DEPARTMENT OF THE NAVY
BUREAU OF MEDICINE AND SURGERY
2300 E STREET NW
WASHINGTON DC 20372-5300

IN REPLY REFER TO
BUMEDINST 6600.16A
BUMED-M3/5
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BUMED INSTRUCTION 6600.16A

From: Chief, Bureau of Medicine and Surgery

Subj: ORAL DISEASE RISK MANAGEMENT PROTOCOLS IN THE NAVY MILITARY HEALTH SYSTEM

Encl: (1) Dental Caries Risk Management Protocol
(2) Protocol for Treatment of High Caries Risk Patients
(3) Remineralization Protocol for Incipient Caries Lesions
(4) Prescriptions for Caries Prevention
(5) Periodontal Diseases Risk Management Protocol
(6) Oral Cancer Risk Management Protocol
(7) How to Reduce Your Risk of Tooth Decay
(8) How to Reduce Your Risk of Periodontal Diseases
(9) About Your Oral Cancer Examination

1. Purpose. Establishes policy and guidelines for identifying and managing oral disease risk in the Navy Military Health System.

2. Cancellation. BUMEDINST 6600.16.

3. Scope. Applies to all personnel working in dental spaces ashore and afloat. All naval medical and dental treatment facilities (MTFs and DTFs) must follow this program in the dental treatment of their beneficiaries.

4. Background. Modern methodology for the prevention of progressive oral disease includes identification of those patients who have a high probability of developing disease. These individuals are distinguished by demographic, physical, lifestyle, or other risk factors associated with the disease. Identification of these factors comes from clinical examination, laboratory tests, and surveys of disease incidence and prevalence. Prevention is the most effective means for controlling oral disease and attaining an improved state of oral health among Navy Medicine's beneficiaries. Cost effective prevention requires a standardized risk management protocol which directs appropriate treatment and education based on level of risk.

5. Action

a. Chief, Bureau of Medicine and Surgery (BUMED) shall:

(1) Ensure that all aspects of this instruction are implemented and followed for all Naval personnel examined and treated in naval MTFs and DTFs per enclosures (1) through (9).

(2) Ensure that the Navy Medicine Specialty Leaders for Preventive Dentistry, Periodontics, and Oral Medicine, and the Chairman of Navy Medicine's Oral Health Advisory Board provide regular and coordinated review of changes in protocols and procedures that influence oral health.

b. Commanders of Navy Medicine East (NME), Navy Medicine West (NMW), and Navy Medicine National Capital Area (NMNCA) shall ensure that commands within each Navy Medicine Region follow all aspects of this instruction and enclosures (1) through (9) of this instruction.

c. Commanders, naval medical centers and commanding officers, naval hospitals, officers in charge, naval health clinics, and senior medical department officers aboard ships shall:

(1) Ensure that levels of risk for developing future dental caries, periodontal diseases, and oral cancer are determined for each patient during their annual dental examination and recorded in their dental treatment record.

(2) Ensure that all dental patients receive appropriate education and treatment designed to minimize oral disease risk per enclosures (1) through (9).

6. Form. NAVMED 6600/13 (1-2010), Oral Exam can be ordered using stock number 0105-LF-128-1500 from Naval Forms Online at: https://navalforms.daps.dla.mil/web/public/home.

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DENTAL CARIES RISK MANAGEMENT PROTOCOL

1. A Caries Risk Assessment will be performed on all active duty dental patients during the annual and periodic oral examination and recorded on the NAVMED 6600/13 Oral Exam. Patients will be classified as low, moderate, or high risk for future caries experience per the following Tri-Service criteria:

a. Low Caries Risk patients exhibit the following (must satisfy all criteria below):

(1) No new incipient or cavitated primary or secondary carious lesions during current exam.

(2) No factors that may increase caries risk. Factors increasing risk of developing caries may include, but are not limited to:

(a) Poor oral hygiene.

(b) Cariogenic diet.

(c) Presence of exposed root surfaces.

(d) Enamel defects or genetic abnormality of teeth.

(e) Many multisurface restorations.

(f) Restoration overhangs or open margins.

(g) Active orthodontic treatment.

(h) High titers of Cariogenic bacteria.

(i) Chemotherapy or radiation therapy.

(j) Eating disorders.

(k) Physical or mental disability with inability or unavailability of performing proper oral health care.

(l) Suboptimal fluoride exposure.

b. Moderate Caries Risk patients exhibit the following (demonstration of any single criterion necessitates an assessment of Moderate Caries Risk):

(1) One or two new incipient or cavitated primary or secondary carious lesions during current exam.

(2) No incipient or cavitated primary or secondary carious lesions during current exam but presence of at least one factor that may increase caries risk as outlined in paragraphs 1a(2)(a) through 1a(2)(l) above.

c. High Caries Risk patients exhibit the following (demonstration of any single criterion necessitates an assessment of High Caries Risk):

(1) Three or more new incipient or cavitated primary or secondary carious lesions during current exam.

(2) Presence of multiple factors that may increase caries risk as outlined in paragraphs 1a(2)(a) through 1a(2)(l) above.

(3) Xerostomia (medication-, radiation- or disease-induced).

2. Determination of caries risk classification will prompt treatment protocols specific to the risk category. Required educational and treatment protocols for each caries risk category are summarized in the following table on the next page, and must be uniformly implemented throughout Navy Dentistry.

CARIES RISK MANAGEMENT PROTOCOL FOR NAVY DENTISTRY

Low Caries Risk	Moderate Caries Risk	High Caries Risk
1. Oral hygiene Instruction. 2. Fluoride Dentifrice.	1. Oral hygiene instruction and oral disease education using this instruction, enclosure (7) as an outline. 2. Fluoride dentifrice. 3. Caries elimination a. Sealants for pits and fissures judged at risk. b. Incipient caries remineralization. 4. Identification of patient specific dietary modification (nutritional counseling). 5. Professional topical fluoride treatment (at 6 month interval); may be accomplished concurrently with restorative treatment). 6. Home fluoride rinses (OTC) or home fluoride treatments using prescription dentifrices, gels or pre-fabricated trays. 7. Discuss benefits of Xylitol chewing gum and provide a sample if available.	1. Oral hygiene instruction and oral disease education using this instruction, enclosure (7) as an outline. 2. Fluoride dentifrice. 3. Caries elimination a. Sealants for pits and fissures judged at risk. b. Incipient caries remineralization. 4. Identification of patient specific dietary modification (nutritional counseling). 5. Professional topical fluoride treatment (four applications over 6-12 months; may be accomplished concurrently with restorative treatment). 6. Home fluoride rinses (OTC) or home fluoride treatments using prescription dentifrices/gels or pre-fabricated trays. 7. Discuss benefits of Xylitol chewing gum and provide a sample if available. 8. Antibacterial mouth rinses. 9. Bacterial testing (if available). 10. Evaluation of salivary flow.
One Year Recall	6-12 Month Recall	3-Month Recall

PROTOCOL FOR TREATMENT OF HIGH CARIES RISK PATIENTS

1. Patient Education Component

a. Inform the patient that carious lesions are not the disease, but the aftermath of a disease process caused by elevated bacterial levels in his or her mouth. Placing a filling restores the damaged tooth structure, but may have little effect on the activity of the cariogenic bacteria or disease progression. Therefore, in addition to tooth restoration, dental caries treatment must address the bacterial etiology.

b. Inform the patient that they will be receiving antibacterial treatment designed to control the cariogenic bacteria in his or her mouth. Success will depend largely on their compliance with the prescribed treatment.

2. Treatment Component

a. Eliminate active caries

(1) Restore any cavitated lesions.

(2) Seal remaining deep, retentive pits, and fissures.

b. Implement preventive measures (may be completed concurrently with elimination of active caries).

(1) Diet survey and modification.

(2) Provide oral health instruction (disease etiology and oral hygiene instruction).

(3) Evaluate salivary flow.

(4) Provide four in-office fluoride treatments over a 6-12 month period using either gels or varnishes as per current professional guidance.

(5) Implement prescription strength home fluoride usage as per current professional guidance.

(6) Discuss benefits of Xylitol chewing gum and provide a sample if available.

c. Antimicrobial Mouth Rinse. The decision to implement antimicrobial therapy shall be based on results of bacterial tests. However, if bacterial tests are not available, high caries risk patients should rinse with Chlorhexidine Gluconate (0.12%) for 30 seconds morning and night for 2 weeks. Chlorhexidine may be used concurrently with elimination of active caries.

d. Three Month Recall

(1) Monitor and reinforce preventive measures.

(2) Monitor sealant retention.

(3) Bacterial testing.

(a) If bacteria scores are low, continue home fluorides and recall in 3–6 months. Continue chlorhexidene rinse as per the remineralization protocol below if incipient lesions are present.

(b) If bacteria scores are high, repeat Steps 2(b) and 2(c).

(c) If bacterial tests are not available, patients judged clinically to be at continued high risk following initial antimicrobial therapy should repeat antimicrobial therapy (Chlorhexidine, 2-week regimen) at 3-month intervals until risk is judged to be moderate or low.

3. Documentation Component. All preventive instructions and treatment rendered will be documented in the Dental Treatment Notes (progress notes) of the dental record.

REMINERALIZATION PROTOCOL FOR INCIPIENT CARIES LESIONS

The following protocol is for remineralization of incipient (non-cavitated early) carious lesions. Implementation of additional treatments not included in Navy Dentistry's basic required caries management is encouraged based on availability of command resources.

Inform the patient that remineralization treatment is intended to "heal," rather than restore, the carious lesion, and that successful treatment will depend largely on compliance with prescribed treatment. The patient must understand the importance of appropriately-timed follow-up visits so that lesion progression can be monitored. Patients should be informed that some lesions may require restoration if remineralization efforts are not effective. All preventive instructions and treatment rendered must be documented in the patient's dental record.

1. First step - eliminate active caries

    a. Restore any cavitated lesions.

    b. Seal deep, retentive pits and fissures.

2. Second step - implement preventive measures (Steps 1 and 2 may be completed simultaneously)

    a. Diet survey and modification.

    b. Provide oral health instruction (disease etiology and oral hygiene instruction).

    c. Evaluate salivary flow.

    d. Provide four in-office fluoride treatments over a 6-12 month period using either gels or varnishes as per current professional guidance.

    e. Implement prescription strength home fluoride usage as per current professional guidance.

    f. Discuss benefits of chewing gums containing Xylitol or Amorphous Calcium Phosphate (Recaldent®) and provide a sample if available.

3. Third step - antimicrobial mouth rinses. Patients should rinse with Chlorhexidine Gluconate (0.12%) for 30 seconds once per week until their next recall exam.

4. Patient shall be recalled within 6-12 months for the following

    a. Bitewing x-rays to monitor lesion size. Radiographs should indicate no increase in lesion size, but will typically not indicate the complete reversal of lesions radiographically.

    b. Review preventive measures outlined in step 2 above.

c. Check sealant retention.

d. Bacterial testing as per current professional guidelines.

PRESCRIPTIONS FOR CARIES PREVENTION

Home Fluoride for Use in Fluoride Tray

Rx: 1.1% Neutral NaF (PreviDent® (Colgate), Control Rx® (Omnii), or comparable)
Disp: One 2 ounce (56 gram) tube
Sig: at bedtime, apply 6-8 drops to custom fluoride carrier. Place in mouth for 5 minutes. Remove carrier, spit out excess, and go to bed without eating, drinking, or rinsing.

Refill X 5

Chlorhexidine Antibacterial Rinse (2-week regimen to control oral flora)

Rx: 0.12% chlorhexidine gluconate
Disp: one 480 ml (16 oz.) bottle
Sig: twice daily (after breakfast and at bedtime) for 2 weeks, swish 1/2 ounce in mouth for 30 seconds then expectorate.

Dental Laboratory Prescription for Fluoride Carrier Fabrication

Please fabricate maxillary and mandibular fluoride trays

1. Use .060" soft vinyl vacuum form material.
2. Periphery should extend approximately 2 mms beyond the gingival margin.

*Note: Fluoride carriers differ from bleach trays in that bleach trays have a scalloped border that terminates at the free gingival margin and the casts are blocked out to create reservoirs on the facials of the teeth to be bleached. No reservoir is desired with fluoride trays. Hydraulic force to drive the fluoride up around the teeth is desired.

PERIODONTAL DISEASES RISK MANAGEMENT PROTOCOL

1. A Periodontal Disease Risk Evaluation will be performed on all active duty dental patients during the annual or periodic oral examination and recorded on the NAVMED 6600/13. Patients will be classified as low, moderate, or high risk for development of periodontal disease per the following risk factors:

a. Periodontal Screening and Recording (PSR) Score. Among clinical parameters, probing depths of 3.5 mm or more (PSR 3 or 4) may be predictive of subsequent attachment loss. Therefore, PSR scores are the primary indicator of future periodontal diseases risk.

b. Tobacco Use. Smokers are four to five times more likely to have periodontal diseases than non-smokers. Spit tobacco use (sometimes referred to as smokeless tobacco) increases the risk of localized gingival recession, caries, and oral cancer.

c. Genetic Susceptibility. Assessed by asking the patient if any of his or her immediate family have lost teeth at an early age, have had treatment for periodontal disease, or has a history of diabetes.

d. Oral Hygiene. Inadequate oral hygiene is predictive of gingivitis and mild to moderate chronic periodontitis.

e. Past history of periodontal treatment.

2. Determination of periodontal risk classification will prompt treatment protocols specific to the risk category. Required educational and treatment protocols for each periodontal risk category are summarized in the table below, and must be uniformly implemented throughout Navy Dentistry.

PERIODONTAL DISEASES RISK MANAGEMENT PROTOCOL

LOW PERIO RISK	MODERATE PERIO RISK	HIGH PERIO RISK
• *PSR 0, 1, or 2*	• *PSR 3* • Less than two additional risk factors.	• *PSR 4* • *PSR 3* (Plus any two of the following) - Tobacco user. - Inadequate oral hygiene. - Family history of tooth loss or diabetes. - Past history of periodontal treatment.
RISK MANAGEMENT	**RISK MANAGEMENT**	**RISK MANAGEMENT**
• Annual exam by general dentist and prophylaxis as needed by trained auxiliary.	• Annual exam by a general dentist and prophylaxis by a dental hygienist. • Recall based on individual patient needs. • Evaluation and discussion of periodontal disease risk factors.	• Referral for comprehensive exam by a periodontist or equivalent and prophylaxis by a dental hygienist. • Recall based on individual patient needs. • Evaluation and discussion of perio-dontal disease risk factors.

ORAL CANCER RISK MANAGEMENT PROTOCOL

1. An oral cancer risk evaluation will be performed on all active duty dental patients during the annual or periodic oral examination and recorded on the NAVMED 6600/13. Patients will be classified as low, moderate, or high risk for development of oral cancer per the following criteria:

a. Tobacco use. Studies of oral cancer have consistently demonstrated that smoking and other uses of tobacco are the most consistently identified risk factors. Smokers have been found to have a 6 to 14 times greater risk of oral cancer compared to non-smokers. The risk of oral cancer associated with smoking is equivalent for men and women, and diminishes with elapsed time since quitting.

b. Alcohol consumption. Alcohol consumption is also a risk factor for oral cancer, especially with heavy consumption. The combination of heavy alcohol consumption with smoking increases the risk of oral cancer to a level greater than that resulting from either risk factor alone.

c. Age. Oral cancer is closely related to increasing age, with over 80 percent of oral cancer deaths occurring in persons 55 years or older.

2. Determination of oral cancer risk classification will prompt treatment protocols specific to the risk category. Required educational and treatment protocols for each oral cancer risk category are summarized in the table below, and must be uniformly implemented throughout Navy Dentistry.

MODERATE ORAL CANCER RISK	HIGH ORAL CANCER RISK
1. No questionable lesions. 2. One or more of the following risk factors: • Tobacco use. • Moderate to heavy alcohol use (>2 drinks per day). • Age 55 or older.	• Presence of a potentially cancerous oral lesion.
RISK MANAGEMENT	**RISK MANAGEMENT**
• Oral Cancer Risk Education, per BUMEDINST 6600.16A, enclosure (9). • 1 year recall.	• Follow-up 7-10 days; biopsy if no change. • Oral Cancer Risk Education, per BUMEDINST 6600.16A, enclosure (9).

HOW TO REDUCE YOUR RISK OF TOOTH DECAY

Tooth decay ("dental caries") is a complex disease process, caused by bacteria, and mediated by other important factors. Nearly everyone has the bacterium (mutans streptococci) that causes tooth decay. The two primary factors that influence the ability of these bacteria to cause tooth decay are diet and exposure to fluoride. There are some important things you can do to reduce the ability of these bacteria to cause cavities:

1. Reduce the number of times per day that you eat refined carbohydrates ("sugars"). People who have more than three to five exposures to sugars per day tend to develop a greater number of cavities. What are exposures? They are "eating occasions" separated by at least 20 minutes. For example, a bowl of Frosted Flakes at 0900, followed immediately by a handful of M&Ms is considered *one* exposure; a bowl of Frosted Flakes at 0900, followed by the M&Ms at 0920 or 0930 is considered *two* exposures. Why 20 minutes? Because, whenever you eat, the bacteria in your mouth eat too; they metabolize refined carbohydrate to acid, and it takes about 20 minutes for the acid to clear from your mouth. The more frequently this acid is produced, the more likely it becomes that you will develop tooth decay. So, don't keep soda (there are 12 teaspoons of sugar per can) or coffee with sugar on your desk and sip on it throughout the day – this provides the bacteria with a continual supply of sugar!

Sweets aren't the only foods that promote acid formation and tooth decay. Many foods that people generally consider "healthy" – fruit juices, sports drinks, and dried fruit (like raisins) – contain high levels of refined carbohydrates. So do snack foods such as potato chips, pretzels, and crackers (even saltines). Diet sodas, although they contain artificial sweeteners, can be harmful because they contain phosphoric acid. On the other hand, fresh fruits and many cheeses do not promote tooth decay. You cannot and should not eliminate all carbohydrate from your daily diet. Instead, try to reduce your number of between meal snacks and limit your refined carbohydrate intake to mealtimes.

2. Brush your teeth three times a day with fluoride toothpaste. Fluoride helps make your teeth more resistant to the decay process. Whenever possible, brush immediately after meals and snacks. This removes food particles and helps clear the bacterial acids more quickly. Incidentally, contrary to popular belief, rinsing with water after meals has very little effect on bacterial acids, although it may help clear food debris. For maximum benefit, your teeth need frequent exposure to fluoride – brush for at least 2 minutes, three times each day. Always use a soft toothbrush and floss your teeth at least once each day.

3. Use a fluoride mouth rinse at bedtime. While you're asleep, your salivary flow diminishes, leaving your teeth less protected from bacterial acids. This is the most beneficial time of day to expose your teeth to fluoride. So, just before you go to bed, after you've brushed and flossed, rinse with a 0.05% sodium fluoride rinse (Act® and Fluoriguard® are examples – available in supermarkets, drug stores, etc.), and then don't have anything else to eat or drink. This gives your teeth a "boost" of fluoride protection.

4. Chew sugarless gum. Chewing sugarless gum increases your salivary flow, which helps to neutralize and clear bacterial acids. If you chew gum, use a sugarless gum such as Trident®, Extra®, or Carefree® since the bacteria in your mouth generally cannot metabolize "non-sugar" sweeteners.

HOW TO REDUCE YOUR RISK OF PERIODONTAL DISEASES

The word "periodontal" literally means "around the tooth." **Periodontal diseases are serious bacterial infections that destroy the attachment fibers and supporting bone that hold your teeth in your mouth**. About 20 to 30 percent of patients may experience more advanced forms of gum disease which when untreated leads to tooth loss. The main cause of periodontal disease is infection by bacterial plaque, a sticky, colorless film of germs that constantly forms on your teeth. In addition, certain behaviors and conditions appear to place patients at greater risk to develop periodontal diseases and experience tooth loss.

Tobacco Use

Tobacco use is linked with many serious illnesses such as cancer, lung disease, and heart disease, as well as numerous other health problems. Tobacco users also are at increased risk for periodontal disease. Smokers appear to be more likely to have periodontal disease, are more likely to have gum disease of greater severity, and are less likely to respond to treatment as well as non-smoking periodontal patients. The probability of having periodontal disease increases with the amount smoked. The chances of having periodontal disease are lower in former smokers than in current smokers. **Smoking is considered among the most important risk factors for periodontal disease.** Spit tobacco use (sometimes referred to as smokeless tobacco) increases the risk of localized gum recession.

Diabetes Mellitus

Diabetes is a disease that causes altered levels of sugar in the blood. **If you are diabetic, you are at higher risk for developing infections, including periodontal diseases**. The likelihood of periodontal disease increases when diabetes is poorly controlled. Infections such as gum disease can complicate the control of diabetes and result in more severe gum disease than in a non-diabetic patient. For diabetics whose condition is controlled, periodontal disease responds well to treatment and can be managed successfully. **It is important for the dentist to know if there is a history of diabetes in your family**.

Genetic Predisposition

There is strong evidence that **heredity can contribute to the development of periodontal disease**. Gum disease is known to develop in patients with various inherited disorders. Specific forms of gum disease develop in young patients who have a clear genetic predisposition. There is also data to suggest genetic influence in the probability of having adult periodontitis. **If your parents or siblings have been treated for or lost teeth due to gum disease, you may be at greater risk for this condition.**

The probability of developing periodontal disease increases with the number of risk markers present. Some of these risk markers such as heredity cannot be changed; however, knowledge of the conditions which can be modified is important for disease prevention and successful treatment. **Good oral hygiene, reducing or discontinuing tobacco use, and following the instructions of your dentist regarding regular visits for examination and treatment are critical in optimizing your periodontal health**.

ABOUT YOUR ORAL CANCER EXAMINATION

The oral cancer exam is an important part of your regular dental check-up. Nearly 30,000 new cases of oral cancer are found every year in the United States.

What is the *key*?

Early detection increases the chances of survival. Unfortunately, many oral cancers reach an advanced stage by the time a patient seeks dental evaluation. Due largely to delayed diagnosis, the 5-year survival rate for oral cancer is only about 50 percent. Oral cancer detected in the earliest stages has an 85 percent 5-year survival rate.

What are the *Risk Factors*?

- ***Age:*** The risk for oral cancer increases with age. The majority of oral cancers occur after age 40. As you approach retirement age, oral cancer screening becomes an increasingly important part of your dental exam. Oral cancer can however occur at any age.
- ***Gender:*** MALES have nearly twice the risk of females.
- ***Race:*** African American males have nearly twice the risk of white males.
- ***Behaviors:*** *Tobacco* use (particularly smoking) and *heavy alcohol use* (>30 drinks/week) are associated with increased risk.

How can oral cancer be prevented?

Patients have an important role in *Primary Prevention* and *Early Detection*:

- ***Behavior Modification:*** Avoid tobacco products and use alcohol prudently.
- ***Early Diagnosis:*** Ensure that you, your family, and shipmates have regular dental examinations with an oral cancer screening. Report any ulcer or sore in the mouth that persists and does not heal in 2 weeks. Report any unusual swelling in the mouth or neck to your dentist.