Behavioral Telehealth Project

Background and Statement of Problem

The Pacific region represents a challenging environment for active duty personnel. In this region, sailors and soldiers are limited in their access to family, peer and community support and have diminished access to specialty health care services. Limited access to social support negatively impacts the physical and emotional well being of these troops. Social support plays a vital role in helping individuals cope with the pressures of daily living by buffering them from the consequences of stress. Without these supports, individuals are vulnerable to numerous hi-risk activities and health complications. Research has linked stress to considerable health and emotional problems including alcohol use, smoking, obesity, hypertension, ulcers, heart disease, immune system suppression, cancer, marital and family conflict, divorce, depression and suicide. While experiencing magnified levels of stress, active duty personnel who are stationed or deployed in the isolated regions of the Pacific are generally unable to access behavioral health resources that could positively intervene or altogether preclude the development of these disabling afflictions.

In *behavioral health*, psychological principles are applied to physical health issues such as lowering hypertension, controlling serum cholesterol levels, managing stress, alleviating pain and stopping smoking. Behavioral health applications have significant positive impact in terms of illness prevention, diagnosis and treatment of disease, health enhancement and rehabilitation.

Telehealth and LE^{3}AN (Lifestyles, Exercise, Emotions, Expectations, Attitudes, Nutrition)

Forty per-cent of all active duty personnel boarded out of the armed services are boarded for failure to meet weight standards. Many of those boarded possess extensive technical skills gained at considerable expense to the government. The cost of replacing high trained and skilled personnel lost to failure to maintain weight standards ranges from fifty to sixty-five thousand dollars per each non-commissioned officer. Replacement of one with highly specialized training can run into the hundreds of thousands.

Telehealth and Hypnotherapy

Research has clearly validated the utility of medical hypnosis (hypnotherapy) as an effective behavioral medicine intervention for a variety of psychophysiologic disorders. The availability of professionals with clinical training in these specialties is, however, extremely limited. Tripler Army Medical Center (TAMC) currently has two providers skilled in this treatment modality. Patient's who would otherwise benefit from these services are seen only when the severity of their condition reaches a point that a MEDEVAC and admission to TAMC is necessary. More than 2,000 individuals are MEDEVACed to TAMC annually with costs ranging from $5,900-$9,800 per individual.

Telehealth and Family Therapy

Worries and concerns about family problems has been identified as the number one cause of psychological casualties during war or when deployed. Deployment occurs despite the presence or subsequent development of problems within the family. The high rates of military divorce, suicide, domestic violence, delinquency, and substance abuse are linked to the stress associated with the active duty member's absence. The family is significantly disrupted for the days and months preceding a move or deployment, during the move or deployment, and for as much as a year following a move or an operational deployment. With more married, active duty service members today than ever before, the challenge is to provide cost-effective services that will support and sustain the family in the midst of current service demands.

Telehealth and Tobacco Cessation

Approximately 32% of DoD active duty personnel smoke. Annual direct health care costs attributed to tobacco use are estimated to be approximately $584 million. DoD active duty members in 1995 spent in excess of 9,000 days hospitalized as a result of smoking-related illness. The cost of the lost productivity from hospitalizations and

smoke breaks exceeds $345 million. Research confirms that behavioral health interventions, in combination with prescribed medication, provides effective treatment for tobacco cessation. For the active duty soldier or sailor, having the necessary block of time (typically ten weeks) available at the scheduled start of a tobacco cessation program is often problematic. As such, forward-deployed personnel do not have the opportunity to receive treatment. Estimated lifetime savings in medical costs exceeds $50,000 for each service member who quits smoking.

Telehealth and Biofeedback

Research has substantially demonstrated the utility of biofeedback as an effective behavioral medicine intervention for a variety of psychophysiologic disorders including the treatment of migraine and tension headaches, chronic pain and motion sickness. Individuals in rural or isolated areas often do not have access to specialty clinical interventions such as biofeedback. If biofeedback is indicated but the treatment is unavailable at their "home" location, an individual is med-evaced to Tripler Army Medical Center for treatment. Biofeedback often requires bi-weekly visits for 8 to 10 weeks. The cost of the transportation and boarding at a major medical facility is thus prohibitive. The absence of the active duty member once med-evaced, further increases costs and reduces operational readiness.

Telehealth and Neuropsychological Assessment

The number of neuropsychologists available to perform comprehensive neuropsychological assessments, especially in remote and isolated areas, is extremely limited. As such, these evaluations require the expenditure of considerable resources for the completion of timely neuropsychological assessments.

Research Questions and Hypothesis

This research and development effort will address the following research questions:

- Do telehealth participants benefit from remote hypnotherapy, family therapy, biofeedback, neuropsychology, weight management and tobacco cessation treatment equally as well as the face-to-face treatment recipients?

- What are the technical, clinical and operational requirements for the utilization of behavioral telehealth for the remote provision of hypnotherapy, family therapy, biofeedback, neuropsychology, weight management and tobacco cessation treatment?

- What are the levels of patient and clinician comprehension, comfort and satisfaction related to these clinical treatments via telemedicine?

- Does remote hypnotherapy, family therapy, biofeedback, neuropsychology, weight management and tobacco cessation treatment produce significant cost reductions related to lost work hours, transportation and housing costs, stress related suffering, combat fatigue and medical care utilization?

Project Description (proposed solution)

Telehealth and LE^{3}AN

The LE^{3}AN Program is a well-documented healthy lifestyle program targeting obesity and obesity related health problems. The LE^{3}AN program has been successful in helping active duty personnel to lose weight and develop healthier lifestyles. It utilizes a two-phase treatment design where patients are treated in an intensive, three-week day treatment environment during Phase I and, during Phase II, participate in weekly follow-up treatments for a one year period. The LE^{3}AN Program and AKAMAI have established the LE^{3}AN Behavioral Telehealth project to demonstrate that effective Phase-II obesity treatment can be provided, via low-end telecommunication technologies, for individuals in remote settings who would not otherwise have access to the program.

In the LE^{3}AN Behavioral Telehealth project, treatment is offered to sailors who reside on three ships which have been selected for this project: the USS Chosin, the USS Port Royal and the USS Russell. The purpose of LE^{3}AN Behavioral Telehealth project is to evaluate the feasibility of using low-end telecommunications technologies in the provision of behavioral telehealth services.

What follows reflects an expansion of the LE^{3}AN Behavioral Telehealth project to optimize existing resources and expand treatment possibilities for active duty personnel in the Pacific region and thus respond more fully to the numerous behavioral health needs in this environment. The expansion proposes to evaluate the feasibility and treatment

efficacy of telehealth services provided via the following telehealth mediums: interactive audio-visual communication, e-mail and Internet web page technology.

Telehealth and Hypnotherapy

The utilization of telehealth technology will allow patients in remote areas to receive hypnotherapy services and simultaneously reduce costs for these treatments. The hypnotherapy project seeks to demonstrate that telehealth capabilities can provide a cost effective means for provision of timely and high quality clinical hypnosis services.

Telehealth and Family Therapy

Telehealth applications provide the opportunity for timely and important psychotherapeutic interventions with the couple and family who is experiencing stress and disharmony. The family therapy expansion of the project aims to provide cost effective, quality family interventions for deployed, active duty personnel and their families. Couple and family therapy will be provided for deployed, remote service members and their families to demonstrate the efficacy of telehealth services as matching face-to-face family therapy outcomes. Significant value to the government will be realized related to divorce, suicide, domestic violence, delinquency, substance abuse, combat fatigue and medical costs related to the physical manifestations of stress.

Telehealth and Tobacco Cessation

The current standard in tobacco cessation treatment is to combine pharmacologic treatment with a behavioral program. Utilization of pharmacologic interventions alone, however, produces far lower success rates than the combination treatment. For the active duty soldier or sailor, having the necessary block of time available for the tobacco cessation program is often problematic. In order to provide these services and maintain continuity of care, the use of telehealth technologies is warranted. The tobacco cessation project seeks to demonstrate that telehealth applications can provide a cost-effective means for timely and high quality tobacco cessation treatment for deployed, remote service personnel.

Telehealth and Biofeedback

The utilization of telehealth applications for the provision of biofeedback treatment offers valuable enhancement in caring for patients in remote areas while simultaneously reducing the costs associated with treatment. The biofeedback project seeks to demonstrate that telehealth capabilities can provide a cost effective and timely means for the administration of high quality biofeedback treatment.

Telehealth and Neuropsychological Assessment

Telehealth applications offer the possibility of significant cost reductions and improved accessibility of neuropsychological services in remote areas. Preliminary literature suggests that there is no difference between the results of neuropsychological clinical interviews completed in face-to-face interviews and those completed remotely, utilizing telehealth technology. The neuropsychology project is designed to investigate the efficacy of neuropsychological evaluations conducted via interactive video conferencing. This project seeks to demonstrate that telehealth capabilities are a cost effective means for the provision of timely, quality neuropsychological services to individuals in rural areas.

Proposed Project Timeline

Once funding has been released, the following timeline will be implemented.

	Time (in months)											
Milestones	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1. Treatment protocols established with appropriate ships, individuals and facilities:												
(a) Hypnotherapy	X											
(b) Family Therapy		X										
(c) Tobacco Cessation Treatment			X									
(d) Neuropsychology		X										
(e) Biofeedback	X											

	Time (in months)											
Milestones	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
2. Identify and procure equipment for: (a) Hypnotherapy (b) Family Therapy (c) Tobacco Cessation Treatment (d) Neuropsychology (e) Biofeedback	X X	 X X 	 X 	 	 	 	 	 	 	 	 	
3. Establish Webpage database for: (a) Hypnotherapy (b) Family Therapy (c) Tobacco Cessation Treatment (d) Biofeedback	X 	 X 	 X 	 X	 	 	 	 	 	 	 	
4. Internet Support Services fully functioning on webpage: (a) Obtain software (b) Integrate into webpage (c) Patient information (PI) guide developed	 	 X 	 X 	 X	 	 	 	 	 	 	 	
5. Complete measures of patient/provider comfort/comprehension/satisfaction. 6. Complete content and process measures.	 	 	X X	 	 	X X	 	 	X X	 	 	
7. Patient/Provider measures: (a) developed and tested (b) evaluation of results	 	 X	 	 	 	 	 	 	 	 X	 X	
8. Quarterly Progress Reviews			X			X			X			X

Performance Objectives/Deliverables

- Behavioral telehealth services in place on board the USS Chosin, USS Port Royal and the USS Russell.
- Behavioral telehealth services in place at the 121 EVAC Hospital, Seoul, South Korea.
- Behavioral telehealth services in place at the Naval Hospital, Yokosuka, Japan.
- Demonstrated the safety, cost effectiveness and positive clinical outcome of low-end telehealth technology.
- Veteran's Administration (VA) neuropsychology assessments to be conducted via telehealth on a routine basis between Oahu VA and the other islands VA.
- At least two papers accepted for publication in peer review journals.