuana in some U.S. states, the public health data regarding the chronic use of marijuana on oral systemic health should become more available. Generally, cannabis abusers have poorer oral health and a greater risk of periodontal
Diet

For overall health as well as oral health, a balanced, healthful, varied diet is essential. Healthful snacks such as fruit, vegetables, or calcium-rich, low-fat dairy products should be emphasized. Adequate water intake is also important to maintain oral health; among other benefits, water dilutes the acidity of food, lessening the potential impact on dental enamel erosion and dental caries.

A change in the oral cavity is often the first telltale sign of eating disorders. The American Dental Association reports that more than 10 million Americans are affected with eating disorders (ADA, 2016a, 2016b). Anorexics are usually markedly underweight and may exercise excessively and restrict food. Some binge eat and then purge by vomiting, which can be evidenced by the weakening of enamel. Of all psychiatric disorders, anorexia has the highest premature mortality rate.

Bulimia specifically involves binge eating followed by various forms of purging by either vomiting, laxatives, diuretics, or enemas. It can affect men as well as women. Studies indicate that 89% of bulimic patients have signs of tooth erosion (ADA, 2016a). Frequent purging via vomiting leads to strong stomach acid repeatedly flowing over teeth and weakening tooth enamel. In extreme cases, the pulp of teeth can be exposed, leading to possible infection, abscess, or tooth death. Other possible sequelae to be cognizant of are redness, scratches, or cuts inside the mouth, particularly on the palate. Damage to the palate is a warning sign because it is rare to have damage in that area, and it may be accompanied by cuts or bruises to the knuckles as individuals use their fingers to assist in purging. The temporomandibular joint, which hinges the jaw to the skull, can develop degenerative arthritis that is often associated with eating disorders. The arthritis may create pain, headaches, and problems with chewing and opening or closing the mouth.

**IMPLICATIONS FOR NURSING PRACTICE**

Almost all women at some point in their lives will experience tooth decay and periodontal disease (CDC, 2015). How periodontal disease will affect a woman’s overall systemic health depends on many factors. Despite the many types of periodontal diseases, they all share the common characteristic of chronic...
A five-step approach (see Box 4) that can be incorporated into any practice has been approved by numerous dental and nursing organizations, including the American College of Nurse-Midwives, the National Association of Pediatric Nurse Practitioners, and the National Organization of Nurse Practitioner Faculties. The five-step Oral Health Delivery Framework (see Figure 1), as described in *Oral Health: An Essential Component of Primary Care* (Hummel et al., 2015), provides guidance on implementing the protection and promotion of oral health within a nursing and primary care setting.

Incorporating oral health care in a variety of settings need not be daunting. Nurses, nurse practitioners, and nurse-midwives should find that participating in educational opportunities will increase competency and provider confidence. For example, “Smiles for Life: A National Oral Health Curriculum” is being used by universities across the country with great success (Society of Teachers of Family Medicine, 2012) and offers continuing education contact hours for many health professionals, including nurses, nurse practitioners, and nurse-midwives.

**CONCLUSION**

A positive impact can be made in the U.S. population’s oral systemic health and in associated preventable diseases. Fetal death from untreated maternal dental abscesses can be prevented. Illness and death due to lack of dental care need not happen. The broader societal impact of improving oral systemic health cannot be overemphasized. We need only educate ourselves and implement small logical changes in our practice. As Hummel et
BOX 4
ORAL HEALTH DELIVERY FRAMEWORK FIVE-STEP STRATEGY

1. Ask.
Ask about symptoms that suggest oral disease and factors that place patients at increased risk for oral disease. Two or three simple questions can be asked to elicit symptoms of oral dryness, pain or bleeding in the mouth, oral hygiene and dietary habits, and length of time since the patient last saw a dentist. These questions can be asked verbally or included in a written health risk.

2. Look.
Look for signs that indicate oral health risk or active oral disease. Assess the adequacy of salivary flow; look for signs of poor oral hygiene, white spots or cavities, gum recession or periodontal inflammation; and conduct examination of the oral mucosa and tongue for signs of disease.

3. Decide.
Decide on the most appropriate response. Review information gathered and share results with patients and families. Determine a course of action using standardized criteria based on the answers to the screening and risk assessment questions; findings of the oral exam; and the values, preferences, and goals of the patient and family.

Act by delivering preventive interventions and/or placing an order for a referral to a dentist or medical specialist. Preventive interventions delivered in the primary care setting may include: 1) changes in the medication list to protect the saliva, teeth, and gums; 2) fluoride therapy; 3) dietary counseling to protect the teeth and gums, and to promote glycemic control for patients with diabetes; 4) oral hygiene training; and, 5) therapy for tobacco, alcohol, or drug addiction.

Document the findings as structured data to organize information for decision support, measure care processes, and monitor clinical outcomes so that quality of care can be managed. (Follow up).


FIGURE 1
ORAL HEALTH DELIVERY FRAMEWORK

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