

An Innovative Tobacco Use Cessation Program for Military Dental Clinics

Lemuel L. Covington, COL DC; Lawrence G. Breault, COL DC;
John J. O'Brien, LTC MC; Cathy H. Hatfield, RDH;
Shana M. Vasquez, LDH; Robert W. Lutka, COL DC



Abstract

Tobacco use is the chief avoidable cause of death and illness in our society. Military leaders are concerned with rising medical costs and the related negative effects on combat readiness associated with tobacco use. Tobacco use cessation (TUC) programs available in the military services have not reached their full potential. Dental officers have an opportunity to assume a more active role as first-line providers in TUC programs.

This paper presents a model TUC program for use in military dental clinics. It emphasizes the dentist's role in directly prescribing pharmacologic agents in nicotine replacement therapy (NRT) combined with appropriate patient counseling. Other key elements of this TUC program include the non-threatening manner in which patients are offered access to TUC, its convenience when compared with other programs, and the minimal cost to implement this program.

Keywords: Tobacco use cessation, TUC programs, smoking effects

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Introduction

Tobacco use is the chief avoidable cause of illness and death in our society. According to the latest data from the Centers for Disease Control and Prevention (CDC), cigarette smoking in the United States causes serious illnesses such as cancer, heart disease, stroke, chronic obstructive pulmonary disease, pregnancy complications, and osteoporosis.¹⁻⁴ Cigarette smoking is ultimately responsible for approximately 440,000 deaths annually, resulting in 157 billion dollars in health-related economic costs.¹

Additionally, smoking has a direct effect on oral health. Significant data has been published demonstrating the relationship between smoking and periodontal disease.⁵⁻⁸ Specifically, smokers are four times as likely to have periodontal disease and three times as likely to present with severe disease as non-smokers.^{9,10}

Despite all of the known health risks, rising public sentiment against cigarette smoking, and stronger tobacco control legislation in recent years¹¹, the Army did not meet its goal to comply with the U.S. Public Health Service's Healthy People 2000 objective of no more than 20% of military personnel continuing to smoke and no more than 4% of men aged 24 or younger continuing to use smokeless tobacco (SLT) products.^{12,13} The smoking rate in the military services continues to mirror society overall and ranges from 25% to 30%.^{1,14-16}

Detrimental Effects of Tobacco Use on the Armed Forces

Military leaders are concerned with the staggering costs to the Department of Defense (DOD) associated with tobacco use and the related negative effects on combat readiness of units with a high percentage of smokers. Military tobacco users recently cost the DOD \$130 million per year in excess training costs¹⁵, \$20 million per year in medical costs, and \$87 million per year in lost workdays, which represents a loss of approximately 3,573 full-time equivalent (FTE) positions per year.¹⁶

In addition to effects on lungs, the cardiovascular system, and dental health, tobacco use has other deleterious effects on the performance of military personnel. Smoking decreases aerobic fitness

leading to lower Army Physical Fitness Test (APFT) scores.^{17,18} The number and severity of musculoskeletal injuries increase during training, and recovery from these injuries is prolonged in smokers when compared to non-smokers.¹⁹⁻²² Smoking is associated with increased risk of being involved in accidental injuries resulting in trauma such as motor vehicle crashes, fall injuries, and blunt contusion.²³ Female smokers miss training more often because of intensified menstrual symptoms and cycle disorders.²⁴

One study concluded the best single predictor of early discharge from military service was smoking status.¹⁵ Smoking among military members has even been linked with increased suicide. Persons smoking more than 20 cigarettes a day were more than twice as likely to commit suicide as non-smokers.²⁵

Like cigarette smoking, SLT such as chewing tobacco and snuff produce addiction to nicotine and have serious systemic and oral health consequences. SLT use remains prevalent in the military, especially among young male service members. Over 22% of servicemen aged 18 to 24 use SLT⁴, while 50% of U.S. Army Rangers reported using either snuff or chewing tobacco.²⁶

Review of the Effectiveness of Military Tobacco Use Cessation Programs

Studies indicate 25-44% of recruits are smokers upon entry into military service.^{13,27-29} The military has been largely unsuccessful in its attempts to force tobacco use cessation (TUC) on incoming recruits who smoke.²⁷⁻³⁰ Cigarette smoking and SLT are not allowed during Basic Training (BT), which varies in length among services from 6-10 weeks. Tobacco use counseling and support for those who truly wish to quit is not available, and as a result, the relapse rate with return to full-time tobacco use within one month following completion of BT is as high as 70%.³⁰

It is clearly evident more TUC Programs are needed throughout the military system.^{4,13,27-29} Although there are examples of successful TUC programs in military hospitals and medical clinics³⁴⁻³⁶, military physicians and other health care providers often do not have specific training

for TUC^{37, 38}, do not always have the necessary resources³⁹, do not offer TUC advice or programs often enough⁴⁰, or do not believe they can effectively counsel patients.⁴¹

Many health care providers feel uncomfortable or hypocritical providing TUC counseling to patients because they have not set the example by eliminating their own smoking habits.⁴² In addition some physicians have mixed opinions on whether using pharmacologic interventions in TUC programs is effective.⁴³ These shortcomings in the existing medically-sponsored TUC programs create a golden opportunity for military dentists to step up and assume a more active role as first-line providers in TUC.

U.S. Army Dental Command is Taking a Bigger Role in TUC

In an effort to take a more active role in TUC, the U.S. Army Dental Command (DENCOM) has implemented a program making it mandatory for dental providers to assess tobacco use of military personnel both during dental examinations and at subsequent dental appointments.⁴⁴ Military members are required to receive an annual dental examination each year, which presents a continuing opportunity to offer tobacco cessation counseling.

Dental providers input tobacco use data obtained during these dental visits into a Corporate Dental Application (CDA) database. CDA shows great promise as an aid for identifying individuals or units having a high percentage of tobacco users. Local dental clinics can then use this information to offer these groups access to TUC Programs.

Although there are examples of successful dentist-led TUC programs in the civilian sector and in other uniformed services⁴⁵⁻⁴⁸, we are unaware of any other published reports of dentist-driven TUC programs at Army dental facilities.

A Dentist-Driven TUC Program

In November, 2002 the Fort Benning Dental Activity began a dentist-driven TUC program. This TUC program provides clinic level patient education and counseling. It is designed to empower dental officers with the ability to directly prescribe smoking cessation pharmacologic agents.

The intent is for this TUC program to serve as the model for the Army Dental Care System. Although this program is used in an Army Dental Clinic, the format is applicable for implementation by other services or the civilian sector. The key program components are outlined below:

1. Patients identified as smokers are continually assessed and counseled during routine dental visits beginning with the initial annual dental examination.
2. Patients expressing a willingness to participate in a formal tobacco cessation program are offered three alternatives available locally:
 - a. Lunch-time TUC classes in the Family Practice Clinic.
 - b. Evening classes at the Internal Medicine Clinic.
 - c. DENTAC TUC program incorporated within the Dental Clinic in conjunction with normal dental visits.
3. Patients opting for the DENTAC TUC program will complete the following:
 - a. Registration with the Program Coordinator. This is generally the community health registered dental hygienist (RDH) or equivalent. Patients complete MEDCOM Form 709-R (Medical Record – Tobacco Cessation Documentation) (Figure 1 & Figure 2). This form documents tobacco use history, previous cessation attempts, smoking cessation aids, reasons for wanting to quit, etc. It also includes a health history and action plan designed by the dental officer.
 - b. View a tobacco cessation video and discuss it with the Program Coordinator, as necessary.
 - c. Assessment and counseling by a clinician using MEDCOM Form 709-R. The dental officer completes a health history, reviews precautions and indications for nicotine replacement therapy (NRT) medications, and completes a patient physical assessment.
 - d. Formulation of the action plan, which may include the dental officer prescribing pharmacologic agents such as the nicotine patch or oral bupropion (Zyban) tablets.
 - e. Reschedule the patient in two weeks for assessment of progress utilizing a local follow-up form (Figure 3). The dental officer counsels the patient to determine

MEDICAL RECORD – TOBACCO CESSATION DOCUMENTATION For use of this form see MEDCOM Circular 4C-12	TREATMENT FACILITY	DATE																																				
SECTION I - VITAL SIGNS <i>(Completed by Technician)</i>																																						
TIME: _____ BP: _____ PULSE: _____ RESP: _____ TEMP: _____ HT: _____ WT: _____ ALLERGY: _____ MEDICATIONS: _____																																						
SECTION II - PATIENT ASSESSMENT <i>(Completed by Patient/Reviewed by Provider)</i>																																						
1. At what age did you start using tobacco? _____																																						
2. What type(s) and amount(s) of tobacco do you use?																																						
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 35%;">TYPE(S)</th> <th style="width: 8%;">YES</th> <th style="width: 8%;">NO</th> <th style="width: 20%;">AMOUNT(S)</th> <th style="width: 12%;">PER DAY</th> <th style="width: 17%;">PER MONTH</th> </tr> </thead> <tbody> <tr> <td>a. Cigarette</td> <td></td> <td></td> <td>Packs</td> <td></td> <td></td> </tr> <tr> <td>b. Pipe</td> <td></td> <td></td> <td>Bowls</td> <td></td> <td></td> </tr> <tr> <td>c. Cigar</td> <td></td> <td></td> <td>Cigars</td> <td></td> <td></td> </tr> <tr> <td>d. Snuff</td> <td></td> <td></td> <td>Cans</td> <td></td> <td></td> </tr> <tr> <td>e. Chew</td> <td></td> <td></td> <td>Pouch</td> <td></td> <td></td> </tr> </tbody> </table>	TYPE(S)	YES	NO	AMOUNT(S)	PER DAY	PER MONTH	a. Cigarette			Packs			b. Pipe			Bowls			c. Cigar			Cigars			d. Snuff			Cans			e. Chew			Pouch				
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d. Snuff			Cans																																			
e. Chew			Pouch																																			
3. How soon after you wake up do you use tobacco? <input type="checkbox"/> After 30 minutes <input type="checkbox"/> Within 30 minutes																																						
4. Have you quit before? <input type="checkbox"/> Yes <input type="checkbox"/> No																																						
5. How many times have you quit before? _____																																						
6. What was the longest period you were able to quit? _____																																						
7. What caused you to start using tobacco again?																																						
8. Did you use any of the following to help you quit? <input type="checkbox"/> Patch <input type="checkbox"/> Gum <input type="checkbox"/> Zyban <input type="checkbox"/> Inhaler <input type="checkbox"/> Nasal Spray <input type="checkbox"/> Individual Counseling <input type="checkbox"/> Formal Program <input type="checkbox"/> Other _____																																						
9. Why do you want to quit tobacco use? <input type="checkbox"/> Financial Saving <input type="checkbox"/> Breathing Problems <input type="checkbox"/> Heart Problems <input type="checkbox"/> Fear of Cancer <input type="checkbox"/> Family/Social Pressure <input type="checkbox"/> Other Issues _____																																						
10. What support do you have available to help you quit tobacco use? <input type="checkbox"/> Family <input type="checkbox"/> Friends <input type="checkbox"/> Work <input type="checkbox"/> Other _____																																						
11. What type of program do you believe would help you the most? <input type="checkbox"/> Group <input type="checkbox"/> One on One <input type="checkbox"/> Counseling <input type="checkbox"/> Self Quit																																						
PATIENT'S IDENTIFICATION <i>(For typed or written entries give: Name - last, first, middle, gender, dates, hospital or medical facility)</i>																																						
		<i>(Patient's Signature/Date)</i>																																				

Figure 1: MEDCOM Form 709-R (Side 1)

SECTION III - MEDICAL HISTORY AND PHYSICAL ASSESSMENT (Completed by Health Care Provider)

MEDICAL HISTORY

Medications Reviewed: Yes No Allergies Reviewed: Yes No LMP: _____

ETOH: Yes No Cut Down Annoyed Guilty Eye Opener

During the past month have you been bothered by: Feeling down, depressed, or hopeless Yes No
 Little interest or pleasure in doing things Yes No

PMH affecting use of NRT/Bupropion:

PRECAUTIONS/CONTRADICTIONS	YES	NO	PRECAUTIONS/CONTRADICTIONS	YES	NO
Head Trauma			Mood Disorder		
Seizures			Polycythemia		
Chronic Pain Disorder			Diabetes		
Liver Disease			Cardiovascular Disease		
Hyperthyroidism			COMPLICATIONS OF TOBACCO USE		
Kidney Disease			Chronic Obstructive Pulmonary DZ		
Pregnancy			Asthma		
Lactating			Coronary Artery Disease		
Substance Abuse			Cancer		
Eating Disorder			Erectile Dysfunction		
Post Traumatic Stress Disorder			Peripheral Vascular Disease		
Anxiety			Other:		

Physical Assessment:

SECTION IV - ASSESSMENT (Completed by Health Care Provider)

PRIMARY ASSESSMENT: Tobacco Cessation V65.49.4 (DOD unique extender) ICD - 9-CM 305.1

SECTION V - ACTION PLAN (Completed by Health Care Provider)

- MEDICATIONS:** NRT Prescribed? Yes No

Transdermal Nicotine (Contraindicated in Pregnancy) 7 Mg x ___ weeks 14 Mg x ___ weeks
 21 Mg x ___ weeks ___ Mg x ___ weeks

Polacrilex Nicotine PRN

Other: ___ Bupropion SR 150 mg ___ po.qd x ___ days, then ___ bid.
- Tobacco Cessation Counseling:**

Patient congratulated on decision to quit tobacco usage: Quit Date: _____

Patient advised to avoid all tobacco products during NRT.

Tobacco cessation benefits reviewed.

Patient advised of withdrawal symptoms.

Patient concerns and support systems addressed.

Patient advised to take medication as directed.

Educational materials given to patient.
- What type of tobacco cessation program would you like to participate in?**

Formal Group Behavior Modification One on One Self Quit Program
- Referral To:**

Stress Management Dietary Other: _____
- Follow-Up Appointment with in 2 weeks:** _____

 (Provider's Signature/Date)

MEDCOM FORM 709-R (TEST) (MCHO) MAY 2001, Back

Figure 2: MEDCOM Form 709-R (Side 2)

DENTAC TUC 2 WEEK FOLLOW-UP

1. Have you completed your prescribed medication?
 Yes No N/A

2. Have you been able to stop all tobacco use since you started the TUC program?
 Yes No

3. If you have not been able to stop tobacco use, why do you feel you have not been successful?
 Stress from work or home Altered work schedule
 Lack of family/friends support Lost interest in quitting
 Other

4. Do you feel the DENTAC TUC program has helped you in your attempt to quit tobacco use?
 Yes No

5. 2-Month follow-up appointment _____

6. 3-Month follow-up appointment _____

TUC Treatment Plan:

- Continue NRT
- Continue Zyban
- Prescription made (for additional 2 weeks)
- Patient instructed to telephone Ms. Hatfield (554-1503) to receive additional prescriptions after 2 weeks.

Provider Signature/Date

Name/Rank: _____
SSN: _____
Unit/Phone: _____
Date entered TUC: _____

Figure 3: TUC 2-Week follow-up form

Table 1. Prescription information for Nicoderm™.

Prescribing Instructions	<ol style="list-style-type: none"> 1. Smoking: Refrain from smoking while using patch. 2. Location: At the start of the day, the patient should place a new patch on a relatively hairless location between the neck and waist. 3. Activities: No restrictions 4. Time: Patches should be applied as soon as the patient awakens on their quit day.
Dosages	<p>First 4 weeks: 21 mg/24 hours Next 2 weeks: 14 mg/24 hours Last 2 weeks: 7 mg/24 hours</p>
Contraindications	Hypersensitivity, pregnancy, lactation, nonsmokers, use during immediate post MI, life threatening dysrhythmias, severe or worsening angina pectoris, hypertension.
Precautions	Skin disease, angina pectoris, MI renal or hepatic insufficiency, peptic ulcer, serious cardiac dysrhythmias, hyperthyroidism, pheochromocytoma, insulin-dependent diabetes, pregnancy, elderly.
Adverse Reactions	Dry mouth, abnormal dreams, insomnia, nervousness, headache, dizziness, paresthesia, diarrhea, dyspepsia, constipation, nausea, abdominal pain, vomiting, erythema, pruritus, rash, burning at application site, cutaneous hypersensitivity, sweating, arthralgia, myalgia.
Drug Interactions of Concern to Dentistry	Decreased dose at cessation of smoking: acetaminophen, caffeine, oxazepam, pentazocine. Decreased metabolism of propoxyphene.

the need for additional medication, patient-specific counseling, and/or “problem solving.” Additional intermediate sessions are scheduled on an individual basis.

- f. Follow-up of the patient at two weeks, one month, three months, six months, and one year are critical to determine success of long-term results, to identify reasons for failure, to provide relapse prevention counseling, and to provide guidance for failures to reenter the tobacco cessation program.

TUC Medication

Below is a review of the recommended use

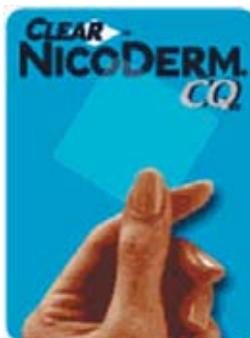


Figure 4: Nicotine Patch



Figure 5: Zyban

of the nicotine patch and oral bupropion (Zyban) tablets, the primary NRT medications used in the Fort Benning Dental Activity TUC program. When prescribed appropriately, both the nicotine⁴⁹⁻⁵¹ patch and bupropion⁵²⁻⁵⁵ are safe, well-tolerated, and effective. They do not decrease psychomotor performance, therefore, there are no restrictions to duty for patients using these medications.^{29, 56}

Other medications also may be substituted or incorporated based on local requirements and pharmacy support. Nicotine gum, nasal sprays, or inhalers are other modalities often used, but have been shown to be less cost-effective and successful than nicotine patches and Zyban.⁵⁷ Oral transmucosal nicotine (OT-NIC) lozenges⁵⁸ and oral selegiline⁵⁹, when used in combination with nicotine patches, show promise as future NRT options.

Nicotine Patch (Nicotine Transdermal System – Nicoderm⁶⁰)

The medication functions by binding to acetylcholine receptors at autonomic ganglia in the adrenal medulla, at neuromuscular junctions, and in the brain (Figure 4). It is generally

Table 2. Prescription information for Bupropion HCL (Zyban™, Wellbutrin™).

Prescribing Instructions	Treatment with bupropion should be initiated while the patient is still smoking, since approximately one week of treatment is required to achieve steady state blood levels of bupropion. Patients should set a "target quit date" generally within the second week of treatment. If the patient has not made significant progress toward abstinence by the seventh week, it is unlikely he or she will quit during that attempt and treatment should discontinue.
Dosage(Smoking Cessation)	Initiate with 150 mg once daily for 3 days; increase to 150 mg twice daily. Treatment should continue for 7-12 weeks.
Contraindications	Hypersensitivity to bupropion, seizure disorder, current profile of bulimia or anorexia nervosa; concurrent administration of MAO inhibitor.
Precautions	Renal and hepatic disease, recent MI, cranial trauma, pregnancy (Category B – animal studies fail to demonstrate a risk to fetus), lactation. Use of bupropion is associated with dose-dependent risk of seizures; therefore, doses of >300 mg per day should not be prescribed.
Adverse Reactions	Treatment-emergent hypertension may occur in patients treated with bupropion and nicotine patch. ⁵⁴ Cimetidine may inhibit metabolism (increase clinical/adverse effects). Toxicity of bupropion is enhanced by levodopa and phenelzine (MAO inhibitor). Risks of seizures may be increased with agents that may lower seizure threshold (antipsychotics, antidepressants, theophylline, abrupt discontinuation of benzodiazepines and systemic steroids). Carbamazepine, Phenobarbital, and phenytoin may increase the metabolism (decrease clinical effect) of bupropion.
Drug Interactions of Concern to Dentistry	Local Anesthetic/Vasoconstrictor Precautions Although not a tricyclic antidepressant, bupropion can cause hypertensive episodes and should be used with caution in the presence of vasoconstrictors (Half-life elimination is 14 hours). Greater than 10% of patients will experience significant xerostomia; normal salivary flow will continue upon discontinuation.

reserved for those patients smoking 10-15 cigarettes per day or more. Nicoderm may also be efficacious in smokeless tobacco cessation.^{61, 62} Prescription information is presented in Table 1.

Bupropion HCL (Zyban, Wellbutrin⁶⁰)

Bupropion HCL is a weak uptake inhibitor of dopamine, serotonin, and norepinephrine (Figure 5). Its antidepressant and smoking cessation mechanism is unknown. Prescription information is presented in Table 2.

NRT Combined with Counseling

One key aspect is the one-on-one counseling and support the patient receives while participating in the TUC program. Although patients can obtain products such as nicotine patches and gum without a doctor's prescription, long-term success rates are dramatically reduced when they attempt to quit smoking on their own. Patients often

become disappointed and frustrated, and as a result, prematurely give up in their attempt to quit.

Patients often misuse over-the-counter NRT products, leading to abuse and/or problems from side-effects.⁶⁴⁻⁶⁷ Therefore, the best results occur when NRT is combined with supportive counseling.^{52, 68-72} Recent studies demonstrate successful one-year quit rates in the 20%-30% range for TUC programs using the combined NRT and counseling approach.^{35, 68, 69, 73}

In addition effective TUC counseling can help military members overcome some of the common obstacles that make them reluctant to stop tobacco use. Many smokers claim they smoke primarily to relieve stress, however, nicotine dependency is actually associated with heightened stress.^{47, 75}

Weight gain associated with smoking cessation is a particular concern, as some military members are reluctant to quit smoking because of the possible negative administrative consequences for individuals exceeding weight standards.^{76,77}

Smoking is sometimes a coping mechanism for underlying psychosocial problems. According to one study, females with a history of abuse prior to entering military service were nearly three times as likely to be nicotine dependent as non-smokers, and males previously exposed to combat or other violence were twice as likely to be nicotine dependent as those not exposed.⁷⁸

There is a long-standing belief among military members that SLT use prevents drowsiness and increases awareness during combat operations, but a review of the literature revealed no studies to support this concept. Although most military members believe SLT use does not lead to future cigarette smoking, studies are inconclusive as to whether SLT use is a starter product for subsequent smoking.⁷⁹⁻⁸¹

Counseling Techniques

Our TUC Program uses aspects of Brief Intervention³³, or simply advising the patient to quit smoking at each clinical encounter and offering access to the TUC Program. We also use elements of the 5 A's (Ask, Advice, Assess, Assist, and Arrange)^{2,45,82} in our program. Other counseling techniques available include Brief Motivational Interviewing (BMI)⁸³ and the Teachable Moment (TM).⁸⁴

For any counseling method to be successful, the patient must be willing to stop using tobacco products, take personal ownership of the problem, and actively participate in the process. Continuous, structured, and composite efforts are needed for maintenance of the non-smoking behavior.⁷³

The U.S. Department of Health and Human Services, Agency for Health Care Policy and Research (AHCPR) Publication No. 96-0692 makes the following specific recommendations:⁸⁵

- A. Every person who smokes should be offered smoking cessation treatment at every office visit.

- B. Clinicians should ask and record the tobacco-use status of every patient.
- C. Cessation treatments *even as brief as 3 minutes per visit* are effective.
- D. More intense treatment is more effective in producing long-term abstinence
- E. NRT, clinician-delivered social support, and skills training are particularly effective components of smoking cessation treatment.
- F. The systematic identification of, and intervention with, all tobacco users at every visit.

Dental officers, RDHs, and other auxiliaries have traditionally provided A, B, C, and F above, generally at every patient visit when appropriate. Historically, the use of pharmacologic agents in tobacco cessation has not been part of the dental armamentarium.

Key Elements of this Dental TUC Program

1. The program is not forced upon patients. It allows patients to access the program on their timeline when they are ready to quit smoking.
2. Dental officers directly prescribe NRT pharmacological agents instead of referring TUC patients to a physician to receive the prescriptions.
3. Patients enjoy the program's convenience. Generally, they can leave with a physical assessment, initial TUC counseling, and an individualized TUC treatment plan (with NRT prescriptions as necessary) on day one of the program.
4. Minimal costs to administer the program in terms of personnel and supply needs.

Conclusion

The Fort Benning Dental Activity has successfully implemented this TUC program. To date, over 500 patients have participated in the program. Establishing similar programs of this type throughout DENCOM will significantly increase patient access to treatment. This model TUC program empowers dental providers with the tools to take a leading role in assisting military members in tobacco use cessation.

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About the Authors

Lemuel L. Covington, DMD



COL Covington is the Deputy Commander for Clinical Services (DCCS), Southeast Regional Dental Command, Fort Gordon, GA. He is the former Director of the Advanced Education in General Dentistry Program, Fort Benning, GA.

Lawrence G. Breault, DMD, MS



COL Lawrence G. Breault is the Chief of Periodontics, Fort Benning, GA.
e-mail: Lawrence.Breault@se.amedd.army.mil

John J. O'Brien, LTC MC



LTC John J. O'Brien is the Chief of the Martin Army Community Hospital Family Practice Residency Program at Fort Benning, GA.

Cathy H. Hatfield, RDH



Ms. Cathy H. Hatfield is the Fort Benning Community Health Registered Dental Hygienist at Fort Benning, GA.

Shana M. Vasquez, LDH



Ms. Shana M. Vasquez is a Licensed Dental Hygienist, W. D. Love Dental Clinic, Fort Benning, GA.

Robert W. Lutka, COL DC



COL Lutka is the former Commander of the Fort Benning Dental Activity at Fort Benning, GA.