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Dental readiness is vital to the U.S. Army. With over 40% of new recruits having acute, active dental disease, the challenge of preparing soldiers for deployment is critical. Oral surgeons make significant contributions to the dental readiness and wellness missions, but their numbers are dwindling. Substituting a RN in the place of a third dental assistant on the oral surgery team is a cost effective way of increasing oral surgeon productivity while improving patient care and safety. Using labor substitution, a RN enables the concept of multiple chairs, a Dental Care Optimization maxim, to become a practical reality. If this argument is accepted, then the United States Army Dental Command (DENCOM) should authorize and fund this new requirement in all of its oral-maxillofacial surgery clinics.

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RUNNING HEAD: INCREASING THE CAPABILITIES

Increasing the Capabilities of the Oral Surgery Team with a RN

A Graduate Management Project Proposal Submitted to the Program Director in

Candidacy for the

Degree of Master's of Health Administration

April, 2005

By

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Abstract

Dental readiness is vital to the U.S. Army. With over 40% of new recruits having acute, active dental disease, the challenge of preparing soldiers for deployment is critical. Oral surgeons make significant contributions to the dental readiness and wellness missions, but their numbers are dwindling. Substituting a RN in the place of a third dental assistant on the oral surgery team is a cost effective way of increasing oral surgeon productivity while improving patient care and safety. Using labor substitution, a RN enables the concept of multiple chairs, a Dental Care Optimization maxim, to become a practical reality. If this argument is accepted, then the United States Army Dental Command (DENCOM) should authorize and fund this new requirement in all of its oral-maxillofacial surgery clinics.

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Introduction

Oral health is an essential part of general health. This relationship has been the subject of increased attention in recent years with the discovery that children's self-esteem, social relations, education, future career achievement, and emotional states are all negatively affected by poor oral health. The U.S. Surgeon General commissioned an evidence-based review of the oral health of the American population and in 2000 released the results in a report entitled, "Oral Health in America: A Report of the Surgeon General." The report confirmed that an individual's oral health was a reflection of his or her general health and quality of life, and in conclusion, stated that Americans could not be considered healthy without oral health (US Department of Health and Human Services, 2000).

Good oral health is especially important to overall military readiness. Teweles and King (1987) studied how poor dental health affects the combat readiness of Army soldiers. They reported that, "potential dental emergency conditions can be accurately identified during routine dental examinations and that potential emergency conditions result in a significant percentage of preventable dental emergencies" (p. 235). Payne and Posey (1981) studied how dental emergencies caused by poor dental health resulted in lost duty time during a prolonged field training exercise. Of the total number, nearly three fourths of those emergencies were viewed as preventable. Chaffin, King & Fretwell, (2001) studied dental readiness in contingency environments and found that dental emergencies persist in reducing the readiness of troops in deployed locations as well.

Given that more than half of the troops the United States currently deploys overseas are engaged in actual military operations in the Global War on Terror (GWOT), dental readiness has become even more important. However, General Peter J. Schoomaker, Army Chief of Staff,

testified before the Senate Armed Services Committee on November 19, 2003 and admitted that, "...quite frankly we [have] real problems in dental readiness..."(Bramson, 2004). In fact, the DoD's 2002 Survey of Health Related Behaviors Among Military Personnel reported that 34% of military personnel on active duty required dental care prior to deployment, which was more than double the 16% figure that was reported in the 1998 survey (Assistant Secretary of Defense for Health Affairs, 2002).

The problem of dental readiness is not a new phenomenon. Rothfuss, Johnson, Larsen, Chaffin, & Finstuen, (2004) completed a study to determine whether the staffing arrangements of dental care providers in Army dental clinics are related to the dental readiness and wellness levels of Army soldiers. Although general dentists augment the oral surgeon's efforts and can treat varying levels of surgical difficulty depending on their experience and training, Rothfuss et al found that their efforts were not statistically significant in predicting readiness.

Their model demonstrated that the oral surgeon was the only dental specialty that was a significant predictor for oral wellness and readiness (Rothfuss et al. 2004). A look at the typical workload of an oral surgeon demonstrates why this is true. A strong correlation exists between the eruption sequence of third molars (wisdom teeth), the most common medical developmental disorder, and the 18-25 year age group, which forms the largest percentage of the active duty population. Wisdom teeth impaction (teeth that have not erupted [surfaced] and have no room in the mouth to grow) can cause problems such as pain, infection, or swelling. Most oral health specialists recommend early removal of the wisdom teeth to eliminate these and other more serious problems, such as the destruction of the second molar(s), and in the worst case, an airway emergency caused by excessive swelling in the back of the mouth (Academy of General Dentistry, 2005).

However, this is only part of the story. Oral surgery procedures range from the relatively simple procedures for removing wisdom teeth and nonrestorable teeth, to complicated surgical interventions to correct traumatic injures and facial deformities. The wide scope of practice inherent in the oral surgeon specialty sets it apart from any other dental specialty. The ability of the oral surgeon to treat a wide range of oral surgical problems underlies the tremendous impact of the oral surgical specialty to accomplish the overall dental readiness and wellness missions.

In that light, promoting initiatives designed to leverage the abilities of oral surgeons would appear to make the largest gains in the effort to increase dental readiness. In this paper, I will make the argument that assigning registered nurses to oral surgery clinics is a cost effective way of enabling oral surgeons to be more productive while improving the level of patient care. If this argument is accepted, then it follows that the United States Army Dental Command (DENCOM) should authorize and fund this new requirement in all of its dental clinics.

Overview of Bassett Army Community Hospital

Bassett Army Community Hospital (BACH) is a medium-sized Medical Department Activity (MEDDAC) located at Fort Wainwright, on the eastern edge of Fairbanks, Alaska. BACH serves as the primary medical treatment facility (MTF) north of the Alaska Range, providing primary and specialty care services to over 26,000 soldiers, retirees, and their family members. BACH has a total of 43 operating beds, an average daily bed census of 10.96, and an average daily admission of 5.27 patients, the greatest majority are new born infants and their mothers (World Wide Workload Report- Composite Health Care System [CHCS], 2004).

Staffing levels in many specialty areas are below authorizations, making each specialty provider a critical asset to the organization. According to the DENASAM (Dental Automated

Staffing Assessment Model), an oral surgeon is staffed for every 5000 patients. BACH has one oral surgeon, who sees active duty personnel from both Fort Wainwright and Eielsen Air Force Base. By the end of fiscal year 2006, the number of active duty members will exceed 7000; with additional growth expected as new military units arrive in the coming years (Military Health System Management Analysis & Reporting Tool [M2], 2005).

Conditions Which Prompted the Study

A scheduled Joint Commission on Accreditation of Healthcare Organizations (JCAHO) Site visit to BACH provided the conditions which eventually led to the decision to conduct this study. JCAHO is a national organization that accredits hospitals, health systems and home care programs. The significance of a health care organization receiving this accreditation and maintaining compliance with standards instituted by JCAHO can not be underestimated. This accreditation is important because it:

a) authorizes facilities to admit Medicare patients, a significant payer in many hospitals.

b) underlies physician training and nurse education programs, critical to the sustainment of medical capabilities in the civilian healthcare system as well as the military.

c) affects the career advancement potential of senior leaders responsible for ensuring the hospital's compliance with the required JCAHO standards.

d) is seen by consumers as a strong indicator that a healthcare organization provides high-quality care.

e) is a major prerequisite for many managed care companies who negotiate with health care providers for their services in designated facilities (University of Pennsylvania Health System, 1998).

The accreditation process is generally conducted every three years, and due to recent changes in JCAHO procedures, hospitals now receive little or no notice of upcoming surveys. The accreditation process is intended to ensure the hospital or other health care facility is delivering quality patient-centered care and that the facility strives to actively and continuously improve its performance. To be accredited, a facility must be surveyed by a team employed by JCAHO, who spend several days at the site. Survey teams for hospitals consist of at least one physician, an administrator and a nurse, but may include other specialists depending upon how large and what services the hospital offers. During their visit, they review policies, procedures, and medical records, track the process of individual patients throughout the facility, and conduct interviews with senior leadership, junior staff members, and patients. Physical facilities are inspected for safety and compliance with the environment of care standards. The rights of patients, assessment and care of patients, management and security of patient information, staffing of medical and nursing personnel, compliance with infection control standards, and other elements relating to the delivery of quality health care are other areas of concentration. If the survey team finds the organization to be out of compliance with one or more standards during this survey, the organization will be required to submit a viable plan(s) of action to JCAHO within 30 days of the survey, or a hospital may risk losing its accreditation (Joint Commission on Accreditation of Healthcare Organizations, 2004).

A JCAHO Survey Team visited BACH in October, 2004. In preparation for that visit, several MEDDAC policy changes were initiated. One of these changes required the oral surgeon and other providers to begin using a four-page packet of patient care and assessment forms for each person undergoing a procedure requiring the use of conscious sedation. The cumulative effect of this policy change was to greatly extend both the time required to fill out pre-op forms

as well as increase the time required for a more thorough physical assessment of the patient. The oral surgeon claimed that the use of these forms forced him to go from seven procedures a day to four or five procedures a day after the change. The single biggest difference was that a five minute period to prepare the patient for a procedure grew to 20 minutes. "I almost have to do a complete physical now," he complained (Dr. J. Brock, personal communication, October 14, 2004).

In order to increase efficiency and comply with this new requirement, the oral surgeon initiated a request to have a registered nurse in his clinic. He stated that having a registered nurse assist him in his clinical procedures afforded him the greatest ability to leverage his skills, increase patient safety, and streamline patient care. His current practice of administering the intravenous (IV) medications to his own patients requires him to divide his attention between caring for the safety and comfort of his patients while performing the required procedures. This systemic inefficiency is repeated for each procedure, and slows the patient flow throughout the clinic.

A registered nurse could assume much of the pre-op responsibility for assessing the patient and initiating the consent process, activities for which the dental assistant is not as qualified. But primarily, a registered nurse could push IV medications, freeing the oral surgeon from having to interrupt his procedures to administer the drugs. The net result of these process improvements could streamline the patient flow throughout the clinic. He argued that since other surgery clinics in the hospital utilize registered nurses to satisfy this need, why shouldn't his patients receive the same standard of care in the oral surgery clinic?

This lament is heard at other dental clinics Army-wide. JCAHO's requirement to have the same standard of care throughout the facility (Leadership Standard 3.20) has touched off a

heated debate within the U.S Army Medical Command (MEDCOM). COL Michael J. Will, Dental Corps Consultant for Oral and Maxillofacial Surgeons (OMS), wrote in a recent memorandum regarding the state of Oral and Maxillofacial Surgery at the end of Fiscal Year (FY) 2004:

> There continues to be a strong move by all hospital-based Oral and Maxillofacial Surgery departments to include a nurse in the clinical staffing to satisfy JCAHO standards. The OMS residency programs have RN's on staff to support the department and program, but many of the outlying community hospitals with [a] staff OMS do not have a RN authorization according to the TDA [Tables of Distribution and Allowances]. These surgeons are trying to comply with JCAHO standards and Army community hospital standards without the benefit of a RN. Registered Nurses must be available to all OMS hospital–based practices to satisfy JCAHO standards and to improve practice efficiency and safety. Additionally, oral surgery technicians who have had a hospital–based IV sedation course and given appropriate instruction and guidance by the OMS should be allowed to push IV medications during surgery when directed and supervised directly by the OMS (M. Will, personal communication, October 20, 2004).

Statement of the Problem

Registered nurses with their unique skills and abilities could play important roles in accomplishing the objectives of the overall DENCOM mission. Although they are seen as an integral part of conscious sedation in many healthcare organizations, they essentially have been excluded from DENTAC facilities. If registered nurses can increase clinic efficiency and cost

effectiveness while improving the quality of patient care, they would be powerful allies in the effort to increase dental readiness.

Literature Review

According to DENCOM senior officials, challenges to dental readiness are primarily the result of three major factors. First, the level of poor national dental health is mirrored by new recruits who report for military service. Second, increased demands for dental services have resulted from the expansion of the active duty force due to the federalization of the National Guard and the activation of Reserve Component soldiers. And third, the soldiers' dental needs are served by a dwindling number of dental specialists (Spadaro, Luciano, & Jennings, 2004). The number of oral surgeons in particular may become critically short as soon as the summer of 2005, due to the tremendous number of providers eligible to separate from active service or retire (M. Will, personal communication, October 20, 2004).

The consequences of this current situation have been costly. To meet the increased demands for dental readiness, millions of dollars have been paid to civilian private practice dentists. This occurs as a result of two programs; the Military Medical Support Office at Great Lakes Naval Training Center (primarily for active duty personnel) and the Federal Strategic Health Alliance Program known as Feds-HEAL (for activated Guard and Reservists). In FY 2000, the military purchased $13 million of private practice dental care for active duty personnel, but this number grew to more than $63 million by the end of FY 2004 (MMSO, 2004).

While some of this is attributable to the increase in the number of active duty troops, a significant portion of these expenses is a direct result of the high attrition of dental officers available to maintain the dental readiness of the active duty members. As a response to this

threat, the American Dental Association (ADA) testified before Congress that, "it is time to address dental officer authorizations before the damage to the military dental corps reaches a crisis level" (Bramson, 2004).

Although the limits of an oral surgeon's ability to see patients are being pushed to the breaking point, the availability of additional oral surgeons is not likely. In an environment characterized by a chronic shortage of several specialties, the Department of Defense reported that all three services' dental corps are operating below their authorized manpower levels by almost 12 percent (Bramson, 2004).

Although efforts to recruit and retain civilian contract providers for use in military treatment facilities (MTF) continues, these numbers are not meeting the uniformed dental officer shortfall. In response to this dilemma, senior military officials are currently considering permanently transferring hundreds of military dental officer and enlisted positions to civilian slots under the Army's Military to Civilian conversion plan. With this plan, the Army hopes to make up current shortages in vital military positions such as military police and civil affairs specialists by converting other occupations to civilian positions.

However, General Joseph G. Webb, Chief of the U.S. Army Dental Corps and Deputy Surgeon General of the Army, while he supported the Army's intent, stated that he, "will oppose any proposed decrements to the Army Dental Care System (ADCS) that negatively impacts the organization's ability to provide the best dental care in the world." While the discussions regarding this issue continue, he stressed that the best defense to counter this proposal was the, "continued demonstration that we are the Army's cost effective means for maintaining the readiness and dental health of its Soldiers" (Webb, 2004).

This has become an increasingly difficult challenge. Two major obstacles blocking recruitment and retention efforts are the large pay disparity between civilian and military providers and the increased number of military deployments (Webb, 2004). The uniformed-civilian pay gap in 2000 dollars was substantial, according to a recent naval health professions retention study, averaging $69,000 per year for general dentists and $113,000 per year for specialists, such as oral surgeons (Bramson, 2004). Another major obstacle looms in the form of student loan debt. Many junior officers enter active duty with a debt totaling more than $100,000 (the national average is $116,000) and, not surprisingly, have a hard time making monthly school loan payments on an O-3's (Captain) pay.

To address the large pay discrepancy, the Dental Corps fought for increases in the amount of retention bonuses and for the Health Professional Loan Repayment Program for critical dental specialties. To address the burden of long deployments and their negative effects upon retention, the United States Army Medical Command (MEDCOM) instituted a Professional Officer Filler System (PROFIS) rotation policy to limit the length of deployments for oral and maxillo-facial surgeons and other dental specialties to 180 days (Webb, 2004). PROFIS physicians are providers who work full-time in Army hospitals, but are also assigned to maneuver units. When these units go to war, they take their full roster of personnel, including the PROFIS physicians who are assigned to them. Rather than forcing these physicians to complete the 12 or 18 month-long deployments many of these units undertake, this policy limits oral surgeons and other critical specialists to 180 day rotations.

These measures may give retention efforts a boost, but additional actions are needed. A recent report by the Dental Corps declared that a significant factor in the retention of quality dental providers is the quality of practice for these providers. It stated that, "reengineering using

managed care principles will significantly improve the quality of practice for all health care providers while increasing dental readiness. By maximizing the use of our facilities, equipment, time, and manpower we will attain new levels of efficiency and customer service" (Connor, 2002).

The Dental Care Reengineering Initiative (DCRI) appears to be the primary platform from which to realize these goals. Touted as the "operational model of the Army Dental Care System for the next millennium," it stresses the maximization of facilities, equipment, time, and manpower to improve levels of efficiency and customer service. Its purpose is not only to improve the quality of practice for all health care providers, but more importantly, to increase the levels of dental readiness (Webb, 2004).

DCRI targets how work is performed, leverages technology to aid the effort, and encourages change in the organization infrastructure and culture. By introducing a redesigned process model, DCRI seeks to "change the delivery of dental services into an efficient and cost effective enterprise that continuously improves the dental fitness of the force and exceeds the expectations of patients and staff." DCRI hopes that increases in the efficiency of clinics and elimination of excess capacity will result in improved access to care and improved dental wellness (Rogers & Nasser, Jr., 2002). These outcomes are in stark contrast to more traditional performance measurements. Instead of measuring workload, the emphasis shifts to measuring dental fitness, oral wellness and customer satisfaction. This is a clear departure from the traditional approach which targets the cost per beneficiary served or the total charges for treatments provided. The revised outcomes align with those of the overall DENCOM mission, which is, "to ensure dental readiness, promote dental health, and provide dental care for

America's Army (U.S. Army Dental Command, 2004). Proving the cost effectiveness of this system related to these outcomes will be the primary goal of the program.

A significant part of this effort is labor substitution, which delegates duties to the lowest skill level appropriate to the task being performed. Although the physician retains overall responsibility for the quality of services provided by members of the dental team, it is cost effective to empower the abilities of the other members by delegating every procedure that does not require the services of the provider.

As a final note, the Dental Care Reengineering Initiative (DCRI) has now become the Dental Care Optimization (DCO) program. While retaining the original reengineering focus of DCRI, the name was changed to reflect a stronger emphasis upon optimizing dental care delivery and improving clinical efficiencies to enhance service to soldiers (U.S. Army Dental Command, 2004).

Dental readiness within DENCOM

Access to preventative and routine dental care plays a vital role in achieving oral health. With that in mind, service members in poor dental health before deployment are more likely to have dental emergencies during deployment. Therefore, making sure that poor dental conditions are corrected before deployments and emphasizing the importance of oral health maintenance has been a focus of military medicine for several years.

In 1987, the U.S. Army introduced the Oral Health Fitness Program. This plan was designed to reduce disease and nonbattlefield injuries during contingency operations by proactively monitoring and treating soldiers in the predeployment phase (United States Army Dental Command, 2004). To accomplish these goals, soldiers' dental conditions must be screened routinely to identify dental problems that need to be corrected. Health Affairs Policy

98-021 mandates that active duty and selected reserve service members receive an annual dental examination (Assistant Secretary of Defense for Health Affairs, 1998). Service members are classified into one of four fitness categories based upon the findings of this examination. The dental fitness classifications for all military services have been standardized in Health Affairs Policy 97-020. They are as follows:

Class 1. Patients not requiring dental treatment or reevaluation within 12 months.

Class 2. Patients who have oral conditions that, if not treated or followed up, have the potential but are not expected to result in dental emergencies within 12 months.

Class 3. Patients who have oral conditions that if not treated are expected to result in dental emergencies within 12 months.

Class 4. Patients who require dental examinations. This includes patients who require annual or other required dental examinations and patients whose dental classifications are unknown (Assistant Secretary of Defense for Health Affairs, 1996).

Health Affairs Policy 96-024 requires that each installation maintain at least 95% of its assigned soldiers in dental fitness class 1 or 2 (Assistant Secretary of Defense for Health Affairs, 1996). The Dental Chiefs of the Air Force, Navy, and Army have also set a lofty goal of 60% of assigned service members to be in dental fitness class 1. The Army refers to dental fitness class 1 as dental "wellness", while dental fitness category 2 is known as dental readiness, the minimum acceptable level to be deployed.

These targets are important, as the following statistics demonstrate that an ounce of prevention is worth a pound of cure:

1) A Class 2 patient is 1.4 times more likely to self-perceive a need for urgent dental care than a Class 1 patient. For a Class 3 patient, that rises to 1.8 times (York, 1994).

2) A Class 2 patient requires 3.75 times more resources to maintain than it takes to treat a Class 1 patient. Class 3 patients require 4.11 times more resources than a Class 1 patient (US Army Dental Command, 1998).

With the poor dental health of new troops affecting the ability to rapidly deploy units, the focus has shifted from primarily readying units for deployment to readying military recruits. Effective August, 2003, the United States Army Medical Command (MEDCOM) and the U.S. Army Training and Doctrine Command (TRADOC) signed a memorandum of understanding to implement a first-term soldier dental readiness pilot program at Army Advanced Individual Training (AIT) and one-station unit training (OSUT) sites. The goal of this program, called First term Dental Readiness (FTDR), is to frontload the readiness effort by ensuring 95 percent of soldiers report to their first unit of assignment in a dentally deployable status (Class I or II) (United States Army Dental Command, 2004). With the initial success of this program's pilot phase, the FTDR has been expanded to 17 training installations.

With the tremendous pressure to increase dental readiness, other initiatives are also being considered. One proposal of interest to DENCOM senior leaders is to place a registered nurse in the oral surgery clinic. Registered nurses are seen as an integral part of conscious sedation in many healthcare organizations. Although 80% of an oral surgeon's workload consists of procedures requiring the use of conscious sedation, RNs have essentially been excluded from DENTAC facilities (MAJ J. Brock, personal communication, March 9, 2005). No requirement exists for a RN to be present in oral surgery clinics, in either the Army or Department of Defense (DOD) regulations. Moreover, no requirement exists in the civilian dental world as well, since neither the American Dental Association (ADA) nor the American Association of Oral and Maxillofacial Surgeons (AAOMS) have a RN requirement in their guidelines on

conscious sedation. Even JCAHO, the most powerful federal accrediting agency for hospitals, does not require a RN to be present during conscious sedation procedures, but only that a RN *supervises* [italics added] perioperative nursing care. Furthermore, in Standard PC 13.20, JCAHO chooses to not address the type of professional training required for assistants involved in administering sedation and anesthesia. It merely states that, "sufficient *qualified* [italics added] individuals are present to perform the procedure and to monitor the patient throughout administration and recovery". Finally, it states that, "sufficient numbers of qualified staff are available to evaluate the patient, perform the procedure, monitor the patient, and recover the patient. Individuals administering moderate or deep sedation and anesthesia are qualified and have the *appropriate* [italics added] credentials to manage patients at whatever level of sedation or anesthesia is achieved, either intentionally or unintentionally" (Joint Commission, 2004).

Therefore, as AAOMS states, it's up to the individual organization to develop their own policies, based upon professional standards, for determining the qualifications for members of the dental anesthesia team (American Association of Oral and Maxillofacial Surgeons, 2004). Bassett Army Community Hospital's (BACH) *Sedation Guidelines for Patient Care* describes these qualifications: "When (IV) medication is used for sedation, the administrator must be a BACH privileged physician, dentist, CRNA, or registered nurse. Any exception must be approved by the Deputy Commander for Clinical Services and the Deputy Commander for Nursing." However, the guideline for monitoring providers is that they can be, "any BACH healthcare personnel who have completed unit training on monitoring patients receiving sedation" (Department of the Army Headquarters, United States Army Medical Department Activity, Fort Wainwright, AK, 2004).

Interestingly, the policy addresses another point:

> It shall be the responsibility of the Attending Practitioner performing the planned therapeutic/diagnostic procedure to determine whether his/her involvement with said procedure would preclude his/her ability to safely administer these intravenous mediations. If he/she so determines, arrangements shall be made to have a privileged Registered Nurse, Dentist, or Physician present to administer intravenous medications (Department of the Army Headquarters, 2004).

And therein lies the problem. Since the oral surgeon is the only one authorized to administer intravenous medications during his procedures, he or she must stop the treatment, remove his or her gloves, locate the correct medication syringe (sedation, analgesia, reversal agent, etc.), administer a dose of medication, and put on a fresh pair of gloves before continuing the procedure. This same process can be repeated several times during a typical procedure. An alternative to this practice is to "load up" patients ahead of time with the amount of sedation and analgesia estimated to last the entire procedure. Although this is a technique practiced by many oral surgeons, it does not allow the oral surgeon to tailor pain management to the individual patient, increases the risk of over sedating patients, which can lead to respiratory depression and airway obstruction, and forces any oral surgeon involved in an airway emergency to choose between managing the airway and pushing emergency IV drugs. A third alternative is to direct a dental assistant to push the meds. Although this appears to be a viable solution to the problem, this action is currently prohibited by facility policy as well as state law.

While the state of Oregon licenses dental assistants to push IV meds under the supervision of oral surgeons (Oregon Board of Dentistry, 2004), most state laws, including Alaska, prohibit this practice. However, other measures with the designed intention of empowering the anesthesia assistants are in place. In 1989, the Committee on Professional and

Allied Staff developed the Oral and Maxillofacial Anesthesia Assistants Program (OMAAP). The OMAAP was created to enhance the delivery of ambulatory anesthesia by promoting quality training of the anesthesia support team. The association has made this course available not only to Oral Maxillofacial Surgery (OMS) offices, but to all dental offices that hold a valid anesthesia permit. The OMAAP is a six-month home study course structured to enhance the relationship between the assistant and the surgeon as they work together to establish the assistant's ability to aid in the management of sedation and/or general anesthesia administration in the office. Five modules are covered in the course, each with its own practice quiz administered by the sponsoring surgeon. The OMAAP process culminates in a final examination in the spring (American Association of Oral and Maxillofacial Surgeons [AAOMS], 2004).

In September, 2002 the Army initiated a program to increase the productivity of its operative dental teams, called the Expanded Function Dental Assistant (EFDA) training program. Its purpose was to increase the operative clinical skills of civilian EFDAs with the expectation of increasing productivity under the Dental Corps Optimization (DCO) program (United States Army Dental Command, 2004). However, the current shortage of dental assistants in the Army severely limits DENCOM's ability to properly utilize EFDAs within DENTACs. The result is that many of the productivity goals outlined in these programs are not being met.

The pressure to increase clinical productivity will only intensify. The dwindling numbers of oral surgeons are being asked to provide care for a larger number of needier service members. According to the DENASAM (Dental automated staffing assessment model), the ratio of oral surgeons to patients currently stands at one for every 5000. However, with the expected increase

in population served rising from 5000 to 7000 members at Fort Wainwright, will one oral surgeon be able to handle the load?

The answer depends upon whether innovative measures and practices are adopted to increase his productivity, according to a study by Beazoglou, Heffley, Brown, & Bailit (2002). They found that the dentists' and support personnel's work hours and the size of the office (measured by square feet of office space) are important determinants of dental practice productivity. The results of their study showed that increases in dentists' productivity will reduce the number of dentists that are necessary per unit of population. (Beazoglou et al., 2002)

Although medical groups often emphasize lean support staff levels, a report from the Medical Group Management Association (MGMA) found that better performing groups have higher support staff-to-physician ratios and produce a higher number of procedures per physician. Within the support staffs themselves, the greatest boost to physician productivity was found to be from inclusion of registered nurses. RNs are generally more knowledgeable than medical assistants, ask fewer questions of physicians, make more appropriate decisions, and are better able to schedule appointments efficiently. The net effect of these findings demonstrates that having fewer staff, especially RNs, is not cost effective if physicians take on nursing-level tasks. As a result, many health care organizations are not maximizing the productivity of their most valuable clinical resources; physicians (Medical Group Management Association [MGMA], 2000).

Benninger & Strode (1998) found that not only was maximizing support staff a key area of opportunity to improve productivity, but also maximizing space allocation in the clinics as well. Maximizing use of support personnel is necessary to allow physicians to be more effective. His model showed that small modifications in nursing staff and space utilization could reap

significant clinical and patient satisfaction improvements. He also discovered that amid the environment of competing physician demands and an increasing patient population, maintaining the standard of care required improved efficiency in the processes related to care delivery.

Maximizing support staff became a JCAHO issue as well, and in 2002, JCAHO developed staffing effectiveness standards. Staffing effectiveness is defined as the number, competence, and skill mix of staff as related to the provision of needed services (Joint Commission, 2004). To comply with this new requirement, BACH issued MEDDAC Regulation #40-222, which states that, "hospital leadership needs to develop specific outcome measures on which staffing models are based" (Department of the Army Headquarters, United States Army Medical Department Activity, Fort Wainwright, AK, 2004).

This is a departure from an exclusive reliance upon staffing recommendations from previous standards, such as the Tables of Distribution and Allowances (TDAs), Automated Staffing Assessment Model (ASAM) reports, and professional organizational staffing proposals. To comply with this regulation, every clinic, department and/or inpatient unit who has a direct impact on patient outcomes must select four indicators and the outcomes for those indicators.

Responsiveness and access indicators measure delays in care or services due to staffing shortages or other staffing related issues. Examples include appointment availability and access times as reported through the Office of the Surgeon General. Other options include appointment access standards, surgical or procedure backlogs, work orders, patients who leave without being seen, patient access times, and the number of patients referred to a civilian facility. Administrative indicators include measures such as staff vacancy rate, staff satisfaction, staff turnover rate, understaffing as compared to the hospital's staffing plan, nursing care hours per patient day, on-call or per diem use, sick time, overtime, etc. Whenever possible, the selection

of indicators should be supported by evidence based research regarding the relationship between the level of staff and mental and physical readiness (measuring the ability to take care of patients) and the outcomes of medication errors and poor practice variances.

The need to adhere to staffing effectiveness standards strengthen the argument to place registered nurses into the oral surgery clinic. Facilities must now justify the staff mix within clinics to ensure the safe and efficient delivery of care. If registered nurses can increase clinic throughput, improve the level of patient care, and decrease the surgical backlog, they would demonstrate a measurable cost effective benefit.

Accurately measuring clinical productivity forms the greatest challenge to this argument. Lagasse (1996) found that since physicians are the main drivers of patient care activities, it was imperative to find reliable measures to determine their productivity and ensure that quality care is delivered to patients in the most effective way possible. Developing productivity measures for physicians allows organizations to:

1) accurately measure efficiency

2) benchmark against other organizations

3) develop incentives based upon these measures

4) pro-actively adjust professional staffing levels to meet demand needs

Although difficult to accurately measure, physician productivity must be quantified. Glass & Anderson (2002) found that Relative Value Units (RVUs) per hour constitute a reliable gauge. RVUs come from Medicare's relative value scale (RVS) system, which assigns a total relative value unit to each service or procedure performed by providers. The relative value of a procedure is based upon the amount of work and skill required to perform that procedure.

RVUs empower administrators with an additional and invaluable means for objectively measuring and quantifying clinical productivity other than by traditional methods such as net charges and or office visit volume. RVUs also provide the statistically valid and reliable quantitative data needed for facilitating change. Glass & Anderson argued that medical practices should utilize the RVU work component for tracking and measuring provider productivity, compensation, and practice income distribution.

Even if clinical productivity can be quantified, the larger question is how it can be improved. One method, called the theory of constraints (TOC), evaluates a critical process, and highlights weak points that constrain, or limit the process's overall effectiveness (Womack & Flowers, 1999). According to the authors, there are five fundamental precepts of (TOC).

1. All systems and processes are a series of dependent events; they are analogous to chains.

2. All systems have a constraint; the constraint is the weakest link in the chain or the bottleneck in a process.

3. Any improvement in the constraints performance translates directly into improved overall system performance. By strengthening the weakest link, the whole chain is stronger; by increasing the flow through the bottleneck, overall system output is increased.

4. Constraints can be classified by their cause; most are the result of the organization's rules, training, or measures and are called policy constraints. Fewer constraints are resource constraints and fewer still are market constraints.

5. Any improvement in a nonconstraint resource or process step does not improve system performance.

Dr. Eli Goldratt, an Israeli physicist, took the five principles of TOC and developed a practical problem-solving methodology that could be utilized in a wide variety of situations. This method has five steps:

1) Identify the system constraint

2) Decide how to exploit the constraint

3) Subordinate everything to the constraint

4) Elevate the constraint

5) Return to step one, but beware of inertia

For their research, Womack and Flowers studied an Air Force primary care clinic, and expected to find that the provider, being the most expensive resource, would be the constraint. However, they found that the limited number of medical technicians restricted the capacity of the provider to see patients.

With the need to shift the constraint from the technicians to the providers, the best solution was to elevate the constraint by freeing up the technicians to assist the providers. The subsequent reallocation of technicians enabled the medical group to place existing manpower at the greatest leverage point in the system without spending any additional resources. Allowing the provider to be constantly busy doing only what the provider can do enabled the system to be as productive as it could be (Womack & Flowers, 1999).

Conscious sedation

Central to this argument for a RN in the oral surgery clinic is the practice of performing procedures using conscious sedation. Conscious sedation is defined by Giovannitti (2004) as a minimally depressed level of consciousness that retains the patient's ability to independently and

continuously maintain an airway, respond appropriately to physical stimulation and verbal commands, and is produced by a pharmacologic or non-pharmacologic method, or a combination thereof. The goals of conscious sedation are mood alteration, maintained consciousness, cooperation, stabilization of vital signs, elevated pain threshold, and amnesia.

However, there are various degrees of sedation/analgesia. The ASA has defined four stages of sedation described in the following table:

Table 1

American Society of Anesthesiologists Stages of Sedation

Stage	Description
Minimal sedation (anxiolysis)	A drug-induced state during which patients respond normally to verbal commands. Although cognitive function and coordination may be impaired, ventilatory and cardiovascular functions are unaffected.
Moderate sedation/analgesia	A drug-induced depression of consciousness during which patients respond purposefully to verbal commands, either alone or accompanied by light tactile stimulation. No interventions are required to maintain a patent airway, and spontaneous ventilation is adequate. Cardiovascular function is usually maintained.
Deep sedation/analgesia	A drug-induced depression of consciousness during which patients cannot be easily aroused but respond purposefully following repeated or painful stimulation. The ability to

	independently maintain ventilatory functions may be impaired. Patients may require assistance in maintaining a patent airway and spontaneous ventilation may be inadequate. Cardiovascular function is usually maintained.
General Anesthesia	A drug-induced loss of consciousness during which patients are not arousable, even by painful stimulation. The ability to independently maintain ventilatory function is often impaired. Patients often require assistance in maintaining a patent airway, and positive pressure ventilation may be required because of depressed spontaneous ventilation or drug-induced depression of neuromuscular function. Cardiovascular function may be impaired (American Society of Anesthesiologists, 1999).

Note: From the American Society of Anesthesiologists, 1999

Drug-induced respiratory depression and airway obstruction are the primary causes of poor clinical outcomes associated with sedation/analgesia. Sedatives and analgesics tend to impair airway reflexes in proportion to the degree of sedation and analgesia achieved. Because of this risk, providers administering moderate sedation should be able to rescue patients who enter a state of deep sedation, while those intending to administer deep sedation should be able to rescue patient who enter a state of general anesthesia.

Understanding that the desired level of sedation for a patient may be much different from the actual level of sedation achieved is the most important concept to know. Sedation is a

continuum, with patients having the ability to slip between light to moderate sedation and from moderate to deep sedation. This has implications for patient safety, because with increased levels of sedation comes increased levels of risk. Specific concerns include:

1) induction of the state of respiratory depression by concurrently administered sedative and analgesic agents

2) inadequate time intervals between doses of a sedative or an analgesic resulting in a cumulative overdose

3) inadequate familiarity with the role of pharmacological antagonists [reversal agents] for these drugs.

The tendency for combinations of sedative and analgesic agents to cause respiratory depression and airway obstruction emphasizes the need to appropriately reduce the dose of each administered drug as well as the need to continually monitor respiratory function. A second reason to administer small doses is to enhance patient comfort. ASA experts believe that incremental drug administration to achieve the desired level of sedation and/or analgesia is superior to the practice of giving a single dose based upon patient size and/or age (American Society of Anesthesiologists, 2002). Therefore, oral surgeons who try to get away with administering single doses of sedation and/or analgesia to avoid interrupting their procedures may be shortchanging their patients in terms of the desired levels of sedation and or analgesia.

Another critical task which must be completed prior to beginning a procedure is to examine the patient's airway. With the risk of loss of airway during sedation and the possibility of inducing a state of apnea (temporary absence of breathing), it is important to recognize which patients may have a potentially difficult airway to manage. Since as many as 30% of deaths are attributable to anesthesia due to the inability to manage difficult airways, successful management

of the difficult airway begins with recognizing the potential problem before it occurs. Anatomical features that predict a difficult airway include a severe maxillary (upper jaw) overbite, cervical spine (neck) immobility, large jaw/head, obesity (because of excess tissue), too large a tongue or too small a mandibular (lower jaw) area for the tongue to pulled forward and thus obstruct the view of the structures (University of Iowa Department of Anesthesia, 2004).

Finally, some evidence suggests that a number of pre-existing medical conditions such as angina, cardiac arrhythmias, hypertension, obesity, history of smoking, and other problems may be related to adverse outcomes in patients receiving either moderate or deep sedation/analgesia. ASA experts strongly agree that appropriate pre-procedure evaluation (history and physical examination) increases the likelihood of satisfactory sedation and decreases the likelihood of adverse outcomes for both moderate and deep sedation (American Society of Anesthesiologists, 2002). .

According to the ADA Guidelines on Deep Sedation, a minimum of three individuals must be present. When the same individual administering the deep sedation/general anesthesia is performing the dental procedure, a second individual must be present and competent in BLS or its equivalent and the third member should be trained in patient monitoring (American Dental Association Policy Statement, 2003).

Patient Safety

Compared to dental assistants, registered nurses have much higher levels of education and training in pharmacology, anatomy and physiology, and patient safety. For those reasons, they are better prepared to recognize pre-procedure risk factors and to deal with adverse patient responses to sedatives and analgesics. However, proponents of the current system argue that the

sterling patient safety record held by oral surgeons override any concerns over the lesser amount of training dental technicians receive to monitor patients undergoing conscious sedation procedures (Moyer, Andresen, & Lowery, 2004)..

This patient safety record is a result of the extensive anesthesia training that oral surgeons receive. Most state dental acts require additional training for dentists using conscious sedation and many even require a separate license (American Dental Association Policy Statement, 2003). During an anesthesia rotation of at least four months in duration, oral surgeons learn the techniques of intubation for general anesthesia in a hospital setting. In addition, during the minimum of 30 months of rotation on the oral and maxillofacial service, many surgical procedures are performed on patients who have been sedated at either a light or deep level, as well as patients who have been administered a general anesthetic. Sedation and anesthesia are provided by the oral and maxillofacial surgery residents. Therefore, the anesthesia training is a comprehensive experience, which is quite demanding. It is distributed over a full four year period, which provides the resident with an excellent background in anesthesia. In addition to the general anesthesia training, the residents become certified in advanced cardiac life support, and advanced trauma life support (American Association of Oral and Maxillofacial Surgeons [AAOMS], 2004).

This excellent patient safety record is also backed up by the data. According to a prospective cohort study from Jan-Dec 2001, out of 34,391 total patients receiving anesthesia, there were no mortalities, and only 5.8:100,000 complications requiring hospitalization (Journal of Oral Maxillofacial Surgery, 2003). In another study using OMS National Insurance Company Anesthesia Morbidity and Mortality Data (1988-2003), out of 26,647,656 in-office anesthetics

administered (conscious sedation, deep sedation, and general anesthesia), the ratio of office fatalities/brain damage per anesthetics administered was 1:740,213 (Deegan, 2001).

Nurses in the Oral Surgery Clinic

Regrettably, any quantitative data supporting the need for RNs in oral surgery clinics could not be found. As shown by the results above, there have been very few safety issues to demonstrate such a need. In fact, the only data collected on this issue served to support the argument against, rather than for, the use of RNs in Oral Maxillofacial Surgery (OMS) (Dr. J. Scuba, personal communication, November 1, 2004). Nevertheless, even if this issue can not be justified on a patient safety basis, the placement of a RN in the oral surgery clinic can be seen as an improvement in patient care (COL P. Hamilton, personal communication, October 19, 2004).

While MEDDAC commanders agree with this philosophy, they have shown a remarkable unwillingness to support their DENTAC counterparts in making this happen. MEDDAC commanders have urged their DENTAC counterparts to hire registered nurses but DENTACs have generally refused to pay for them. This action has stirred up a firestorm of protest from oral surgeons and dental health officials alike, who neither agree with this requirement nor the mandate to pay for it.

The relationship between DENTAC and MEDDAC is a complex one, its relationship governed by MEDCOM Regulation 10-1:

> The DENTAC will provide resources for the department [of Dentistry]. The hospital portion of the Army Medical Center (MEDCEN) or MEDDAC TDA will identify actual personnel resources for the department with manpower requirements only. The DENTAC portion of the TDA will reflect the authorization for the manpower

> requirements." Planning, budgeting, administration, and logistical/facility support to dental functional elements is provided by the staff of the collocated MEDCEN/MEDDAC, including the same type and level of support services provided to functional elements of the MEDCEN/MEDDAC. Staffing requirements for a MEDCEN/MEDDAC will consider the support services being provided to collected dental units. Authorizations will be assigned to the organizational activity providing the greatest opportunity for efficiency of operations (Department of the Army Headquarters, 1997).

One can draw two conclusions from the regulation. First, although nursing services is clearly not one of the support services MEDDAC provides to DENTAC, one could argue that it should be identified as a manpower requirement. Since MEDDAC utilizes a registered nurse in other hospital clinics that use conscious sedation, such as in general surgery, gastrointestinal (GI), and otorhinolaryngology (ENT), a RN in a dental clinic would demonstrate the same standard of care exhibited in other clinics throughout the facility.

Secondly, even if MEDDAC identifies a manpower requirement for a registered nurse in the dental clinic, DENTAC could refuse the authorization for it. The only reason DENTAC would want to add a registered nurse to the clinic is given in the last sentence, which states that authorizations will be given that provide, "the greatest opportunity for efficiency of operations" (Department of the Army Headquarters, 1997). This echoes the earlier objectives of the DCRI program, and also lays down a challenge. If a decision to change the Dental Automated Staffing Assessment Model (DENASAM) staffing model for dental clinics is made, it must be made on this basis.

An example of this current separate but equal relationship is outlined in a written

agreement between Madigan Army Medical Center (MAMC) at Fort Lewis, WA and the Dental Activity (DENTAC) within the hospital. The scope of this agreement states that, although the Dental Clinic is physically located within Madigan Army Medical Center (MAMC), it, "is under the DENTAC chain of command and operates in accordance with accepted DENTAC regulations, standard operating procedures (SOPs) and guidance." These regulations include the right to hire and terminate its own staff, write its own policies and procedures, utilize its own process for licensing staff, and maintain and store its own dental records. Although the DENTAC uses the MAMC lab, pharmacy, and radiology services, they will, "neither be charged for these services nor will they be billed for space used by the Dental Clinic" (Martin & Seymour, 2004).

Although these types of agreements portray the dental clinic as a separate entity within a hospital, there are indications that this may change in the future. According to COL John Storz, Chief of DENCOM consultants, the Department of Defense (DOD), "is looking at differences between the Services. The command structure in the Air Force is such that the dental clinic is part of the hospital, and therefore takes part in the JCAHO survey" (J. P. Storz, personal communication, October 12, 2004). Even if the Army currently allows DENTACs to operate under their own policies and procedures, collocated units within a hospital can still be included during a JCAHO site visit.

Since both arenas provide care for the same pool of patients, they would appear to fall under JCAHO's Leadership Standard (LD. 3.20), which states that, "patients with comparable needs receive the same standard of care, treatment, or services throughout the organization." (Joint Commission, 2004). Some may argue that the DENTAC and MEDDAC are two separate organizations which happen to be collocated within the same facility, but this seems to be a

semantic distinction rather than a real difference. This distinction may also be hard to justify to JCAHO surveyors.

This similarity can even be seen between ENT surgeons, who utilize registered nurses in their clinics, and oral surgeons, who generally do not. While oral surgeons are considered to be a dental specialty and ENT surgeons a medical one, the scope of practice for both cross over in several areas, with both specialties credentialed to do some of the same procedures. Under the care of the ENT surgeon, a patient is treated under that clinic's standard of care, while another patient undergoing the same procedure under the care of the oral surgeon receives a different standard of care. Does the use of registered nurses in the ENT clinic demonstrate a higher standard of care not available in the oral surgery clinic?

JCAHO's rationale for LD. 3.20 states that, "factors such as different individuals providing care, treatment, and services...or different settings of care do not intentionally negatively influence the outcome" (Joint Commission, 2004). While the standard of care in the oral surgery clinic may be different, the AAOMS and the ADA have always pointed to their sterling record regarding patient safety outcomes. The AAOMS senior leadership concluded:

> It is worth noting that the standard of care with regard to the OMS as simultaneous operator/anesthetist has been acknowledged as an acceptable model for the provision of pain and anxiety control. Clearly, the representatives of public welfare appreciate the unique efforts of oral and maxillofacial surgery to self-regulate, and the specialty's established record of safety, efficiency, and cost-effectiveness (Moyer, Andresen, & Lowery, 2004).

In the elements of performance for LD. 3.20, JCAHO states that within the planning for care, treatment, and services, an organization must address both the needs and expectations of

patients; and the scope of care, treatment, and services needed by patients at all of the hospital's locations (Joint Commission, 2004). This would seem to indicate that a patient treated by a registered nurse in one clinic of the hospital may expect the same standard of care when he or she goes to the oral surgery clinic, and that hospitals may need to address this concern.

Another factor has emerged with DENCOM's adoption of the Patient Safety Program. The DOD Patient Safety Program is a congressionally mandated program developed in response to the National Defense Authorization Act (NDAA) of 2001. Although MEDCOM had developed a Patient Safety Program for the Army, it had not originally included dental facilities in the program. However, according to LTC Steven Grimes, MEDCOM recently had "employed a Master's prepared RN to work as a liaison between DENCOM and MEDCOM to establish the framework for a patient safety event reporting process that mirrors the MEDCOM and consequently the DOD Patient Safety Program" (LTC S. Grimes, personal communication, November 22, 2004). In addition to DENCOM's adoption of this program, the MEDCOM Patient Safety Center sponsored a week of Dental Patient Safety Training in Sep 04, in which approximately 55 dental participants from Military Treatment Facilities (MTFs) around the world attended. DENCOM established the following month of October, 2004 to be the baseline date for patient safety event reporting in the DENCOM (LTC S. Grimes, personal communication, November 22, 2004). While patient safety is not solely a nursing responsibility, the training and experience of a RN in administering a patient safety program is invaluable and forms the basis for another argument in support of this initiative.

Purpose

The purpose of this paper is to make the argument that substituting a RN in the place of the third dental assistant on the oral surgery team can increase throughput efficiency, elevate the

skills and abilities of the oral surgery team, and improve the level of patient care. Utilizing part-time and flex scheduling enables this change to occur without a significant rise in overall personnel costs, thus demonstrating a tremendous cost effectiveness. Finally, this paper argues that empowering the oral surgery team's skills and abilities with a RN maximizes the labor substitution opportunities and is in keeping with the fundamental principles of the Dental Care Optimization (DCO) program, the operational model of the Army Dental Care System.

Methods and Procedures

Although the use of registered nurses may be a viable option in order to improve the productivity of oral surgeons, the decision to incorporate them will require a major paradigm shift. DENCOM leadership has long resisted pressure from hospital commanders to use RNs, since they consider this a fundamental intrusion into their domain. Reversing this course and making the decision to incorporate RNs into DENTACs will require a systematic modification of the way oral surgeons deliver conscious sedation oral surgical care.

For this reason, many organizations conduct a comprehensive series of analyses before implementing any major program. This process is called strategic management, which is defined as "an externally oriented philosophy of managing an organization that links strategic thinking and analysis to organizational action" (Ginter, Swayne, & Duncan, 2002, p 13). A major purpose of this process is to identify and plan for changes that are most likely to occur in the future. The strategic management process is recommended for such a radical change in oral surgical conscious sedation.

The strategic management process utilizes both introspective and prospective analysis tools, and will also include a business case analysis of the effect of adding a RN to the oral

surgery clinic. An inclusive use of the tools described below will allow for a greater understanding of the relevant factors involved. Results of each strategic analysis tool are included as appendices.

Strategic Analysis Tools; Situational Analysis

"The starting point in the process of strategic management is to determine precisely where the organization is today, and where it wants to be in the future" (Ginter et al, 2002, p. 1). This first tool, called situational analysis, takes a snapshot of the organization at a moment in time, and ties into several of the other tools that will be used. It achieves this by using three separate processes: An external environment analysis allows an organization to see what it should do, an internal environment analysis allows it to see what it can do, and a mission, vision, values and goals analysis shows an organization what it wants to do (Ginter, et al, 2002, p. 29).

Strategic Analysis Tools; Strengths, Weaknesses, Opportunities, and Threats (SWOT)

Within the framework provided by the mission, vision, values, and goals, the internal and external factors are analyzed to determine their relative effects, which can allow for the development of specific strategic alternatives. The internal strengths and weaknesses of an organization suggest advantages and disadvantages for the organization, while the external environment offers both opportunities and threats (Ginter, et al 2002, p. 31).

Introspective Analysis Tools: Stakeholder Analysis

A Stakeholder analysis determines those entities and agencies that may be affected by or may affect directly the success or failure of the organization or initiative (Ginter et al, 2002, p.81). Stakeholders can impact the strategic management process by asking to participate in or being invited to participate in the process. Stakeholders can be internal to the organization, such as the administrative staff and employees, or external to the organization, such as regulatory

agencies, local community members, and so on. The stakeholders within the inner circle are considered to have a greater effect on the organization than the parties outside this circle.

Introspective Analysis Tools: Business Case Analysis

After the strategic analysis is finalized, a business case analysis (BCA) is the next critical step in the process. A business case analysis will hopefully show that the hiring of a registered nurse from a capital investment perspective will result in a solid return of investment (ROI). A common type of investment analysis is the net present value (NPV). This method finds the difference between an investment's present value (cumulative cash inflows discounted over time) and the expenses associated with the investment (cash outflows discounted over time). If the NPV found from subtracting the net outflows from the net inflows of funds is zero or greater the project is considered acceptable (Gapenski, 2001, p. 122).

Results

Introspective Strategic Analysis: Situational Analysis

The Situational Analysis tool assessed the environmental, market, and organizational factors involved in the decision to incorporate registered nurses into oral surgery clinics. Key results of this analysis are detailed below (See Appendix B for full results).

External environment:

Political forces: Registered nurses were originally used within DENCOM solely to satisfy oral surgery residency credentialing criteria. Although adding registered nurses to improve patient care represents a cultural change for many oral surgeons, the DENCOM commander and other DENCOM officials are in support of this initiative (D. Anfield, personal communication, November 11, 2004).

Market size: The size of the beneficiary population at Fort Wainwright is expected to grow from the current 5000 in FY 04 to 7000 by FY 06, which greatly exceeds the recommended ratio of one oral surgeon for every 5000 patients.

Regulatory factors: JCAHO's requirement to have the same standard of care throughout a facility and to mandate registered nurses to supervise all perioperative care, supports the initiative to add RNs to the oral surgery clinic. The ADA and the AAOMS argue that their sterling patient safety record nullifies the argument to utilize RNs, since they have neither used nor have ever required registered nurses in order to achieve an exceptional record of safe patient care.

Internal environment: The United States Army Dental Command (DENCOM) Mission, Vision, and Goals statements are:

Mission: To ensure dental readiness and enhance wellness by providing dental care and promoting oral health for the Army.

Vision: We will be the Army's dental system of choice and full partners in Army Medicine, focused on dental readiness, wellness and health promotion.

Goals: To ensure dental readiness, provide patient care, promote oral health for the military community, and conduct readiness training to prepare DENTAC soldiers for their wartime roles (United States Army Dental Command, 2004).

Economic factors: The Fort Wainwright DENTAC is in a fiscally restrained environment, with a continued pressure to "do more with less" to control increasing health care costs. MEDCOM's Budget Chief, LTC Cronk, stated that if an initiative to add RNs is approved, it should be a DENCOM funding responsibility. Rather than an additional funding requirement, it would likely have to be funded with existing DENCOM dollars.

Dental Care Optimization (DCO): This is the key operational model for accomplishing strategic objectives of the Army Dental Care System in the 21st century. Its focus on improving clinical efficiencies, increasing provider productivity using labor substitution, and utilization of multiple rooms and multiple ancillaries would appear to support the utilization of RNs in order to improve patient care.

Increased patient safety emphasis: The training and experience of a RN in administering a patient safety program is invaluable in accomplishing the objectives of the DOD Patient Safety Program (PCP), which was recently adopted for use by DENCOM.

Current relationship between DENTACs and MEDDACs: This relationship has long been plagued by misunderstanding and doubts. It has been damaged by perceived intrusions into DENTAC autonomy, and DENTAC commanders contend that the medical qualifications of their dental providers are not respected.

Lack of an established nurse culture: Although oral surgery residency programs incorporate registered nurses to satisfy credentialing requirements, DENCOM has historically resisted using RNs in many of its DENTACs. As a result, there is not an established culture of nursing within OMS, and registered nurses desiring to work in oral surgery are faced with unspecified work assignments and incomplete job descriptions.

Strategic Analysis Tools; Strengths, Weaknesses, Opportunities, and Threats (SWOT):

Adding RNs to OMS utilizes the traditional strengths of registered nurses, who comprise the backbone of all hospital staffs. They have an outstanding history of performing well in a variety of environments and would most likely prove themselves in this environment as well. As strong advocates of patient safety, registered nurses are trained to deliver and document emergency patient care. The opportunity to have another licensed practitioner on hand in case of an

emergency offers oral surgeons a tremendous peace of mind. In establishing their Patient Safety Program (PS), DENCOM utilized a Master's prepared RN to establish the framework for a patient safety event reporting process that matches MEDCOM's PS Program. RNs can offer additional expertise to the organization such as CPR instructors, IV skill trainers, and infection control experts, relieving DENTAC personnel from these additional duties and allowing them to focus on their core competencies. Other RN strengths include a long history of being "change agents" in implementing primary health care reforms. With major policy changes such as the DCO transforming the process of delivering dental care, the need for change agents may never be greater. However, in this situation, the greatest area of strength may be the registered nurse's ability to push IV sedatives and analgesics. This ability separates them from even the most highly trained dental assistants and facilitates the utilization of multiple rooms to achieve increased provider productivity. The net result of the successful implementation of multiple rooms' usage and the subsequent increase in the number of completed procedures could ultimately increase the ability of oral surgeons to achieve the overall dental readiness and wellness missions. As a side benefit, the potential gains in job satisfaction of oral surgeons could give retention efforts a strong boost.

Internal weaknesses include a large cultural incompatibility between medical and dental methods of delivering care, since no established nurse culture exists within oral surgery. No requirement exists for a RN to be present in military or civilian oral surgery clinics, and neither are there readily available metrics for measuring the productivity of employing registered nurses within OMF. Another critical weakness is the current nursing shortage experienced in many areas of the country. Finally, the constrained financial environment within MEDCOM makes many DENTACs reluctant to fund both proven and unproven initiatives.

The opportunity to utilize RNs within the oral surgery clinic satisfies the requirement to have the same standard of care throughout a facility. Another opportunity is to increase the likelihood of success for the recently adopted PSP, by utilizing the historical role of nurses in reporting adverse patient safety incidents, such as near misses and sentinel events. A critical opportunity to improve pain management and to reduce the risks of drug-induced respiratory depression and airway obstruction is offered by the ability of RNs to give intravenous sedatives or analgesics in small, incremental doses. The opportunity to increase patient satisfaction may be enhanced by the addition of nurses to the patient care team, enabling DENTAC to benefit from the strength of the traditional nurse/patient bond.

Another advantage of using RNs would be to reduce the current level of misunderstanding between DENTACs and MEDDACs. The employment of nurses within DENTAC would offer a common denominator to the process of delivering health care in a facility, and could help bridge the gap between medical and dental specialties. As team builders in many health care organizations, nurses could advocate the unique contributions oral surgeons make to the overall readiness mission of todays military. Nurses could also facilitate the implementation of innovative programs in their role as change agents.

But perhaps the greatest opportunity employing RNs within OMF offers is to expand the promise of the DCO program. Using the RN to administer IV medications in the conscious sedation process relieves the oral surgeon of this responsibility and supports efforts to maximize the labor substitution goals of the DCO program. Furthermore, the utilization of a RN for conscious sedation procedures offers the opportunity to employ a resource at the most critical level of the process. This enhances and streamlines the delivery of care, culminating in the

ability to successfully reduce the number of Class III patients, the largest barrier to achieving dental readiness.

The main threat to the initiative to employ registered nurses is the possibility of elevated costs associated with hiring a registered nurse. This has been the sticking point for years among DENCOM and MEDCOM leaders. A new initiative is typically funded by an organization with existing dollars within the current budget, rather than with new dollars. Other threats include the risk of job loss for dental assistants within OMS, since they would most likely lose an authorized position to allow the DENTAC to hire a nurse. Another issue is the threat of increased MEDDAC supervision over DENTAC autonomy, as the control a Chief Nurse exerts over the nursing care delivered in a facility can extend even to OMF clinics. Registered nurses also threaten the supremacy of oral surgeons, who by giving up some of the responsibility to RNs within the arena of conscious sedation, may also lose some of the autonomy and independence they currently enjoy. Registered nurses are able to hold providers accountable to a higher degree than dental assistants, and therefore exert a larger influence in the patient care process. Another issue is the threat to the established culture in oral surgery, which does not currently include the use of registered nurses.

But possibly the greatest threat posed in not adopting this initiative is to squander the labor substitution opportunities RNs offer. If a RN is utilized in the same manner as a dental assistant, then it is doubtful that this change will have a large impact. Although the improvement in patient care is important, the utilization of RNs must result in increased numbers of patients treated to clearly justify this initiative.

Introspective Analysis Tools: Stakeholder Analysis:

The oral surgeons are the largest stakeholder group. They benefit the most from the impact nurses can make upon their workload. The opportunity for oral surgeons to delegate certain duties and responsibilities to RNs in the areas of assessing patients for conscious sedation and administering IV medications will be extended greatly and have a much greater impact compared to the use of dental assistants.

Dental assistants have the most at stake in terms of job security, since they face an increased risk of job loss. In the fiscal environment in which we operate, DENCOM would likely have to give up one dental assistant position in order to add a registered nurse to the staff. Of the remaining dental assistants, their workload and job descriptions could also be affected by the arrival of a nurse. Much hinges on the relationship between the nurse and the dental assistants, as this new relationship has the potential to strengthen the oral surgery patient care team.

Patients are the third major stakeholder involved in the decision to incorporate nurses. Although patients may not fully realize it, the assumption of additional responsibilities by ancillary staffs from oral surgeons elevates their importance in this realm. Patients bond well with nurses in other healthcare environments, and the strength of these nurse-patient relationships has excellent potential to increase patient satisfaction ratings.

Although not readily evident, dentists have a very important stake in this decision. While it is unlikely that nurses will work directly with dentists, their introduction into oral surgery is likely to decrease the overall number of dental assistants available within the clinic. The decreased number of dental assistants may force dentists to work with only one dental assistant at times instead of the customary two, which could adversely impact their total workload.

Therefore, any increases in oral surgeon productivity may be offset at least partially by the loss in productivity of dentists within the affected clinics.

As external stakeholders, DENTAC commanders are tasked with employing the various dental specialists to the fullest advantage. If the initiative to add RNs succeeds, it could lead to measurable dental readiness gains and boost retention efforts of oral surgeons in the future. Although oral surgeons are very important, they must also consider the interests of their other specialties. As executives in charge of their respective operating budgets, they must ensure that any additional costs of registered nurse salaries are matched by larger oral surgery workload numbers. While nurse salaries count directly against facility budgets, the costs of sending patients out to civilian providers are drawn out of another source of funds. DENTAC commanders must guard against the temptation to cut costs in their budgets by not hiring nurses. While improving their local budgets, this action may cost DOD thousands of dollars in the long run.

Senior leaders of DENCOM exert the largest influence on whether or not to add nurses. Although DENCOM is open to adopting initiatives to improve patient safety and increase productivity, these changes must demonstrate that they are more cost effective than other options, such as purchasing the care on the network (D. Anfield, personal communication, November 11, 2004).

MEDDAC commanders, and especially Chief Nurses, should strongly support this initiative, since DENTACs will be adhering to the JCAHO regulation requiring the same standard of care in a facility, for which they have long argued. However, Chief Nurses may be frustrated with their inability to control this nurse's activities, since not having a nurse under their direct control is an unfamiliar concept to many of them.

Other agencies, such as ADA and AAOMS, will be only indirectly affected. While civilian dental care is often motivated by financial incentives, military dental care has additional objectives and goals, such as dental readiness. Until registered nurses prove themselves to be cost effective in terms of increasing the productivity of oral surgeons related to the cost of their salaries, these actions are likely to be limited in their effects.

Discussion

In today's environment of rapid deployments and treatment deadlines, the pressure upon oral surgeons to reduce the size of Class III non-deployable lists has never been greater. Mandatory training requirements, block leaves, and field exercises reduce the amount of available time to treat soldiers before deployments, while inflexible commanders and reluctant soldiers exacerbate this problem. Although war-fighting units are regularly updated with their dental readiness needs, soldiers still fall through the cracks.

One recent example from the Fort Wainwright Oral Surgery Clinic highlighted this problem. Faced with a narrow window of time to bring a deploying unit up to dental readiness standards before departure date, the oral surgery team made a tactical decision. Unable to free up enough appointments for this unit's soldiers in the time remaining, they decided to create a special after-hours clinic for that unit. Utilizing extra assistants, multiple rooms, and extended hours, the oral surgeon and his expanded team successfully performed wisdom teeth extraction for 20 patients on a single day. The total dental weighted value (similar to RVUs) of the procedures performed on that day was 351.25, roughly equal to the amount of work completed in an average week (Corporate Dental Application [CDA], 2004). While demanding, the staff admitted that they

much preferred working a day like that than the alternative of trying to fit patients within the existing schedule, which they believed to be more exhausting over a period of time.

This scenario is likely to be repeated in the days and months that follow. With 3500 soldiers from the Stryker Brigade and other attached units scheduled to deploy from Fort Wainwright in the next six months, more hectic days are expected. The use of a registered nurse would streamline this entire process, and may even legitimize it as a process improvement.

The argument to include RNs is even supported by a military analogy, which uses the principles of war. The intent of this initiative, increased clinical productivity, supports DENCOM's mission to ensure dental readiness and enhance wellness for the Army, and aligns with the principle to direct every military operation toward a clearly defined, decisive, and attainable objective. Employing a resource [RN] at the most critical level of a vital process mirrors the principle to mass the effects of overwhelming combat power at the decisive place and time, and also echoes the principle to position military resources to favor the accomplishment of the mission (U.S. Army Field Manual [FM] 100-5, 1994).

While promising, support for this proposal must be tempered with the realities of today's health care delivery. The most significant of these is the current nursing shortage within the United States. Given this constraint, can DENCOM realistically require hiring nurses when they are so scarce and in such high demand? Even the oral surgical residency programs, which require registered nurses to satisfy credentialing requirements, have problems maintaining the required number of RNs. As COL Jan Faulk-Eggleston, oral surgeon at Madigan Army Medical Center (MAMC) at Fort Lewis, WA, said, "requiring a RN is great, finding and keeping one is a totally different issue" (J. Faulk-Eggleston, personal communication, November 15, 2004).

A second factor limiting the utilization of registered nurses in the oral surgery clinic is the Fort Wainwright DENTAC Tables of Distribution and Allowances (TDA). The TDA is the manpower document that lists the authorized positions of a unit. The number of positions on a DENTAC's TDA depends upon the numbers generated by the DENASAM, which determines the total number and type of dental providers for a population and the ancillary staff to support those providers. The model calculates these positions using established and justified ratios of dentist to patients and ancillary to dentist criteria. For oral surgeons, it uses the ratio of one oral surgeon for every 5000 patients, and it generates three ancillary staff members in the grades of GS5 and GS6 to support this oral surgeon (United States Army Dental Command, 2004). The current TDA does not include a RN in one of the three ancillary staff positions, and this would have to be changed. Although it would be difficult to justify adding a RN to the oral surgeon's ancillary staff, a better alternative may be to adjust the mix of this staff. As Dennis Anfield, MEDCOM TDA specialist stated, "If it is proven that the oral surgeon can be more cost effective by a staffing of 2 dental assistants and 1 part time nurse (basically resulting in no increase in current funding for staffing) we [MEDCOM] could change the mix in ancillary support. It would show up as a full requirement on the TDA but controlled by the dollars available to staff the position" (D. Anfield, personal communication, November 19, 2004).

This makes sense for several reasons. First, although the DENCOM commander and most oral surgeons agree that they should have RNs, the issue has always come down to whether these assets will be generated on the DENTAC or the MEDDAC side of the house. However, regardless of who generates the requirement to have a RN, it generally is seen as the DENTAC's responsibility to pay for it. COL Faulk-Eggleston, Madigan Army Medical Center's Chief of Oral Maxillofacial Surgery, stated that "of all the DENTACS that have nurses, only Tripler

Regional Medical Center [located in Hawaii] has the medical side paying the nurses wages. Everywhere else, the nurse's pay comes out of the DENTAC [budget]" (COL J. Faulk-Eggleston, personal communication, November 16, 2004).

This belief is shared by others within MEDCOM, most notably LTC Marcus Cronk, Chief, Program & Budget for the US Army Medical Command (MEDCOM), who stated that, "if they [Health Policy and Services Division of MEDCOM] determine a RN is required, then DENCOM will need to hire RNs. If it drives an additional resource requirement, then DENCOM can pursue a funding adjustment with MEDCOM. However, it will probably have to be funded from within existing DENCOM resources" (LTC M. Cronk, personal communication, October 19, 2004).

If this is true, then adjusting the staffing mix of the DENASAM model by substituting a RN for a dental assistant may be the most cost effective alternative. Although the GS5 or GS6 pay scale for the dental assistant is far below the GS10 or GS11 salary of a registered nurse, this position would not have to be full-time. Since nursing has many part-time positions, OMS could tailor a nurse's schedule to coordinate with scheduled conscious sedation procedures. At Fort Wainwright's oral surgery clinic, a part-time registered nurse working 20 hours a week could satisfy this need, assuming the availability of nurses willing to work that schedule. Utilizing a RN for conscious sedation procedures could give the oral surgeon the greatest opportunity to leverage his abilities, improve patient care, and streamline clinic throughput.

The impact upon the budget is small, since a full-time midlevel (Step 5) GS5 dental assistant salary is $27,969 (Office of Personnel Management, 2005), while the salary for a part-time midlevel (Step 5) GS10 RN working 20/hrs/wk is $29,411, extrapolated from the full-time salary of $59,024 (Department of Defense Civilian Personnel Management Service, 2005). The

difference of $1,442 grows to $2,134 when the 25% Cost of Living Allowance (COLA) and the 23% cost of fringe benefits are added. But with the total salary difference being only 5% more, ($43,528.28 for the RN vs. $41,394.12 for the dental assistant), the question that must be answered is this: Are the readiness and wellness missions better accomplished using a full-time dental assistant or a part-time registered nurse?

Although promising, the hypothesis that a part-time registered nurse is more cost effective than a third dental assistant must be supported by data. This is problematic, since RNs are limited to only those DENTACs which have oral surgery residency programs. While it is easy to compare total dental values as a workload comparison between residency sites that have RNs and clinics that do not, the subsequent values are extremely biased. While most oral surgeons work as sole providers in their clinics, residency programs employ multiple oral surgeons and assign several residents to them. They cooperate with other OMS professionals on cases and receive workload credit for consulting on procedures their residents largely complete. Experiencing a windfall of dental procedures, their total dental values dominate those produced by the sole-provider DENTACs. While some of this variance may be due to the utilization of RNs, it is extremely difficult to quantify. For these reasons, a detailed workload comparison analysis is not included.

Prior to making a commitment to a major change such as this, it is important to consider testing this concept within a DENTAC oral surgery clinic. A pilot study provides the opportunity for DENCOM to evaluate this initiative's feasibility by integrating a RN into the day-to-day functioning of a DENTAC sole provider oral surgery clinic. DENTAC commanders and oral surgeons will respond best to an actual test to determine if a part-time registered nurse is more cost effective than a third dental assistant in raising oral surgeon productivity, increasing

clinic efficiency, and improving patient care. Experience demonstrates that such a test always exposes improvement opportunities that can be exploited to refine a proposal before widespread adoption by a sponsoring organization.

To maximize the usefulness of the pilot study, it must be planned and designed to match the exact way in which the RN will be utilized on the oral surgery team. The pilot study will be successful if it has the support and involvement of DENCOM senior leadership as well as the local DENTAC commander and his staff.

Although the implementation of this proposal may be difficult, it is not impossible. Dennis Anfield, speaking on behalf of DENCOM, stated that, "DENCOM is continually looking for ways to improve patient safety and increase productivity, and welcomes initiatives that accomplish the same. We are willing to change to practices that provide the best for the soldiers we treat while being more cost effective than receiving care elsewhere" (D. Anfield, personal communication, November 11, 2004).

With the Dental Care Optimization (DCO) program, DENCOM's willingness to change has never been demonstrated more powerfully. The transformation of its dental delivery system to a private sector model required a radical departure from previous practices. DCO's adherence to the principles of team dentistry, utilization of multiple chairs and multiple ancillaries, and empowerment of ancillary staff members, represented a fundamental change in the way of doing business. The proposal to substitute a RN in the place of the third dental assistant on the oral surgery team can be seen in the same light.

Conclusion

The utilization of a RN represents an immediate upgrade of skills and abilities, not just of the position itself, but rather of the whole oral surgery team. Its brightest promise is to dramatically increase the throughput of conscious sedation procedures by extending the abilities of the oral surgeon. Under his or her supervision, a RN can sedate patients prior to the procedure, during the procedure, and recover patients after the procedure, while freeing the oral surgeon from these duties. While one patient is undergoing a procedure, another could be prepped in a second room, allowing the oral surgeon to move quickly from room to room. Depending upon staff and space availability, more rooms could be brought into the mix to be used for pre-op and/or recovery locations. The demonstrated ability of a registered nurse to handle these responsibilities allows for the utilization of multiple chairs, a DCO mantra, to become a practical reality.

Although the utility of the results of this study may result in dismissing the RN in the oral surgery clinic as a "nice to have" amenity like many others, one word of caution is in order. Military healthcare is replete with examples of the avoidable wasting of resources caused by being forced to send patients to civilian providers instead of adopting measured, proactive responses to impending crises. At the very least, this research project will draw attention to a problem that has surfaced in other facilities and may cause the net loss of thousands of dollars from wasted funds, time, and capital. And at its best, the proposal to modify the mix of the ancillary support staff of the oral surgeon may help oral surgeons and dental commanders achieve the dental readiness and wellness gains they seek without excessive costs.

Appendix A:

Situational Analysis

External Environment
DENCOM CDR wants RNs within oral surgery clinics
Beneficiary population growth expected (7000 by FY 2005)
JCAHO requirement of same standard of care in facility
JCAHO's emphasis upon pain management
Increased patient safety emphasis within DENCOM
Increased patient satisfaction emphasis within DENCOM
Increased budgetary constraints within DENCOM
No documented requirement for nurses within civilian or military dental world
No readily available metrics for measuring provider productivity using a nurse in the clinic
Threat of increased MEDDAC supervision over current DENTAC autonomy
Oral surgeon viewed more as a dentist than as a surgeon by hospital commanders
More stringent conscious sedation regulations within BACH

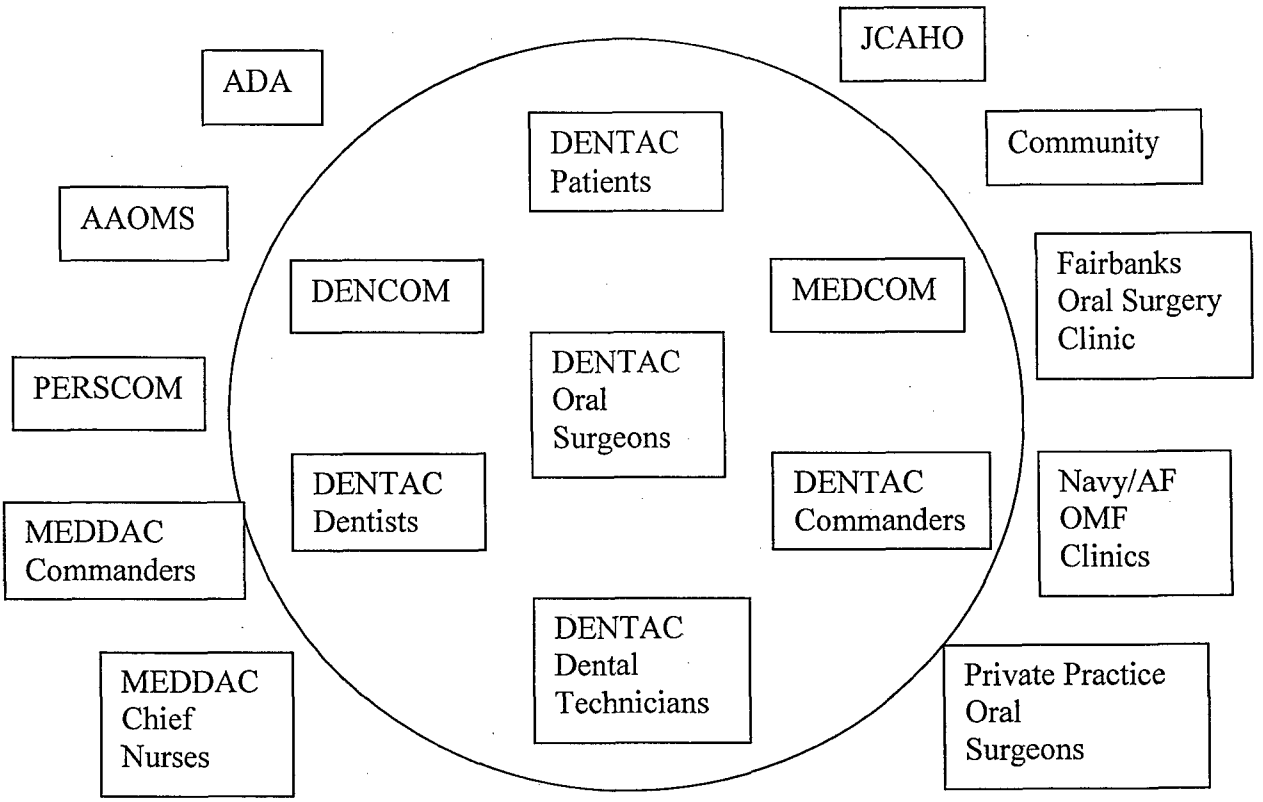
Mission: To ensure dental readiness and enhance wellness by providing dental care and promoting oral health for the Army.
Vision: We will be the Army's dental system of choice and full partners in Army Medicine, focused on dental readiness, wellness and health promotion.
Goals: To ensure dental readiness, provide patient care, promote oral health for the military community, and conduct readiness training to prepare DENTAC soldiers for their wartime roles (Headquarters, United States Army Dental Command).

Overview:
Health Promotion and disease prevention are integral components of the mission of the Dental Command. Prevention reduces health care expenses through eliminating preventable disease and injury.

Internal Environment
No established nurse culture within oral surgery
No documented requirement for nurses within military or civilian OMS clinics.
No readily available data regarding OMS productivity gains from having nurses
Unspecified work assignments and job descriptions of RNs in oral surgery
DCO focus upon provider productivity
Dental assistant empowerment program to maximize labor substitution opportunities
Inadequate training and experience level of dental assistants

Appendix B

Stakeholder Analysis



Appendix C

SWOT

Internal Strengths	Internal Weaknesses
Same standard of care throughout facility Increased patient advocacy role Ability to push IV sedation/analgesia meds Another provider in case of emergency Nurse/patient bonding role Enhanced professional status of nurses Stronger application of universal precautions Better reporting of patient safety events, sentinel events, adverse outcomes, near misses Nurses working in general practices play a vital role as "change agents" in implementing primary health care reforms play an proactive role in maintaining professional standards Traditional role of a nurse as the patient's advocate; educator; caregiver; and psychologic, physiologic, and spiritual monitor	Large nationwide nursing shortage Constrained budgetary environment leads to reluctance to fund unproven initiatives No established nurse culture within oral surgery (cultural incompatibility) No documented requirement for nurses within civilian dental world No documented requirement for nurses within military dental world No readily available metrics for measuring productivity of having a nurse in the clinic Nurses having to carve out job descriptions and work assignments in oral surgery
External Opportunities	**External Threats**
Increase patient safety Increase patient satisfaction Streamline conscious sedation process in oral surgery Maximize labor substitution opportunities Increase pain management of patients by the Incremental administration of IV analgesia Increase skills and abilities of the oral surgery team Take advantage of nurses' high level teamwork skills. Take advantage of nurses' ability to be change agents	Elevated costs of nurse salary Setting precedent in oral surgery Established standards of care in oral surgery Decreased oral surgeon autonomy Reduce number of dental assistants (labor substitution of nurse for dental assistant) Increased MEDDAC supervision over DENTAC autonomy Work RNs in same manner as dental assistants

References

Academy of General Dentistry (AGD) (2005). What are wisdom teeth? Retrieved March 23, 2005 from the World Wide Web: http://www.agd.org/consumer/topics/wisdom/main.asp.

American Association of Oral and Maxillofacial Surgeons (AAOMS) (2004). ParPath 01: Anesthesia in Outpatient Facilities. American Association of Oral and Maxillofacial Surgeons (AAOMS) parameters and pathways: clinical practice guidelines for oral and maxillofacial surgery. Received via fax on November 4, 2004.

American Association of Oral and Maxillofacial Surgeons (AAOMS) (2004). AAOMS fact sheet on pain and anxiety control. American Association of Oral and Maxillofacial Surgeons (AAOMS). Division of Advanced Education and Professional Affairs. Received via fax on November 4, 2004.

American Association of Oral and Maxillofacial Surgeons (AAOMS) (2004). AAOMS oral and maxillofacial surgery education and practice of anesthesia. American Association of Oral and Maxillofacial Surgeons (AAOMS). Division of Advanced Education and Professional Affairs. Received via fax on November 4, 2004.

American Association of Oral and Maxillofacial Surgeons (AAOMS) (2004). Statement on OMS American Association of Oral and Maxillofacial Surgeons (AAOMS). Retrieved November 30, 2004 from the World Wide Web: http://www.aaoms.org/credential_resource.cfm.

American Association of Oral and Maxillofacial Surgeons (AAOMS) (2004). Largest study of anesthesia administered in oral and maxillofacial surgery offices demonstrates high level of safety and patient satisfaction. Press Release retrieved November 30, 2004 from the World Wide Web: http://www.aaoms.org/pressrelease090403.cfm.

American Association of Oral and Maxillofacial Surgeons (AAOMS) (2004). The AAOMS oral and maxillofacial surgery anesthesia assistants program. Retrieved November 30, 2004 from the World Wide Web: http://www.aaoms.org/Business%20Clinical%20Staff/05%20OMAAP%20only.pdf.

American Dental Association Policy Statement (2003). Guidelines for the use of conscious sedation, deep sedation and general anesthesia in dentistry. Retrieved October 10, 2004 from the World Wide Web: http://www.ada.org/prof/resources/positions/statements/useof.asp.

American Psychological Association (2001). *Publication Manual of the American Psychological Association* (5th ed.) Washington, DC: APA.

Assistant Secretary of Defense (Health Affairs) (2002). The 2002 Department of Defense (DoD) Survey of Health Related Behaviors Among Military Personnel. Retrieved December 20, 2004 from the World Wide Web: http://www.tricare.osd.mil/main/news/DoDSurvey.htm.

Assistant Secretary of Defense for Health Affairs, (1998). Standardized Dental Classification System. Health Affairs (HA) Policy 98-021. Retrieved December 14, 2004 from the World Wide Web: http://www.ha.osd.mil/policies/1998/udc9821.htm.

Assistant Secretary of Defense for Health Affairs, (1996). Standardized Dental Classification System. Health Affairs (HA) Policy 97-020. Retrieved December 14, 2004 from the World Wide Web: http://www.ha.osd.mil/policies/1997/dent9720.html#SDCS.

Assistant Secretary of Defense for Health Affairs, (1996). Inclusion of Dentistry in TRICARE Regions. Health Affairs (HA) Policy 96-024. Retrieved December 14, 2004 from the World Wide Web: http://www.ha.osd.mil/policies/1996/dentri24.html.

American Society of Anesthesiologists (2002). Practice guidelines for sedation and analgesia

Per Diem Rates. Retrieved from the World Wide Web: https://secureapp2.hqda.pentagon.mil/perdiem/perdiemrates.html

Department of Defense Civilian Personnel Management Service (2005). Title 38 special rate tables. *D065 Nurse, GS-610.* Retrieved Mar 11, 2005 from the World Wide Web: http://www.cpms.osd.mil/wage/scheds/af/special_sch/2005/D065_05.pdf.

Department of the Army Headquarters, United States Army Medical Department Activity Fort Wainwright, AK (2004). Sedation guidelines for patient care. MEDDAC Regulation 40-414. Retrieved 25 Oct 2004 from the World Wide Web: https//204.208.187.104.bach.regs.40-414.pdf

Department of the Army Headquarters, United States Army Medical Department Activity Fort Wainwright, AK (2003). Staffing effectiveness program. MEDDAC Regulation 40-222. Retrieved Dec 6, 2004 from the World Wide Web: https://204.208.187.104/bach/regs/40-222.pdf

Department of the Army Headquarters, United States Army Fort Sam Houston, TX (1997). Organization and functions policy. MEDCOM Regulation 10-1. 43, 71.

Gapenski, L. (2001). *Understanding healthcare financial management* (3rd ed.) Washington, DC: AUPHA Press. 96, 98-99.

Giovannitti, J. (2004) The sedative game: enteral sedation in the twenty-first century. Given at a presentation at the Southwest Dental Conference. Retrieved 25 Oct 2004 from the World Wide Web: http://www.dcds.org/pages/documents/thesedativegame-SWDC2004 _000.pdf.

Ginter, P., Swayne, L., & Duncan, W. (2002). *Strategic management of healthcare organizations* (4th ed.) Malden, MA: Blackwell.

Glass, K. & Anderson, J. (2002). Relative value units and productivity: Part 2 of 4. *Journal of Medical Practice Management.* 17(6), 285-290.

Joint Commission on Accreditation of Healthcare Organizations (2004). *Comprehensive Accreditation Manual for Hospitals: The Official Handbook.* Oakbrook Terrace, IL: Joint Commission Resources.

Lagasse, P. (1996). Physician productivity measurement, methodology, and implementation. *Journal of the Society for Health Systems.* 5(2), 41-49.

Martin, J. & Seymour, H. (2004). Memorandum of Agreement between Madigan Army Medical Center, Tacoma, WA and U.S Army Dental Activity, Fort Lewis, WA: Received via fax on November 15, 2004.

Medical Group Management Association [MGMA] (2000). Greater physician productivity tied to more RNs, support staff. *Clinical Resource Management.* 1(1), 7-10.

Military Medical Support Office (2004). FY 2004 MMSO monthly obligation of dental claims. Received via email March 21, 2005.

Moyer, D., Andresen, R. & Lowery, B. (2004). Oral and Maxillofacial Surgery Education and Practice of Anesthesia. *AAOMS Division of Advanced Education and Professional Affairs.* Received via fax November 4, 2004.

Noyes, H. (2004). First term dental readiness program helps new soldiers. Retrieved Oct 14, 2004 from the World Wide Web: http://huachuca-ww.army.mil/USAG/PAO/2004scouts/The%20Scout%2014%20Oct%2004.pdf.

Office of Personnel Management (2005). Salary Table 2005-GS. Retrieved March 11, 2005 from the World Wide Web: http://www.opm.gov/oca/05tables/html/gs.asp

Oregon Board of Dentistry (2004). Division 42 Dental Assisting. 818-042-0115 Expanded

Functions- Oral Surgery Assistant. Received via fax on November 4, 2004.

Payne, T & Posey, W. (1981). Analysis of dental casualties in prolonged field training exercises. *Military Medicine*, 146(4), 265, 269-271.

Rogers, T. & Nasser, Jr., F. (2002). Labor-Management Relations. Dental Care Optimization-DCO link on United States Army Dental Command (DENCOM) website. Retrieved December 4, 2004.

Rothfuss, L., Johnson, S., Larsen, S., Chaffin, J., & Finstuen, K. (2004). Staffing model for dental wellness and readiness. *Military Medicine*, 169(8), 604-608.

Spadaro, S., Luciano, W., & Jennings, D. (2004) DENCOM trains the EFDAs: the army goes rolling along.. *The Dental Assistant,* May-June 2004. Retrieved on the World Wide Web: December 20, 2004: http://www.findarticles.com/p/articles/mi_m0MKX/is_3_73

Teweles, R. & King, J. (1987). Impact of troop dental health on combat readiness. *Military Medicine*, 152(5), 233-235.

University of Iowa Department of Anesthesia (2004). Evaluation of the adult airway. Retrieved December 4, 2004 from the World Wide Web: http://www.anesth.uiowa. edu/proceduralsedation3/evaluation%20of%20the%20 adult%20airway.pdf.

University of Pennsylvania Health System (1998). A Guide to Legal Issues in Health Care. Joint Commission on Accreditation of Healthcare Organizations. Retrieved November 19, 2004 from the World Wide Web: http://www.uphs.upenn.edu/legal/jc.html

U.S. Army (1994). The principles of war. *Field Manual 100-5.* Retrieved February 7, 2005 from the World Wide Web: http://www.pvv.ntnu.no/~madsb/home/war/fm1005 /principles.php

U.S. Army Dental Command (2004). DENCOM TDA requirements- DENTAC

Alaska. Received via email on November 19, 2004.

U.S. Army Dental Command (2004). Highlights in the history of U.S. Army Dentistry link on United States Army Dental Command (DENCOM) website. Retrieved December 4, 2004 from the World Wide Web: https://www.dencom.army.mil/.

U.S. Army Dental Command (1998). Unpublished research. DCRI Implementation Team. Retrieved December 17, 2004 from the World Wide Web: https://www.dencom.army.mil/clinic/dco/(5D)HBKchp7-9.doc.

U.S. Army Medical Department Activity, Fort Wainwright, AK. (2004). Automated staffing assessment model. Manpower requirements determination. Bassett Army Community Hospital Alaska.

U.S. Department of Health and Human Services (2000). Oral health in America: A report of the Surgeon General--Executive Summary. Rockville, MD: US Department of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health, 2000. Retrieved December 4, 2004 from the World Wide Web: http://www.nidcr.nih.gov/AboutNIDCR/SurgeonGeneral/ExecutiveSummary.htm.

Webb, J. (2004). Chief of US Army Dental Corp link on United States Army Dental Command (DENCOM) website. Retrieved December 4, 2004 from the World Wide Web: https://www.dencom.army.mil/.

Webb, J. (2004). Dental Care Optimization-DCO link on United States Army Dental Command (DENCOM) website. Retrieved December 4, 2004 from the World Wide Web: https://www.dencom.army.mil/.

Will, M. (2004). End of fiscal year (FY) 2004 state of specialty: oral and maxillofacial surgery. Memorandum dated 20 October 2004. Received via email 10 November

2004.

Womack, D & Flowers, S. (1999). Improving system performance: a case study in the application of the theory of constraints. *Journal of Healthcare Management,* 44(5), 397-407.

York, A., Poindexter, F., & Chisick, M. (1994) Tri-Service Comprehensive Oral Health Survey: Active Duty Report. NDRI Report No. PR-9503. June 1995.