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Sleep Restoration in the Active Duty Population

Teresa Timms and Melissa Boetig

Uniformed Services University of the Health Sciences, Bethesda, MD

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[redacted]

Teresa Timms, BSN, RN, MAJ, Army, CMSRN, DNP-FNP
Daniel K. Inouye Graduate School of Nursing
Uniformed Services University
5/2/2018

[redacted]

Melissa Boetig, BSN, RN, CPT, Army, CMSRN, DNP-FNP
Daniel K. Inouye Graduate School of Nursing
Uniformed Services University
5/2/2018

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Abstract

Background or Problem/Issue: Nearly 40% of military service members sleep less than the recommended seven to eight hours each night. Lack of sleep has been shown to have a profound negative effect on physical and emotional health, cognitive function, overall safety, work productivity, and readiness. No clinical practice guidelines for assessing or managing sleep disturbances currently exists.

Clinical Question: In first-line medical professionals, how does self-reported knowledge of sleep disturbance identification and management compare to what the literature describes as "best practices" in managing sleep disturbances among active duty service members?

Project Design: A questionnaire evaluating knowledge, practices, and limitations of medics, licensed practical nurses, registered nurses, physician assistants, advanced practice registered nurses, physicians, social workers, and clinical pharmacists was administered at seven different clinics on two different Army installations.

Results: Fewer than 30% of participants received sleep disturbance assessment and management training, when they did, most cited online or in-service education as the source of training. Although a sleep disturbance complaint or sleep-related comorbidity was most likely to trigger a sleep disturbance assessment, fewer than 55% of medics, and 13% of RNs conducted a sleep assessment. All respondents were aware that sleep was a problem for service members, and assessment barriers included lack of training, resources, and guidelines.

Organizational Impact/Implications for Practice: Sleep disturbances negatively impact service member health and resilience, unit readiness, and safety, imposing a financial burden on the Military Health System and the Department of Defense. A clinical practice guideline is needed to increase identification and management of sleep problems and promote sleep health in the active duty population.

Introduction

In the United States, approximately 70 million people have chronic sleep disturbances (Liu et al., 2016). Insufficient sleep is associated with acute illness and chronic disease and, therefore, threatens the health of individuals, communities, and society at large (Centers for Disease Control and Prevention [CDC], 2016). In 2011, the American Sleep Foundation and the Centers for Disease Control (CDC) determined approximately 35.3% of American adults reported sleeping less than the recommended seven hours each night (Gradisar et al., 2013, CDC, 2016) The staggering number of people diagnosed and the subsequent effects on health, have led the CDC to label "insufficient sleep" a public health epidemic.

According to the Sleep Health Foundation (2011), there are several common reasons for insufficient sleep including: improper sleep hygiene (i.e. eating and drinking late in the evening, inadequate sleep environment, or using electronics within two hours of bedtime), stimulant use (i.e. caffeine or nicotine) or depressants (i.e. alcohol), medications and misuse of sleep medications, taking sleep for granted, and certain medical diagnoses. Other causes of insufficient sleep are primary sleep disorders such as parasomnias, breathing syndromes, circadian rhythm disorders, and insomnia. Insomnia is the most common sleep disorder and is defined as "the subjective perception of difficulty with sleep initiation, duration, consolidation, or quality that occurs despite adequate opportunity for sleep, and that results in some form of daytime impairment" (Schutte-Rodin, Broch, Buysse, Dorsey, & Sateia, 2008). Insomnia can also result when other comorbidities, such as behavioral health problems, exist. While the definition of insomnia captures subjective measures of quality sleep, patients and clinicians often define insomnia as a primary diagnosis or a secondary symptom. In order to include both primary and secondary causes of insufficient sleep, the term "sleep disturbance" for the duration of the paper.

Due to the significant impact on population health, multiple organizations including the CDC, the American Academy for Sleep Medicine (AASM), The American Sleep Foundation, the RAND Corporation, and the Department of Defense (DoD) are working to address sleep disturbances. The CDC has a dedicated team in their Population Health Division called the Sleep and Sleep Disorders Team (CDC, 2017). The AASM, in collaboration with the CDC, has created the National Healthy Sleep Awareness Project (NHSAP) in an effort to influence behaviors that can lead to improved sleep in the population (AASM, 2013). The NHSAP belongs to the Healthy People Consortium, a group of organizations devoted to the implementation of the Healthy People 2020 initiative. The Army created a dedicated sleep work group focused on addressing unique sleep issues associated with military service. This project explored sleep disturbance knowledge and practice in first-line military medical personnel adding a small amount of information to a growing body of literature on sleep disturbance, with an overall goal of improving sleep and health in military members.

Significance of the Problem

Sleep disturbances have a profound impact on individuals and communities. They are responsible for a rise in health problems, accident rates, and financial burden (CDC, 2016). Researchers demonstrated there are strong correlations between sleep disturbances and negative health outcomes including physical disorders and behavioral health disorders (Luyster et al., 2012; Mysliwiec et al., 2013: Ulmer et al., 2015; Gehrman et al., 2013; Ribeiro et al., 2012). Physical disorders include acute illness, cardiovascular disease, metabolic disorders, and pain syndromes. Behavioral health disorders include post-traumatic stress disorder (PTSD), depression, anxiety, and suicide. Sleep disturbances, and/or poor health also translate directly into absenteeism, lost productivity, and accidents (American Automobile Association [AAA],

2016; Gehrman et al., 2013; Luyster, Strollo, Zee, & Walsh, 2012; Mysliwiec et al, 2013; Riberio et al., 2012; Rosekind et al., 2010; Swanson et al., 2011; Troxel et al., 2015; Ulmer et al., 2015).

Safety of the individual with sleep disturbances, and those around him or her, is a serious cause for concern. Driving while tired is a major risk factor for motor vehicle and machinery-related accidents, resulting in substantial injury and disability (CDC, 2016; Jackson et al., 2013; Philip et al., 2010, Smolenski et al., 2011). Between 2005 and 2009 an estimated 83,000 crashes are attributed to drowsy driving annually; on average 886 of these crashes were fatal. In 2014, 846 fatalities were related to drowsy driving (National Highway Traffic Safety Administration, 2018). In one study, participants were sleep-restricted and placed into a driving simulator. Researchers demonstrated both psychomotor vigilance and reaction time were decreased in sleep-deprived participants (Jackson et al., 2013). The American Automobile Association's Foundation for Traffic Safety surveyed 2,600 motorists in 2017. The results demonstrated that one in three U.S. drivers admit to "driving when they were so tired that they had a hard time keeping their eyes open at some point in the past month" (AAA, 2016). In another study of 5,293 people in 10 countries, researchers found that a history of insomnia was associated with an increased risk for motor vehicle, home and/or work accidents (Léger et al., 2014). Other studies have shown that the use of pharmacologic sleep aids increase morning somnolence, increasing the risk of morning accidents (Capaldi, Kimm, Grillakis, Taylor, & York, 2015; Roehrs & Roth, 2012).

Costs associated with sleep disturbances are tremendous, especially when considering the cost of medical care, accidents, absenteeism, and decreased productivity. Approximately 10 years ago, the Institute of Medicine estimated that hundreds of billions of dollars are lost

annually to direct and indirect costs associated with sleep disturbances (Institute of Medicine (US) Committee on Sleep Medicine and Research, 2006). Just as the percent of people afflicted with sleep disturbances has not decreased, neither has the financial burden. These staggering costs impact the individual, the healthcare system, the community, and society as a whole.

Military Relevance

Sleep disturbances affect military members' health and resilience, degrade unit readiness, negatively impact safety, and incur additional financial burden for the Department of Defense (DoD) (Troxel et al., 2015). The military has a variable operational tempo that is high during periods of shift work, training exercises, and deployments. Other factors of deployments include noise pollution and change in environment. These stress-related events make the military population vulnerable to sleep disturbances. In a 2015 study with 566,000 participants, recent active duty status increased the likelihood of insufficient sleep by 34% compared to those participants who reported no previous military service. Past military service is also associated with a 23% greater incidence of insufficient sleep than those without service connection (Chapman et al., 2015). A survey of 39,877 DoD and Coast Guard members revealed that fewer than half (40.7%) of the respondents obtain the recommended seven to eight hours of sleep each night (Barlas, Higgins, Pflieger, & Diecker, 2013). In a sample of 14,000 Army service members, those with insomnia reported greater incidence of poor nutrition, less exercise, a higher body mass index (BMI), and poor health (Lentino, Purvis, Murphy & Deuster, 2013). In 2015, the RAND Corporation published a comprehensive report titled *Sleep in the Military: Promoting Healthy Sleep Among Military Members* that described the prevalence of sleep disturbances across the military and correlated the lack of sleep to adverse short and long-term health outcomes (Troxel et al., 2015).

According to the Congressional Research Services (2015), more than 31,900 service members were physically wounded and more than 130,000 experienced PTSD upon their return from Operation Iraqi Freedom (OIF) or Operation Enduring Freedom (OEF). The lingering war wounds include PTSD, traumatic brain injury (TBI), amputations, blast and burn injuries, and/or chronic pain (Atiyeh & Hayek, 2010; Ramchand, Karney, Osilla, Burns, & Caldarone, 2008; Stansbury, Lalliss, Branstetter, Bagg, & Holcomb, 2008). Superimposed sleep disturbances exacerbate these chronic health problems and increase the risk for the development of other physical or mental health disorders. This is especially concerning because health problems caused by sleep disturbances are preventable. The use of appointments for preventable health complaints increases cost and decreases access to care in the Military Health System (MHS).

Safety and performance are paramount to military units. Multiple surveys of deployed Army personnel have demonstrated that sleep disturbances are associated with increased prevalence of errors and accidents, and a decreased ability to function and perform in a deployed environment (LoPresti et al., 2016; Mental Health Advisory Team [MHAT] 9, 2013; MHAT V, 2008). A 2014 study of active duty service members, 50% of pilots reported falling asleep in the cockpit, and more than 50% of all soldiers attribute accidents made in training to sleepiness (Williams, Collen, Wickwire, Lettieri, & Mysliwiec, 2014). Sleep deprivation increases the risk to individual service members, units, and the mission. Altered decision-making and reduced cognitive processing speed caused by sleep disturbances increase the risk battlefield errors leading to serious injury, death, and/or failed missions. Many service members are susceptible to developing sleep disturbances due to the high operational tempo and rapidly changing battlefield demands. Despite the significance of the problem in the military, the MHS has not yet developed an evidence-based, clinical practice guideline (CPG) addressing sleep disorders (Troxel et al.,

2015). The creation of a DoD-specific sleep CPG could help clinicians and leaders improve sleep health, improve overall health and wellbeing of service members, improve operational readiness, reduce accidents, and reduce overall costs in the DoD.

Nursing Relevance

Nurse Practitioners (NPs) are patient advocates and healthcare leaders who are trained to identify gaps and incorporate evidence-based practice (EBP) recommendations to improve patient outcomes and business practices. NP responsibilities include assessing patients' and populations' healthcare needs, implementing EBP, and shaping practice and policy. NPs are the ideal change-agents to implement preventive health strategies. NPs play a pivotal role in educating patients, other healthcare providers, and leadership on the most recent research and recommendations related to sleep disturbances and solutions, while partnering to develop plans and policies to implement these changes.

Researchers have identified gaps in the screening of sleep quality and quantity during routine primary care visits (Bailes et al., 2009; Grover et al., 2011; Hassed et al, 2012; Mold et al., 2011; Senthivel, Auckley, & Dasarathy, 2011; Sorscher, 2008; Troxel et al., 2015). Protocols, guidelines, and evidenced-based recommendations guide clinical practice, but there are no clear, easy to access recommendations on managing sleep disorders. The CDC has not yet developed a sleep disturbance CPG. The DoD/VA has developed a CPG for obstructive sleep apnea (OSA), but not for other sleep disorders. The U.S. Preventive Services Task Force (USPSTF) (2017) has developed an OSA recommendation but notes that the benefits of screening asymptomatic patients are unclear. The American Academy of Sleep Medicine has an Insomnia CPG and a CPG for the pharmacologic management of sleep disturbances, but neither is widely available in primary care settings. Primary care providers and their teams should be

knowledgeable about how to assess, identify, manage, and prevent sleep disturbances (Troxel et al., 2015). NPs in primary care settings can link medical personnel to sleep resources, provide feedback to leadership, and contribute to the development of a sleep disorders CPG. If the incidence of sleep disturbance can be reduced, patients' health and quality of life are likely to improve, increasing force readiness and reducing healthcare and readiness costs.

Clinical Question

In first-line medical professionals, how does self-reported knowledge of sleep disturbance identification and management compare to what the literature describes as "best practices" in managing sleep disturbances among active duty service members?

Literature Search and Synthesis

Search

The literature review sought to find articles related to the identification and management of sleep in a primary care setting and was limited to articles published between 2007 and 2017, peer-reviewed, and written in English. Articles that were pediatric studies, animal studies, opinions, or reviews were excluded. The search utilized PubMed, Cumulative Index to Nursing and Allied Health Literature (CINAHL), and Cochrane Database (see Appendix A). The search identified 489 articles. After reviewing titles, abstracts, and adding articles identified through bibliographies, 50 articles remained and were reviewed in full text. Thirty-eight articles were eliminated and 12 articles were appraised and retained for synthesis.

Appraisal

The 12 remaining articles were appraised using an evidence-rating tool that required grading the level of evidence (LOE) and the quality of evidence (QOE) (see Appendix B). The LOE was based on the Hierarchy of Evidence Rating System described by Melnyk & Fineout-

Overholt (2011) and ranged from I to VII. The QOE was determined as "high (A)," "good (B)," or "low (C)" based on John Hopkins Nursing Quality of Evidence Appraisal (Dearholt & Dang, 2012). The highest LOE appraised was level III, "evidence obtained from well-designed control trials without randomization" (Melnyk & Fineout-Overholt, 2011). The lowest LOE appraised was VI, "evidence from a single discriptive or qualitative study" (Melnyk & Fineout-Overholt, 2011). Ten articles were level five evidence (evidence from systematic reviews of descriptive or qualitative studies) (Melnyk & Fineout-Overholt, 2011).

Synthesis

Three overarching themes emerged from the appraised literature (see Appendix C): 1) assessment, identification, or screening; 2) management or treatment; and 3) perceived limitations regarding assessment or management. Assessment sub-themes for the identification of sleep disturbances by primary care providers were acknowledged. These included sleep specific review of symptoms (ROS), screening questionnaires, and symptom presentation. The management sub-themes were sleep hygiene, behavioral health, pharmacologic management, or referral to sleep management. Perceived limitations sub-themes include time and reimbursement, policies or guidelines, resources, and knowledge. The appraisal findings led to the development of the focus areas for this EBP.

None of the articles directly addressed sleep issues found among active duty service members, but in 2014 the Army implemented the "Performance Triad," which highlighted the importance of sleep, activity, and nutrition on health (United States Army Public Health Center [APHC], 2015). The goal of the Performance Triad is to improve soldier readiness and resilience through implementing healthy habits and encouraged the formation of partnerships between soldiers, military leaders, healthcare providers, and communities. The Performance

Triad did not specifically address the assessment or management of sleep disturbances nor did it offer healthcare providers tools, guidelines, or education to assist in this realm.

A 2015 RAND study examined the prevalence and significance of sleep disturbances among military service members who had previously deployed. The team also analyzed military programs and policies that addressed sleep disturbances, and explored program and policy limitations, practices, and interventions for treating sleep disturbances in the deployed military population, ultimately identifying 16 items that if addressed, could improve sleep health in the military (see appendix D) (Troxel et al., 2015). The RAND findings were consistent with themes identified in the evidence review conducted for this study, so their results were integrated into the tools used to conduct this EBP project.

Focus Areas

The long-term goal of this project is to improve the identification and management of sleep disturbances in the military population to improve individual health and readiness, unit safety and effectiveness, and decrease the fiscal burden in the DoD. The specific focus areas are based on results from the literature appraisal (see appendix B). The first goal was to determine current practices in the identification and management of sleep disturbances in military primary care or a first-line medical setting. The second was to identify limitations to addressing sleep disturbances, such as knowledge gaps, resource limitations, lack of time or reimbursement, or lack of guidelines/protocols. The study results and recommendations were provided to the unit medical teams, clinical and MTF leadership, and Army Sleep Work Group.

Organizing Framework

Ronald Havelock's Theory of Planned Change offered a systematic approach that guided this scholarly project. The theory has seven stages designed in a cyclic model: *Care, Relate, Examine, Acquire, Try, Extend*, and *Renew* (Havelock & Zlotolow, 1995) (See Appendix E).

Unlike earlier models, the Theory of Planned Change incorporates a stage 0, *Caring* or *Arousal of Concern*, creating the support and momentum necessary to implement change but emphasizing the need for people to care (Havelock & Zlotolow, 1995). As discussed previously, the health consequences, burden to the workforce, safety hazards, strain on medical resources, and overall cost accrued are among the many reasons why service members, providers, commanders, and legislators should care about the sleep health of the military.

During the *Relate Stage* (stage 1), key stakeholders, including patients, primary care providers and support staff, clinic, department, and hospital leadership, specialty clinic providers (behavioral health and sleep medicine), and senior military sleep leaders were contacted. This stage occurred regularly to optimize project outcomes. The *Examine Stage* (stage 2) focused on defining the problem (Havelock & Zlotolow, 1995). During the first and third years of the doctoral nursing program, the literature was reviewed to identify the problem and answer a clinical question. Key stakeholders further defined the problem. Next, the scholarly project moved into the *Acquire Stage* (stage 3), where project resources were identified (Havelock & Zlotolow, 1995).

Once resources were established and participants identified, *Try Stage* (stage 4) began. During this stage, the project was implemented and completed at both Joint Base Lewis-McChord (JBLM) and Fort Hood. This final paper and presentation will demonstrate the lessons learned. Modifications in local practice and policy can be made based on the responses from

participants and stakeholders and the lessons learned during stages 1 through 4. During *Extension Stage* (stage 5) the implemented project (results) and analysis gain wider acceptance and use within the system (first-line medical care environments and unit/MTF leadership) (Havelock & Zlotolow, 1995). Providing stakeholders with their requested feedback, resources, and improvements brings about the desired change and leads to further extension. *Renew Stage* (stage 6) is exceptionally important in the MHS because it identifies and addresses sustainability challenges. Change is susceptible to termination if projects fail to meet the needs of the healthcare providers, patients, command, and MHS in an efficient, timely, and/or equitable way. The *Renew Stage* helps mitigate these risks.

Strengths of this model include the use of identified problems and concerns as catalysts for change, the emphasis on the importance of collaborating with experts, as well as key stakeholders within the system, and the recognition that sustainability must be a part of the planned end-state. Havelock's model is designed so that each stage builds on the previous stage, while offering the opportunity and flexibility to make adjustments or return to an earlier stage as needed. Sleep disturbances are complex issues for service members, medical personnel, and leaders. Thus, addressing the issues requires innovation, careful planning, collaboration, and adaptability to ensure sustainable change. The Theory of Planned Change provides a means to ensure success at each stage of the process.

Project Design

General Approach

This project evaluates current knowledge and practices in sleep disturbance identification and management verses best practices in a military setting. No standardized approach or algorithm exists for use in the military setting. A baseline assumption of this study is that first-

line medical personnel were likely unfamiliar with guidelines or screening tools for sleep disturbances. Therefore, this project was focused on examining the knowledge and practices of personnel providing first line or primary care to active duty patients. This population was selected because this is an entry point for sleep complaints in the medical home model. Focus areas were developed based on a recent literature review. Each focus area was addressed by the sleep questionnaire developed for the scholarly project (see Appendix F).

Population and Setting

The military healthcare system (MHS) is unique, compared to civilian healthcare settings. Military healthcare providers such as medics, physician assistants (PA), nurse practitioners (NP), and physicians (MD and DO) are trained to work in traditional environments and in operational units. Recognizing this unique distribution of personnel and roles feedback from participants in each medical role and setting was obtained. Clinical roles included military medical technicians (medics), licensed practical nurses (LPN), registered nurses (RN), nurse practitioners, physician assistants, and physicians. Other respondents included a doctor of pharmacy, a social worker, and two nurse case managers. Patients, administrative staff, and operational leadership were excluded from the EBP project. Participants were selected through recruitment by unit or clinic leadership. Participation was voluntary.

The study was conducted on two military installations: Fort Hood, Texas and JBLM, Washington. At Fort Hood, three clinical sites participated: Russell Collier Health Clinic, Bennett Health Clinic, and Carl R. Darnall Army Medical Center (CRDAMC), and at JBLM four clinical sites participated: Yakima 16th CAB, 160th Special Operations Aviation Regiment (SOAR), 16th CAB Medical Clinic, and Okubo Soldier Centered Medical Home.

Procedural Steps

Step 1. 3202N submitted to Uniformed Services University

Step 2. Approval obtained from both Carl R. Darnall Army Medical Center and Madigan Army Medical Center (MAMC) Institutional Review Board (IRB) to conduct the study

Step 3. Phase II site directors and Senior Mentor approved study locations and timeline

Step 4. Key stakeholders identified

Step 5. Explored ways to mitigate barriers and limitations to implementing study

(i.e. MHS Genesis implementation at MAMC threatened to limit participation)

Step 6. Develop questionnaire (see appendix F)

Step 7: Develop command memorandums to access study subjects

Step 8. Disseminate command memorandums and await approval

Step 9. Collect data: Brief introduction, administer paper survey

Step 10. Data Analysis

Quantitative data coded /entered into Statistical Package for Social Sciences (SPSS) software version 24.0

Qualitative data manually entered into Microsoft Word and Excel by clinical role and categorized by theme

Step 11. Results presented to key stakeholders

Table 1: Data Analysis by Focus Area

EBP Focus Area	Question of Interest	Measure (Questionnaire)	Analysis Plan
1. Identify current practices for identifying and managing sleep within the AD population.	a. Frequency Of Assessment b. Triggers For Assessment c. Guideline Use d. Screening Tool Use	a. Question 5 b. Question 6 c. Question 9 d. Question 10 e. Questions 12 f. Questions 13	1. Descriptive statistics for all quantitative data. 2. Descriptive qualitative analysis for all qualitative data.

	e. Sleep Diary Use		
2. Identify limitations (i.e. gaps in knowledge, lack of time/reimbursement, or lack of guidelines/ protocols.	a. Previous Training b. Request For Resources	a. Question 4 b. Question 11 c. Question 14	1. Descriptive statistics for all quantitative data. 2. Descriptive qualitative analysis for all qualitative data.

Notes: Data analysis by focus area.

HIPAA Concerns (IRB)

Identical project proposals were submitted to installation MTFs (CRDAMC and MAMC) for review. The proposals went through an initial review process to determine if institutional review board (IRB) approval was needed to proceed. The proposals included a copy of the original questionnaire created use during the project. It was determined that formal IRB was not required (see Appendix I). Providers and ancillary staff completed the questionnaire to help assess current knowledge and practices regarding sleep assessment and management. This study involved no patient contact, and no personally identifiable information, or personal health information was collected. Participants were provided verbal and written information stating that their responses were anonymous and were given the option to answer any or all of the questions they desired.

Project Results

Demographics

101 people at seven clinics on two different installations completed the questionnaire with Army units. Three participants were non-medical (one MSA, one administrator, and one Medical Service Corps platoon leader) and excluded. The remaining 98 completed surveys were

included in the analysis. Demographics of the participants are reported in Table 2. Years of experience among participants ranged from less than one year to 35 years with two-thirds reporting less than 10 years, overall over 50% of physicians, PAs, and medics had less than five years of experience.

Table 2: Clinical Role Distribution and Level of Education

Clinical Role	Medic	LPN	RN	PA	NP	MD/DO	Other*	Total
	31 (32%)	11 (11%)	8 (8%)	16 (16%)	6 (6%)	20 (20%)	6 (6%)	98 (100%)
Certificate	11 (35%)	5 (45%)						16 (16%)
Associate's Degree	10 (32%)	5 (45%)	1 (12%)					16 (16%)
Bachelor's Degree	9 (29%)	1 (9%)	4 (50%)				4 (66%)	18 (18%)
Master's Degree	1 (3%)		3 (38%)	15 (94%)	4 (66%)			23 (23%)
PhD/DNP				1 (6%)	2 (33%)		2 (33%)	4 (4%)
MD/DO						20 (100%)		20 (20%)

Notes. Number and percent of participants per clinical role, level of education and total percent by clinical role.
*2 medical students, 2 case managers, 1 doctor of pharmacy, 1 social worker

Focus Area 1: Identify current practices

Quantitative Results. Questions 5, 6, 10, 12, and 13 (Appendix F) provided quantitative data related to current practices. When asked, "How frequently do you talk to your patients about sleep health" most participants, regardless of clinical role, denied asking about sleep at every encounter (87%) or when completing the periodic health assessment (85%). However, 67% respond that if a patient mentions a sleep disturbance, they would conduct a sleep assessment. Table 3 shows the responses by clinical role. Fifty percent of the support staff respond that a chief complaint of a sleep disturbance triggers further investigation, and 70% of the providers stated that this would prompts a sleep assessment (Table 4). Fifty six percent of support staff and 69% of providers stated that signs and symptoms would trigger them to ask patients about sleep. Less than two-thirds of the support staff reported that they are prompted to ask about sleep based

upon the review of systems (ROS). Providers (MD/DO, NP, PA) differed on the degree to which ROS would prompt further discussion, but the majority (80%) noted that certain comorbidities would influence a discussion about sleep, while fewer than 55% of LPNs, 50% of medics, and 13% of RNs reported that they would conduct a sleep assessment based upon patient comorbidities.

Participants were asked about their use of guidelines, screening tools, and sleep diaries in their practice (Table 5). Fewer than 25% of participants reported using guidelines. 60% reported that they used screening tools, and 60% reported having assigned a sleep diary. PAs reported using guidelines the most (50%) and medics were the lowest (13%). Seventy-nine percent of providers report prescribing a sleep diary (Table 5). Unstructured responses for frequency of sleep assessment and triggers that prompt sleep discussions are documented in the qualitative results section below, Table 3, and Table 4.

Table 3: Frequency of Discussing Sleep Health with Patients

Clinical Role	Medic	LPN	RN	PA	NP	MD/DO	Other	Total
Every Encounter	2 (7%)	2 (18%)	3 (38%)	1 (6%)	2 (33%)	1 (5%)	2(33%)	13(13%)
Patient Brings It Up	24 (77%)	8 (73%)	2 (25%)	11 (69%)	3 (50%)	16 (80%)	2 (33%)	66 (67%)
Annual Check-Up or PHA	4 (13%)	1 (9%)	0 (0%)	3 (19%)	2 (33%)	5 (25%)	0 (0%)	15 (15%)
Other	Never; Depending on their behavior; Not something that applies to a flight medic	Depression /Anxiety	Follow up Appt	Rarely; Behavioral health complaints	Triggers; If related to their chief complaint	During visits related to mental health; As an opportunity as part of total health or Performance Triad	If I think sleep plays a role or is being affected based on presentation	

Notes. Medical personnel responses for how often they talk about sleep health with their patients.

Table 4: Triggers that Prompt Discussion about Sleep Health

Clinical Role	Medic	LPN	RN	PA	NP	MD/DO	Other	Total
Chief Complaint	17 (55%)	6 (55%)	2 (25%)	13 (81%)	6 (100%)	16 (80%)	1 (17%)	61 (62%)

Certain Signs or Symptoms	18 (58%)	6 (55%)	4 (50%)	10 (63%)	5 (83%)	14 (7%)	2 (33%)	59 (60%)
Positive ROS	6 (19%)	3 (27%)	1 (13%)	8 (50%)	5 (83%)	7 (35%)	0 (0%)	30 (31%)
Comorbid Diagnosis	15 (48%)	6 (55%)	1 (13%)	11 (69%)	5 (83%)	16 (80%)	3 (50%)	57 (58%)
Other	Stress, headaches, history of TBI, "if we notice we are acting off"		new medications, stressors, etcetera	HTN, fatigue, weight gain, appearance, PHQ9, emotional lability		"daytime fatigue"		

Notes. Triggers that prompt a discussion about sleep by clinical role. Participants were given a small-text field labeled "other" to answer an unstructured response for possible triggers.

Table 5: Participants that use Guidelines, Screening Tools, and/or Sleep Diaries

Clinical Role	Medic	LPN	RN	PA	NP	MD/DO	Other	Total
Guidelines	4 (13%)	3 (27%)	2 (25%)	8 (50%)	2 (33%)	3 (15%)	2 (33%)	24 (24%)
Screening Tools	17 (45%)	8 (73%)	4 (50%)	14 (88%)	5 (63%)	13 (65%)	1 (17%)	59 (60%)
Sleep Diaries	15 (48%)	6 (55%)	3 (38%)	12 (75%)	6 (100 %)	15 (75%)	2 (33%)	59 (60%)

Notes. Reported use of guidelines, screening tools, or sleep diaries by clinical role.

Qualitative Results. Participants were given the opportunity to provide unstructured responses to several questions, which are recorded in the associated tables. Participants who denied using guidelines, screening tools, or sleep diaries were asked to provide a rationale (Table 6), and were asked to list the information they requested in completed sleep diaries (Table 7).

Table 6: Participant Rationale for Not Using Guidelines, Screening Tools, and/or Sleep Diaries

	Medic	LPN	RN	PA	NP	MD/DO	Other
Guidelines	Usually not applicable to my patients. If there are symptoms, I refer to higher; I am aware there are guidelines, I just have not been educated to what they are; provider takes care of it; not applicable to our patients during medevac; we also don't have documentation available, so they need to see a provider to input records anyways		Referral to PCM for dx, tx, plan, and referrals			I gather specific hx to develop my plan; lack of training and effectiveness of screening tool	
Screening Tools	refer to higher level for referral						
Sleep Diaries	not in share drive; I don't know what I would do with the information						refer to IBHC

Notes. Participant's optional unstructured responses for rationales for not using guidelines, screening tools, or sleep diaries.

Table 7: Sleep Diary Data Collected

Bed partner questionnaire	PA	Supplements (herbal, pre/post workout)	PA, NP
Time to fall asleep	Medic, PA, NP, MD, other	Caffeine use	Medic, PA, NP, MD
Wake ups (how many Times)	Medic, PA	Medications	Medic, LPN, NP, MD, other
Final wake up time	Medic, LPN, PA, NP, other	Tobacco use	Medic, PA
Wake ups at night	PA	Alcohol use	MD, other
Waking triggers	PA	Level of fatigue prior to bed	PA
Naps	MD, other	Level of fatigue when waking	PA, MD
Time to bed	Medic, LPN, PA, NP	Mood that day	Medic, PA
Eating habits	PA, NP, MD, other	Mealtimes	Medic
Early working	PA	Shower time	Medic
Nighttime working	PA	Screen time (before bed)	Medic, NP, MD
Sleep hygiene	Medic, PA, NP, MD	Where they watch TV	Medic
Sleep quality	Medic, PA, NP, MD, other	Dreams	Medic
Daytime fatigue	NP	Nightmares	Medic, MD
Pre-sleep routine	Medic, LPN, RN, PA, MD	Blood Glucose	NP
Hours of sleep	Medic, NP, other	Exercise/Activity	PA, NP, MD, other
Stressors	NP	Other symptoms (GI, HA)	MD
Vital Signs	Medic		
Other Comments: Refer to IBHC for sleep assessment and diary tracker (RN) Part of the algorithm for addressing sleep disturbances (PA working with WRAIR) PA will provide sleep diary to the patient (Medic) I have a 5 page questionnaire (MD/DO) I print the sleep diary from online resources (MD/DO)			

Notes. Participants' responses to information asked for in a prescribed sleep diary.

Focus Area 2: Identify limitations

Quantitative Results. Questions 4, 10, 12, and 13 of the Sleep Questionnaire (Appendix F) provide quantitative data to address focus area 2. The majority of participants (77%) denied receiving any formal training related to assessment or management of sleep disturbances. Physicians reported having received formal training the most (45%) while medics reported receiving training the least (10%) (Table 8). Eighty one% of the participants who had received sleep training, reported that the training improved their practice in sleep management.

Of the participants who denied using guidelines to assess, diagnose, or manage sleep disturbances, the majority (65%) stated that lack of awareness was the primary reason (Table 5). Eighty-four percent of medics and 80% of physicians denied knowledge of a guideline, compared to 63% of PAs and 63% of RNs. More than half the medics (52%) in the study reported lack of awareness for screening tools compared to 7% of providers. Table 9 lists unstructured responses to question 12a "Do you know of any validated screening tools used to assess for sleep disorders?"

Qualitative Results. Questions 4, 11, and 14 provided open-ended responses that helped address Focus Area 2. Examples of previous sleep-specific training are provided in Table 8. Providers reported having received the most extensive training, while support staff cited personal experiences with sleep-related management. Participants were asked to provide requests regarding resources needed to help assess and/or manage sleep disturbances in their populations (Question 11, Table 9). A short text field was provided for participants to list any additional information applicable to the project (Table 11).

Table 8: Sleep Specific Training Responses

Total	Medic	LPN	RN	PA	NP	MD/DO	Other
25 (26%)	3 (10%)	2 (18%)	4 (50%)	4 (25%)	2 (33%)	9 (45%)	1 (17%)
Examples	Bio-feedback; As a part of aircrew training we get classes that focus on stress and fatigue and how to manage rest and sleep	In-services; education by providers on what they prescribe, side effects, SOPs	In-service on sleep disorders, Move to Health program, basic sleep class; 3 years ago, family member issued a CPAP	conference during PA school, only in-services, division level training with psychiatrist	27 hours of online training facility based training	sleep restriction therapy, sleep medicine rotation in residency, clerkships, didactic lectures during residency, CME lectures, research project	BBT-I, circadian rhythm

Notes. The number and percent of medical personnel who have received previous sleep-specific training and examples of the types of training they have received.

Table 9: Screening Tools Used to Assess Sleep Disorders

	Medic	LPN	RN	PA	NP	MD/DO	Other
STOP BANG	x	x	x	x	x	x	x
Epworth Sleepiness Scale	x	x	x	x	x	x	x
Insomnia Severity Index					x	x	x
Sleep Diary	x	x					
Sleep Study	x		x				
"This is like question 8"	x			x			
Other	referral to sleep clinic sleep hygiene, EBH→ sleep techniques →breathing techniques						

Notes: Responses to validated screening tool used to assess for sleep disorders. Numbers shown in parentheses indicated the number of times the same response was listed.

Table 10: Participant Requests for Resources

Role	Response Examples
Medic	• *Better trained providers at all levels. Especially during high tempo (training, pre-deployment, deployment, post-deployment, blast recovery)* • *Some of the guidelines mentioned above* • *Anything available to help my patients* • *Command team awareness to issues in relation to performance* • *Webpage with current trends, studies, practices* • *More education for lower level medical providers (medics) for counseling patients on sleep problems* • *Algorithm* • *Checklist*
LPN	• *Handouts sleep clinic* • *Leaflets* • *Apps* • *Guidelines for clinic* • *More time at appointments to properly access and care for patients*
RN	• *Written material to give patients during visits* • *AHLTA specific assessment tool already established for nursing staff to use* • *More time to discuss reasons why built into the encounter*

PA	• *Quick patient completed screening form completed upon check in process and then reviewed by the provider to identify concerns or issues* • *Formal sleep hygiene classes offered by EBH regularly* • *More handouts* • *Knowledge of iPhone apps* • *CBT-I* • *Guidelines* • *Give us the questionnaire used at the sleep clinic* • *Medication specific guidelines* • *Screening tools* • *Weekly classes* • *Dedicated staff"* • *More staff aware of guidelines*
NP	• *Time during the visit* • *Training* • *Quick algorithm*
MD/DO	• *Prescreen before provider visit so that provider time is more effectively used to diagnose and treat* • *More CBT-I providers* • *More training about specific disorders* • *More sleep apps for patients* • *A fast screening questionnaire in the TWSF-core that can be used by an LPN*
Other	• *Refer to PCM* • *Guide folders*

Notes. Participant responses regarding resources they want available to help assess sleep health.

Table 11: Participant Feedback for the Project Team

Role	Response Examples
Medic	• *More training on different screening methods* • *Caffeine abuse (energy drinks)* • *Sleep debt issues* • *How much does daily caffeine consumption affect sleep habits, even if caffeine is consumed early in the day?* • *Alcohol consumption to sleep w/o nightmares* • *How does alcohol consumption along with RX meds aid/affect their sleep?* • *We all know sleep is an issue in our industry and I don't see much of a change happening anytime soon due to operational temp/mission or the mindset in leaders that is just how it is--'embrace the suck' kind of mentality* • *How to incorporate a general class (AIT/JKO/ALMS) to train us?* • *In our population we can frequently shift from day to night shift and back again which I believe is the cause of most complaints I see* • *In aviation, parents are wary of any condition that might affect their flight status, therefore, they often downplay the severity of their issues. Better education on sleep disorders from aeromedical policy letters could help educate medics* • *Medics need better training on sleep issues*

LPN	• *Are there any sleep screening tools in MHS Genesis?* • *Most patients do not have sleep problems. As of 3 years ago every soldier wants a sleep study to get VA disability*
RN	• *Please review meds and sleep disorders* • *Patients with sleep disorders or complaints go to IBH provider for appointment*
PA	• *Patient education and changing home environment and habits are the greatest barriers currently* • *Specific treatment guidelines: sleep hygiene, CBT-I, Meds, Follow-up" "websites patients can research* • *Readily available screenings in clinic* • *Mattresses in the barracks for enlisted soldiers absolutely suck...soldiers constantly complain about mattresses*
NP	• *Sleep meds and how they affect sleep patterns and developing healthy sleep*
MD/DO	• *I use BH, sleep medicine specialties and also recommend sleep apps to patients* • *Secondary stressors directly contribute to sleep issues in the military* • *Soldiers are not interested in sleep diaries or hygiene. They want a quick fix with medication* • *Yes! Whether ADSM are really using this for financial gain at the end of retirement or ETS since they never complained about this before* • *Recommendations for validated aps to asses or sleep diary, etc*
Other	• *Caffeine sources—pre-workout supplements, energy drinks, nicotine consumption--should be addressed by providers*

Notes. Unstructured responses to "Are there any other points regarding sleep that you would like to add for the inquiry team?" by clinical role.

Analysis and Discussion

Demographics

Medics are often the first healthcare personnel that active duty service members encounter when they access healthcare. Medics are "front line providers" in virtually every military healthcare setting from the traditional primary care setting (PCMH or SCMH) to the very austere healthcare environment. Based on the findings in this study, medics are underutilized for military sleep disturbance screening. All other provider types are present in both traditional and deployed settings, but in far fewer quantities than medics.

Focus Area 1: Current Practice

Sleep disturbances are common in the active duty population. As service members relocate, return from deployments, and transition to retirement, they are often faced with lingering effects of sleep disturbances, which can cause difficulty with employment and may exacerbate comorbidities. All healthcare personnel should understand these vulnerabilities and know how to screen and manage them. Only half of the support personnel surveyed in this study could identify triggers that should prompt discussions about sleep, compared to greater than 80% of providers. If the ROS was positive for sleep disturbance, only 19% of medics, 27% of LPNs, and 13% of RNs would initiate a sleep discussion compared to 69% of PAs, 83% of NPs, and 80% of physicians. This is concerning because in the military healthcare system support staff are often the ones to complete a review of systems and communicate patient concerns to the providers. Improving the recognition and formal screening of sleep disturbances by support personnel could enhance providers' ability to address this problem quickly and efficiently. Implementing sleep algorithms and screening tools and education is key to addressing sleep disturbances.

This study demonstrated a need to educate and empower support staff in the timing and use of screening tools. When asked "Do you know of any validated screening tools used to assess for sleep disorders, 42% of medics and 50% of registered nurses responded "yes," while two thirds of PAs, NPs, and physicians responded positively. Qualitative comments included "I know of sleep apnea and signs and symptoms but I don't know what I can do to assess within my scope" (Medic) and "refer to IBHC (imbedded behavior health consultant) for sleep assessment and diary tracker" (RN). More than 65% of providers reported using screening tools and 25% - 45% reported having received specialty sleep training. Addressing sleep concerns is important

because sleep disturbances are modifiable and the health, financial, and readiness risks are significant. Appropriate and timely use of validated screening tools can increase identification of a sleep disturbance, improve the health of the force, and reduce overall healthcare costs associated with chronic sleep disturbances.

According to the AASM (2008) the sleep diary is one of the most essential tools for quantifying sleep, but fewer than 50% of medics, 55% of LPNs, and 40% of RNs used them. One medic responded, "I don't know what I would do with the information." Seventy five percent of providers (100% of PAs and NPs, and 75% of physician) endorsed the use of sleep diaries, which can be implemented by all clinical roles and provide valuable information for diagnosis and treatment. Educating and implementing sleep diaries early by first line personnel (Medics, LPN's, RNs) could relieve provider burden, improve patient satisfaction, and avoid delays in care and worsening of sleep disturbances. No standardized sleep diaries were available in the clinics surveyed.

Focus Area 2: Limitations

Seven major limitations emerged from the data (Table 10).

1. Insufficient training
2. Lack of resources for patients
3. No guidelines, algorithms, and/or checklists
4. Limited sleep education, lack of validated sleep questionnaire/screening tool
5. No sleep tools embedded in the EHR
6. Need to streamline process and optimize time in Primary Care
7. Limited command and leadership awareness and support

Insufficient training for medical personnel. Participants in each clinical role wanted education regarding sleep including sleep cycles, disorders, evaluation, and guidelines. Only 10% of medics, 18% of LPNs and less than 45% of providers had received training regarding sleep disturbances. Physicians reported receiving the most in-depth training (in their residencies and clerkships), while the highest level of training reported by support staff was a clinic in-service. Interestingly, some physicians commented specifically that support staff needed more training, and medics who reported "this does not apply to my patients" were the same ones that requested additional information about how to assess and manage patients with sleep disorders. The type of training they recommended included online training, in-services by sleep specialists, and access to current/accurate websites containing the latest research and resources.

Lack of resources for patients. One participant responded, "Anything to help my patients." More specifically, participates requested handouts with information, regularly schedule sleep classes, access to sleep specialists, and websites with updated patient-friendly information. The most common response was a request for phone applications that could be shared with patients.

No guidelines, algorithms, and/or checklists. CPGs reinforce a consistent approach to a clinical problem based on recent evidence to achieve optimal outcomes. At the start of this scholarly project, the only CPGs developed were the Insomnia and Pharmacologic Management of Sleep Disorders (through the AASM) and the Obstructive Sleep Apnea CPG (through the VA/DOD). Participants in this study, regardless of clinical role, requested guidelines to help direct their practice in the identification and management of sleep disturbances in their patient population.

Limited sleep education, lack of validated sleep questionnaire/screening tool. There are numerous validated screening tools available. One medic commented that he "Googled" and found the Epworth Sleepiness Scale. Participants requested information about the different tools including the differences between them and how to properly use them. They also wanted them to be readily available in the clinic.

No sleep tools embedded in the EHR. Participants from Fort Hood and JBLM requested for validated screening tools within both AHLTA and Genesis. For AHLTA, in the form of the screening tool in a drop down menu or TSWF form. For Genesis, asking if there was already one embedded. Line medics also commented that they do not have access to traditional clinic record, so special attention needs to be paid to resources available to medical personnel working in non-traditional settings.

Need to streamline process and time spent in primary care settings. Providers wanted initial screening to be done prior to the patient-provider interaction to streamline their work. For example, "Prescreen before provider visit so that provider time is more effectively used to diagnose and treat." Others responded by requesting more time within an encounter to delve into sleep matters. Combat medics are imbedded within the units. As one medic wrote, "we notice [when] we're acting 'off;' we check up on each other." In these units, medics could initiate sleep diaries, sleep-screening tools, and sleep hygiene education before a patient gets to the appointment with flight surgeon, and more importantly before the sleep health and overall health deteriorate.

Limited command and leadership awareness and support. Several comments referenced command policies, shift schedules and work environment that were related to patient sleep health. Specific comments such as "[wishing for] command team awareness related to the issues

and effects on performance," "I don't see much of a change happening anytime soon due to operational temp/mission or the mindset in leaders that is just how it is--'embrace the suck' kind of mentality," and reference to those wary to announce any medical condition to due fear related to losing flight status.

The same themes that emerged from the scholarly project (personnel knowledge, patient resources, guidelines, screening tools, compatible EHR, time/process, and command support) were identified in the literature appraisal (time, policies and/or guidelines, resources, and knowledge) and over 50% of the themes were echoed in the 2015 RAND study (Appendix C and D).

Practice and Policy Implications

The results of this study are consistent with the literature review and healthy sleep recommendations from the 2015 RAND Corporation study (Appendix D). To improve the identification and management of sleep disturbances in active duty service members, three practice issues need to be addressed. First, all medical personnel should be educated to recognize signs of sleep disturbances for early identification and management. Next, all members of the healthcare team should be empowered to engage in the promotion of healthy sleep by screening and educating patients. Lastly, more guidelines and resources need to be made available to streamline the process, make appropriate referrals, and improve patient outcomes.

The Army Sleep Work Group has supported the Army Medical Department's "Move Towards Healthy" initiative, which highlights improved sleep health. This group also has the subject matter experts needed to create a military/DoD sleep CPG that can provide first-line medical personnel with the guidance they need to more effectively and efficiently assess and manage sleep problems in military personnel. MTFs can incorporate this CPG in policy and allocation

other resources such as behavioral health and appointment slots for sleep disturbances. The RAND recommendations for healthy sleep promotion support these changes and encourage unit commanders and leadership become involved as well through education and policy (Appendix D). Specifically, RAND recommend creating "standardized operational and training policies across DoD to increase sleep duration and quality and reduce fatigue-related impairment" (Troxel et al., 2015). Shift work, training and operational environments, and redeployment increase risk for suboptimal sleep, and altered sleep rhythms and sleep quality can lead to chronic sleep disturbance in military personnel. Medical personnel should be sensitive and aware of military cultural barriers when working with unit leadership to develop policies regarding sleep.

Recommendations

First line medical personnel need education regarding sleep disturbances and should all first line providers should be empowered to act when sleep deficits are recognized. An interdisciplinary approach to sleep identification and management is important and can streamline the care process, maximize provider time and clinic resources. A DoD CPG will be invaluable with disseminating this practice across the MHS leading to consistent and reliable methods for evaluation and management of military service members. Consistent Electronic Health Records with built-in algorithms, checklists, and screening tools are key. Command leadership and unit medical personnel should communicate more regarding the risks of sleep disturbances to their population and their missions. More resources should be provided to clinic staff and patients. Unit level policies addressing healthy sleep should be developed to address short- and long-term individual health, unit safety, and overall unit effectiveness.

Future research or evidence-based projects could identify the best / most effective / most efficient methods of educating and empowering staff; evaluate health outcomes of patients being effectively treated for sleep deficits. Differences in unit-level performance could be evaluated between clinics using / not using or before / after implementing a sleep CPG. Education programs for support staff could be implemented. Different sleep screening tools could be evaluated. Different mechanisms for medics, LPNs and RNs to communicate screening results to providers could be evaluated. Different ways to train providers to educate / train support staff could be assessed. Health outcomes such as weight, acute illness appointments, mood disorders, blood pressure, blood glucose, cholesterol levels and quality-of-life after sleep interventions were implemented could be compared via records review. Unit level performance after sleep intervention could include counting accidents, Army Performance Fit Test results or specialty specific factors such as shooting range or simulation flying, and awards or promotion points, negative counseling statements, or job satisfaction. The value of implementation of sleep health training in the Advanced Individual Training for Army medics should be evaluated for its efficacy on the reduction of stigma and improvement in screening.

Conclusion

Active duty military service members are at increased risk for developing sleep disorders, acute and chronic illness or comorbidities, with negative impacts on unit safety and performance. The 2015 RAND study and Army initiatives such as the Performance Triad and Move to Health demonstrate a clear need to improve military sleep (APHC, 2015; Troxel et al., 2015). These results reveal that first-line medical providers in two different Army installations are not well educated about sleep, don’t apply what they know consistently and personnel really want evidence-based, current resources. By addressing staff knowledge, empowering all members of

the healthcare team to engage in screening for and promoting healthy sleep, and providing resources to medical personnel, patients, and leadership, the DoD can improve the health of its population and prevent future generations of military member from developing sleep-related problems.

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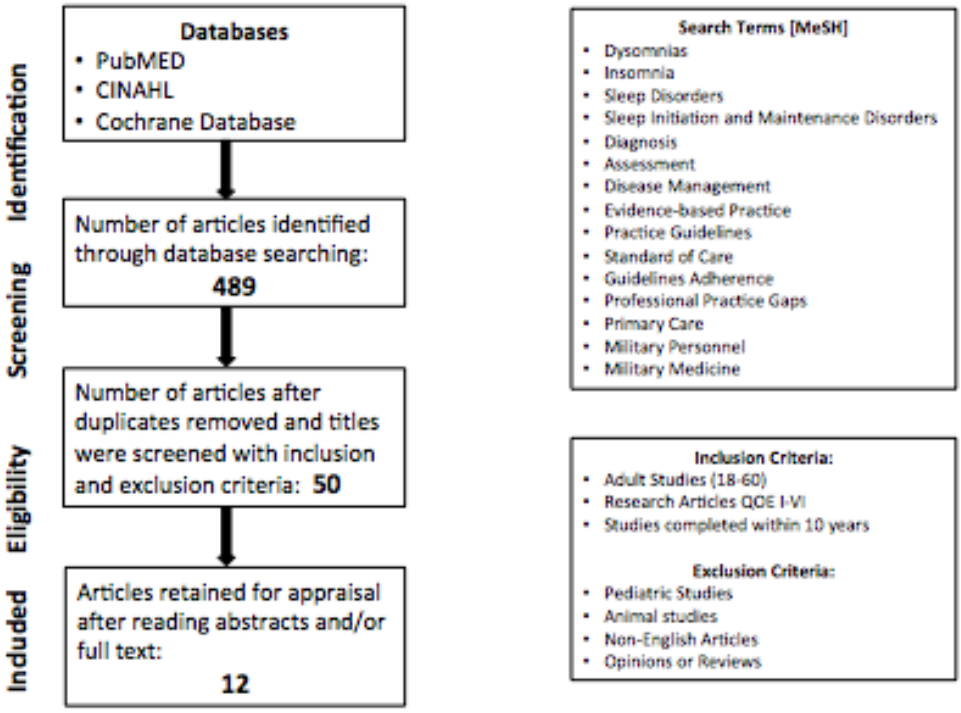
Appendices

Appendix A

Literature Search PRISMA



Note. Literature Search conducted August 2017 prior to final project proposal submission to facility leadership.

Appendix B

Evidence Appraisal Form

First Author		
Article Citation		
Brief Title		
Study Question		
Design Type *(descriptive, experimental, etc.)*		
Sample / Size	What was the sample size?	
	Is the sample patients or non-patients?	
	If patients, what was the male/female count?	
	What was the sampling method?	
	What was the response rate (if applicable)?	
Outcome Variables & Definitions *IV/DV*		
Measures *Instruments or tools used, validity and reliability, level of data (nominal, ordinal, interval, ratio)?*		
Analytical Approach *Statistical tests–appropriate based on design assumptions?*		
Findings *What were the results of the study? Each statistical test should have a result.*		
Limitations *What does the author state as limitations? Do you see any additional limitations?*		

Hierarchy of Evidence Rating System Please check one. *(Modified from Melnyk & Fineout-Overholt, 2011)*			
	I	Evidence from a systematic review or meta-analysis of all relevant randomized controlled trials, or evidence-based clinical practice guidelines based on systematic reviews of RCT's	Strongest ↕ Weakest
	II	Evidence obtained from at least one well-designed RCT	
	III	Evidence obtained from well-designed control trials without randomization	
	IV	Evidence from well-designed case control and cohort studies	
	V	Evidence from systematic reviews of descriptive and qualitative studies	
	VI	Evidence from a single descriptive or qualitative study	
	VII	Evidence from the opinion of authorities and/or reports of expert committees	

Level of Quality Please check one. *(Modified from Johns Hopkins Nursing Quality of Evidence Appraisal, 2007)*	***Grade***	***Level***	***Research***	***Non-research***
	A	**High**	Consistent results, sufficient sample size, adequate control and definitive conclusions; consistent recommendations based on extensive literature review that includes thoughtful reference to scientific evidence	Expertise is clearly evident.
	B	**Good**	Reasonable consistent results, sufficient sample size, some control, and fairly definitive conclusions; reasonable consistent recommendations based on fairly comprehensive literature review that includes some reference to scientific evidence	Expertise appears to be credible.
	C	**Low/ Major flaw**	Little evidence with inconsistent results, insufficient sample size, conclusions cannot be drawn	Expertise is not discernible or is dubious.

General Comments	

Note. Appraisal form utilized with the final 12 articles from the Literature Search.

Appendix C

Literature Appraisal Form

Literature Appraisal														
Author (Year)	**LOE/ QOE**	**Assessment/Identification/Screening**			**Management/Treatment**					**Perceived Limitions in PC Regarding Assessment/Management**				**Main Take-Away**
		Sleep Specific ROS	**Questionnaire**	**Other (i.e. symptom presentation)**	**Sleep Hygiene**	**CBT-I and/or Behavioral Health**	**Pharm**	**Referral to Sleep Mngmt**	**Other (i.e. inclusion of pt preferences)**	**Time and Money**	**Policies and/or Guidelines**	**Resources**	**Knowledge**	
Senthilvel (2011)	**IV/B**		Patients given Epsworth Sleepiness Scale, Berlin Score, Stop Bang, and Cleveland Sleep Habits Scale prior to appointment. Then it was seen who was asked about it with the provider.Those asked/not asked were then compared with + screening tools to demonstrate how many had sleep issues but were not asked in their appt (even if they brought in their tool)							*Notes limited time, lack of reimbursement** and high volume	*Notes that at the time CDC, AAFP, and USPSTF have not made rec's for screening of sleep disorders as part of routine preventive clinical services		*Authors noted several medical programs discuss sleep issues/sleep medicine and half of the hospitals used had a sleep clinic present, however, authors still concluded there may be a lack of general awareness regarding the impact of sleep on various aspects of health and on assessment & management	Sx suggestive of sleep disorders are common, but not routinely screened in PC. Validated questionnaires can efficiently identify pts at risk for sleep disorders.
Sorscher (2008)	**VI/A**	Chart Review of ROS	Chart ROS screening tools							lack of time, reimbursement issues		lack of resources (for referrals for BH or sleep studies) AND lack of ROS dedicated to sleep within the chart	*at the time of the study did not feel medical institutes were giving sleep education to students	<50% of the charts reviewed addressed sleep in ROS or with questionnaires compared to 75% for exercise/diet and 100% for nicotine/alcohol use

Bailes (2009)	**VI/C**			X				X		Pressures for access to care and number of encounters		standardized screening tool	References other articles that cite lack of sleep education in medical schools.	A high percent experienced symptoms of poor sleep, but less than half had discussed symptoms with their provider *Good figure in the article.
Hassed (2012)	**VI/C**			X						lacked time and reimbursement and support from facility		lacked resources that could assist in idenfication	lacked education about sleep issues, assessment and management strategies	
Grover (2011)	**III/A**	2/3 did not routinely ask about sleep sxs							X	"competing agendas during an encounter"			*noted that in the past, medical education didn't include sleep medicine, but that now (2011) the ABFM added a certification in the Qualification of Sleep Medicine	Attributed poor assessment to lack of succinct assessment material; management was most frequenly based on patient preference.
Mold (2011)	**VI/A**			More than 1/3 at high risk for OSA per screener given by researchers, however <1/3 with symptoms have anything documented in their records							Guidelines and Systematic Approaches are needed	*Having a ROS that incorporates sleep symptoms		Author recommendation (in 2011) to have more clear and available CPGs and a systematic approach for assessment/identification (OSA, but extends to sleep issues)
Davy (2015)	**VI/B**				First-line default	Providers either weren't familiar or lacked resources	when sleep hygiene failed, providers went to hypnotics		*Pt preferences for management			Lack of coordination between resources (physicians not working with pharmicists)	lack of education at the medical schools; perceptions about management influencing instead of EBP	Both providers and patients wanted better training in management

Dyas (2010)	**VI/C**			Pts came in with already self-identified sleep issues			Predominant tx for two reasons: 1) pts tried managing on their own, so often came in wanting an RX and providers felt pressured to give Rx			time constraints			authors believe there is a lack of education was the biggest issue; perceptions about management influencing provider decisions instead of EBP	Expectations and assumptions existed for both patients and providers about options, especially medications for sleep management. Both needed more education such as CBT-I as a management option.
Siriwardena (2010)	**VI/C**						Perceptions of Rx for sleep; Comparing Z drugs to Benzos					"lack of sufficient dedicated resources to reduce rx"	lacked knowledge of alternative treatments to medications	GP attitudes were negative towards Rx and positive towards reducing sleep med prescriptions. Recommendation to provide resources that offere strategies for assessment and non-pharm management of patients presenting for insomnia. Both for those that it is a first time issue and those on long-term

Everitt (2014)	**VI/B**				GP find S.H. In-sufficient	Rarely offered in the UK d/t limited resources and/or lack of knowledge	Frequently used, including off label antidepressents like amitriptyline. Unsure if it is d/t provider preference or perceived patient pressure					Lack of CBT-I counselors or classes available		-
Cheung (2013)	**VI/C**				Highly Utilized	Not highly utilized	Highly Utilized			high patient volument; lack of reimbursement for BH	lack of clear referral pathways; lack of guidelines	lacking resources to incorporate CBT-I into PC	Possible provider perception that insomnia isn't an urgent matter; minimal education in medical schools	Four themes: 1) Role perspectives (their own and the other disciplines'); 2) clinical practice issue; 3) resources needed (education and new guidelines); and 3) patterns of pharm therapy use (sleep hygiene and pharm highly utilized, CBTi not)
Shepardson (2014)	**VI/B**			Pts came in with already self-identified sleep issues		*preferred individual to group therapy			Pt preference #1 (81%) was to deal with it on their own				Lacking education to be able to teach patients about benefits of working with BH and CBT-i	Veteran preferences regarding management; of those that were + on the ISI, only 44% had talked sleep issues with their providers. Of the entire sample, less than 1/4 had talked sleep with their provider.

Appendix D

Recommendations for Promotion of Sleep

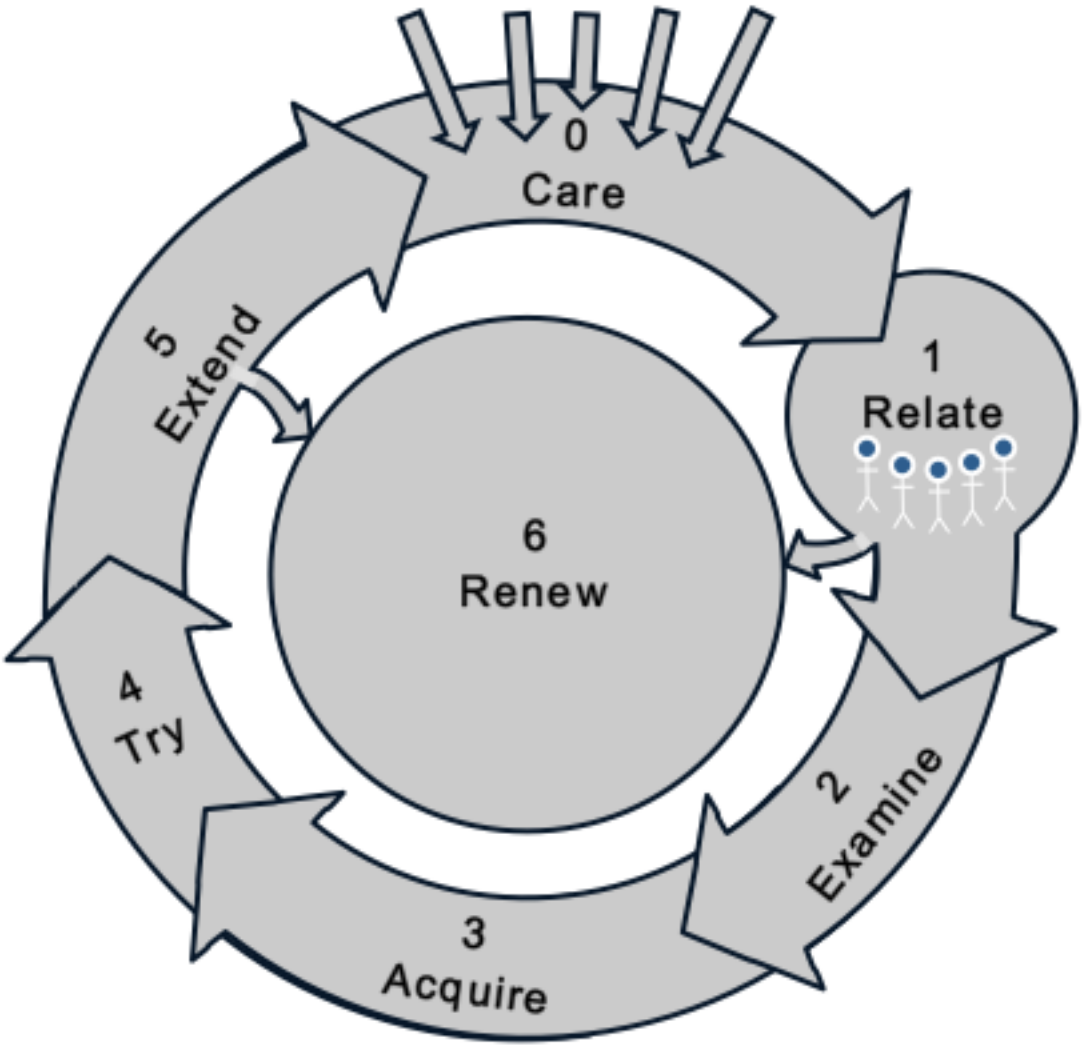
Table 7.1
Recommendations to Promote Sleep Health

Prevent Sleep Problems
1. Increase servicemember and line leader education about healthy sleep behaviors to increase self-awareness and knowledge about the factors that inhibit or promote adequate, restful sleep.
2. Fund or conduct research to perform longitudinal studies on sleep and effects on operational readiness and resilience.
Increase Identification and Diagnosis of Sleep Problems
3. Educate families on signs and symptoms of sleep disturbances as a way to bolster sleep detection efforts.
4. Improve screening for sleep disturbances in primary care settings, including the routine use of validated screening tools to identify those at high risk for the broad range of sleep disorders.
Clinically Manage Sleep Disorders and Promote Sleep Health
5. Develop provider education programs on preventing, identifying, and treating sleep disorders, with a focus on giving providers the latest findings in the field of sleep science to effectively advise patients on sleep issues and a focus on *prevention* as well as *treatment*.
6. Develop a clinical practice guideline for sleep disorders that specifically addresses sleep and discusses prevention, identification, and treatment of sleep disorders.
7. Increase the use of mobile technology for assessing and clinically managing sleep disorders, in particular to monitor sleep and alertness and to identify and manage sleep disorders before they become chronic or debilitating.
8. Continue to research evidenced-based practices for advancing healthy sleep in military populations (e.g., mindfulness, teletherapy) and establish guidelines for treating servicemembers and veterans.
9. Enhance dissemination of evidence-based sleep treatments (e.g., CBT-I, IRT) by training providers in primary care settings as well as behavioral health clinics.
10. Improve continuity of care of sleep disorder treatments, such as through the use of electronic medical records that link records across the deployment cycle.
Improve Sleep in Training and Operational Contexts
11. Make appropriate revisions to existing training and operational policies to minimize inconsistencies and align with current clinical guidelines about optimal sleep duration that recommend that the amount of sleep required among civilians is eight hours.
12. Educate line leaders on creating sleep plans that align with current research on circadian rhythms, consider the physical sleeping environment, and factor in shift schedules of roommates or tentmates when assigning duty.
13. Create standardized operational and training policies across DoD to increase sleep duration and quality and reduce fatigue-related impairment.
14. Link sleep-related surveillance data on mishaps to evaluate the role of sleep and fatigue.
15. Prioritize sleep in re-integration policies to offer servicemembers a period of recuperation during which they might be able to begin to return to normal sleep habits and potentially prevent the onset of chronic sleep problems that develop well after the initial re-integration period.
16. Disseminate positive messaging about sleep as an operational imperative (a vital sign, such as blood pressure) to increase awareness and reduce cultural barriers.

Note. Recommendations made by the RAND Corporation in the 2015 Sleep Study (Troxel et al., 2015)

Appendix E

Havelock's Theory of Planned Change



Note. The image has been modified from Havelock & Zlotlow (1995). There are seven stages in this framework starting with *Care*. *Relate* pertains to collaboration among stakeholders. *Examine* is where the clinical problem is defined. *Acquire* is where the project gains necessary resources. *Try* is the stage the course of action is determined and implemented. *Extend* is where the initiative gains wider acceptance and *Renew* refers equates to sustainability measures.

Appendix F

Sleep Questionnaire

1. What is your role in this clinic/unit? (Circle one)
   - Medic
   - Nurse Assistant
   - Licensed Practical Nurse
   - Registered Nurse
   - Advanced Practice Nurse
   - Physicians Assistant
   - Physician or Doctor of Osteopathy
   - Other (please specify)

2. What is the highest level of education you have received?
   - Certificate
   - Associate Degree
   - Bachelors
   - Masters
   - PhD/DNP
   - MD/DO

3. How many years have you practiced in your role/specialty?

4. Have you received any special training/education regarding sleep medicine? Y or N
a. If yes, please specify:

b. If yes, do you think the training/education improved your assessment and/or management of sleep disorders in your patients? Y or N

5. How frequently do you talk to your patients about their sleep health?
   a) every encounter
   b) if they bring it up
   c) during their annual check up or PHA appointment
   d) other: please specify

6. Are there certain triggers that prompt you to ask about sleep in your patients? (Please be specific for checked responses)
a. Chief Complaint
b. Certain signs or symptoms?
c. Positive review of symptoms?
d. Comorbid Diagnoses (e.g. depression, anxiety, PTSD, pain, obesity, other)

7. Are you aware of any guidelines for assessing, diagnosing, and/or managing insomnia?
Y or N

8. If "yes," which guidelines are you aware of?

9. If "yes," do you use these guidelines? Y or N

10. If you do not use these guidelines, please mark what your reasons are for not using the guidelines.

- Was not aware of the guidelines
- There are too many guidelines
- Time constraints
- Concern for RVU generation
- Guidelines are confusing
- Do not agree with the recommendations
- Was not aware sleep was an issue in the military population
- Lack of Resources available (please specify)
- Other:

11. What resources do you wish were available to you to help assess and/or manage sleep disorders with your active duty patient population?

12: Do you know of any validated screening tools used to assess for sleep disorders (e.g. insomnia, sleep apnea)? Y/N (if "yes," please specify the tool if and if you use it in your current practice, if no, please specify why)

a. Yes:

b. No, because:

- Was not aware of the sleep screening tools
- There are too many to choose from
- Time constraints
- I am not sure which tool to use for which type of sleep complaint
- I do not know how to use a sleep too
- Lack of Resources available (please specify)
- Other:

13. Have you ever asked anyone who came to you with sleep complaints to complete a sleep diary? If so, what did you have them include? If not, please select the reason(s) why:

a. Yes:

b. No, because:

- Was not aware of sleep diaries
- Time constraints
- I do not think it would help
- Lack of Resources available (please specify)
- Other:

14. Are there any other points regarding sleep that you would like to add for the inquiry team?

Appendix G

CITI Certificates

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

COURSEWORK REQUIREMENTS REPORT*

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

- **Name:** Melissa Boetig (ID: 4988854)
- **Email:** melissa.boetig@usuhs.edu
- **Institution Affiliation:** Uniformed Services University of The Health Sciences (ID: 395)
- **Institution Unit:** GSN
- **Phone:** 913-240-6591

- **Curriculum Group:** OUSD P&R Human Research (Current)
- **Course Learner Group:** Biomedical Investigators and Research Study Team
- **Stage:** Stage 1 - Biomedical Investigators

- **Report ID:** 16980205
- **Completion Date:** 08/22/2015
- **Expiration Date:** 08/21/2018
- **Minimum Passing:** 80
- **Reported Score*:** 98

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED
Records-Based Research (ID: 5)	08/22/15
Vulnerable Subjects - Research Involving Children (ID: 9)	08/22/15
Vulnerable Subjects - Research Involving Pregnant Women, Human Fetuses, and Neonates (ID: 10)	08/22/15
FDA-Regulated Research (ID: 12)	08/22/15
Basic Institutional Review Board (IRB) Regulations and Review Process (ID: 2)	08/22/15
Informed Consent (ID: 3)	08/22/15
History and Ethics of Human Subjects Research (ID: 498)	08/22/15
Social and Behavioral Research (SBR) for Biomedical Researchers (ID: 4)	08/22/15
Genetic Research in Human Populations (ID: 6)	08/22/15
Populations in Research Requiring Additional Considerations and/or Protections (ID: 16680)	08/22/15
Recognizing and Reporting Unanticipated Problems Involving Risks to Subjects or Others in Biomedical Research (ID: 14777)	08/22/15
Conflicts of Interest in Research Involving Human Subjects (ID: 488)	08/22/15
Avoiding Group Harms - U.S. Research Perspectives (ID: 14080)	08/22/15
Office of the Under Secretary of Defense (Personnel and Readiness) (ID: 912)	08/22/15
Module for Non-DoD Personnel Conducting Research Involving Human Subjects Supported by the DoD (ID: 16769)	08/22/15
Vulnerable Subjects - Research Involving Prisoners (ID: 8)	08/22/15

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

CITI Program
Email: citisupport@miami.edu
Phone: 305-243-7970
Web: https://www.citiprogram.org

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

COURSEWORK TRANSCRIPT REPORT**

** NOTE: Scores on this Transcript Report reflect the most current quiz completions, including quizzes on optional (supplemental) elements of the course. See list below for details. See separate Requirements Report for the reported scores at the time all requirements for the course were met.

- **Name:** Melissa Boetig (ID: 4988854)
- **Email:** melissa.boetig@usuhs.edu
- **Institution Affiliation:** Uniformed Services University of The Health Sciences (ID: 395)
- **Institution Unit:** GSN
- **Phone:** 913-240-6591

- **Curriculum Group:** OUSD P&R Human Research (Current)
- **Course Learner Group:** Biomedical Investigators and Research Study Team
- **Stage:** Stage 1 - Biomedical Investigators

- **Report ID:** 16980205
- **Report Date:** 08/22/2015
- **Current Score**:** 98

REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES	MOST RECENT
History and Ethics of Human Subjects Research (ID: 498)	08/22/15
Informed Consent (ID: 3)	08/22/15
Social and Behavioral Research (SBR) for Biomedical Researchers (ID: 4)	08/22/15
Records-Based Research (ID: 5)	08/22/15
Genetic Research in Human Populations (ID: 6)	08/22/15
Vulnerable Subjects - Research Involving Prisoners (ID: 8)	08/22/15
Vulnerable Subjects - Research Involving Children (ID: 9)	08/22/15
Vulnerable Subjects - Research Involving Pregnant Women, Human Fetuses, and Neonates (ID: 10)	08/22/15
FDA-Regulated Research (ID: 12)	08/22/15
Office of the Under Secretary of Defense (Personnel and Readiness) (ID: 912)	08/22/15
Conflicts of Interest in Research Involving Human Subjects (ID: 488)	08/22/15
Avoiding Group Harms - U.S. Research Perspectives (ID: 14080)	08/22/15
Basic Institutional Review Board (IRB) Regulations and Review Process (ID: 2)	08/22/15
Recognizing and Reporting Unanticipated Problems Involving Risks to Subjects or Others in Biomedical Research (ID: 14777)	08/22/15
Populations in Research Requiring Additional Considerations and/or Protections (ID: 16680)	08/22/15
Module for Non-DoD Personnel Conducting Research Involving Human Subjects Supported by the DoD (ID: 16769)	08/22/15

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

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Phone: 305-243-7970
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COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

COURSEWORK REQUIREMENTS REPORT*

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

- **Name:** Teresa Timms (ID: 4988945)
- **Email:** teresa.timms@usuhs.edu
- **Institution Affiliation:** Uniformed Services University of The Health Sciences (ID: 395)
- **Institution Unit:** Nursing
- **Phone:** 915-504-0424

- **Curriculum Group:** OUSD P&R Human Research (Current)
- **Course Learner Group:** Biomedical Investigators and Research Study Team
- **Stage:** Stage 1 - Biomedical Investigators

- **Report ID:** 16991682
- **Completion Date:** 08/24/2015
- **Expiration Date:** 08/23/2018
- **Minimum Passing:** 80
- **Reported Score*:** 92

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED
Records-Based Research (ID: 5)	08/24/15
Vulnerable Subjects - Research Involving Children (ID: 9)	08/24/15
Vulnerable Subjects - Research Involving Pregnant Women, Human Fetuses, and Neonates (ID: 10)	08/24/15
FDA-Regulated Research (ID: 12)	08/24/15
Basic Institutional Review Board (IRB) Regulations and Review Process (ID: 2)	08/24/15
Informed Consent (ID: 3)	08/24/15
History and Ethics of Human Subjects Research (ID: 498)	08/24/15
Social and Behavioral Research (SBR) for Biomedical Researchers (ID: 4)	08/24/15
Genetic Research in Human Populations (ID: 6)	08/24/15
Populations in Research Requiring Additional Considerations and/or Protections (ID: 16680)	08/24/15
Recognizing and Reporting Unanticipated Problems Involving Risks to Subjects or Others in Biomedical Research (ID: 14777)	08/24/15
Conflicts of Interest in Research Involving Human Subjects (ID: 488)	08/24/15
Avoiding Group Harms - U.S. Research Perspectives (ID: 14080)	08/24/15
Office of the Under Secretary of Defense (Personnel and Readiness) (ID: 912)	08/24/15
Module for Non-DoD Personnel Conducting Research Involving Human Subjects Supported by the DoD (ID: 16769)	08/24/15
Cultural Competence in Research (ID: 15166)	08/24/15

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid independent Learner.

CITI Program
Email: citisupport@miami.edu
Phone: 305-243-7970
Web: https://www.citiprogram.org

Appendix H

USU (VPR) Form 3202N (final copy from office of VPR)

UNIFORMED SERVICES UNIVERSITY
of the Health Sciences

OFFICE OF RESEARCH
4301 JONES BRIDGE ROAD
BETHESDA, MAYLAND 20814
PHONE: (301) 295-3303; FAX: (301) 295-6771

NOTICE OF PROJECT APPROVAL

Change Number: Original

VPR Site Number:	T0-GSN-61-8982-01
Principal Investigator:	Boetig, Melissa (GSN-61)
Department:	Graduate School of Nursing
Project Type:	Student
Project Title:	Sleep Restoration: A Primary Care Initiative
Project Period:	4/4/2017 to 6/30/2017

Assurance and Progress Report Information:

Name	Sup	Approval Type	Status	Approved On	Forms Received
Progress Report	0			To be Submitted	N/A

Remarks:
This Notice of Project Approval has been reviewed and approved. Please remember that you must submit a final Progress Report (Form 3210) upon completion of this project.

Questions regarding this approval should be directed to the following person in the Office of Research:
Ronda Dudley, (301) 295-9818.

Yvonne T. Maddox, Ph.D. Date
Vice President for Research
Uniformed Services University of the Health Sciences

cc: Boetig, Melissa (GSN-61)
Vernell Shaw
File
Wanda Hoggard
Linda Wanzer

Appendix I

MTF IRB/PI Letter of Determination

DEPARTMENT OF THE ARMY
MADIGAN ARMY MEDICAL CENTER
9040 JACKSON AVENUE
TACOMA, WASHINGTON 98431-1100

MCHJ-ISN

DATE: 26 October 2017

TO: CPT Melissa Boetig, Student DNP- FNP
FROM: Exempt Determination Official

SUBJECT: Not Research Determination
STUDY TITLE: Sleep Restoration: A Primary Care Initiative

REFERENCE #: 008
ACTION: Determination Letter
REVIEW TYPE: Not Research

1. This project has been reviewed and determined to be exempt from the regulatory requirements of 32 CFR 219.

2. This opinion is based on federal regulation 32 CFR 219 and associated OHRP (Office of Human Research Protection) guidance. The following is the basis for this opinion.

> Federal regulation at 32 CFR 219.102(d) defines research as a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge. Activities which meet this definition constitute research for purposes of this policy, whether or not they are conducted or supported under a program which is considered research for other purposes. For example, some demonstration and service programs may include research activities.

3. This project does not constitute research because the activity is a systematic investigation but is not designed to develop or contribute to generalizable knowledge (draw inferences or a general conclusion from) yet it does obtain information from living individuals to be used for clinician training purposes only. The goal of this evidence-based practice inquiry is to identify current practice, compare to clinical practice guidelines published by the American Academy of Sleep Medicine (AASM), and make recommendations to both JBLM clinicians and the Army Sleep Work Group in order to improve diagnostic accuracy and treatment outcomes for patients with sleep disturbances. You plan to use surveys to inform your educational efforts which will take into consideration provider knowledge about and current use of the AASM guidelines. This is a standard educational practice; surveys must be anonymous and completed voluntarily by clinicians attending your sessions. This project is determined to be “not research” and no further action is necessary. You may begin your project.

4. You are not authorized to take project data away from the institution.

5. Please note that any future changes to the project may affect its exempt status. In the event that the study requires any change, you are required to resubmit the study for another review in order to determine its exempt status.

MCHJ-ISN
SUBJECT: Not Research Determination

6. The Department of Clinical Investigation (DCI) reminds you that a publication clearance is required for all written materials (i.e. manuscript, abstract, or slides) being submitted for publication/presentation.

7. If you have any questions, or need further assistance, please contact the undersigned at 253-968-3695, or e-mail at mary.s.mccarthy1.civ@mail.mil.

[redacted]

MARY S. McCARTHY, PhD, RN, FAAN
Exempt Determination Official
Center for Nursing Science & Clinical Inquiry
Madigan Army Medical Center

DEPARTMENT OF THE ARMY
HEADQUARTERS, CARL R. DARNALL ARMY MEDICAL CENTER
36065 SANTA FE AVENUE
FORT HOOD, TEXAS 76544-5060

MCXI-HET-GM 19 September 2017

MEMORANDUM FOR MAJ Teresa Timms, AN, 563 CR 4756, Kempner, TX 76539, Teresa.timms@usuhs.edu

SUBJECT: Not Research Determination of Your Project, "Sleep Restoration: A Primary Care Initiative"

1. Thank you for submitting your project, "Sleep Restoration: A Primary Care Initiative".

The proposed activity does not meet the definition of research as defined in 32 CFR 219.102(d) as it is not generalizable. This project intends to provide evidence based sleep restoration management education for primary care providers and clinic staff at a Fort Hood clinic. A baseline assessment of clinical staff knowledge and practices related to identification and management of insomnia and sleep related problems will be performed. Data will be collected through focus groups of clinic staff to identify when and how sleep related specialist referrals are made. Based on staff responses to the focus groups, a sleep restoration management course will be developed to address gaps in staff knowledge as well as provide an easy to use, evidence based, algorithm to aid in care management. Submission of an IRB research application is not required.

2. Any manuscripts resulting from the project described must be submitted for review and clearance prior to publication IAW CRDAMC's local publication clearance policy. Many journals are interested in publishing projects that are not research. If you do decide to publish your findings, please use paragraph headings such as: "issue," "procedures for collecting and evaluating information," "information found," "lessons learned," etc. and avoid using headings such as "research questions or hypothesis," "methods," "results," "study limitations," etc.

3. For any questions or concerns, please contact the undersigned, Interim HPA for CRDAMC, at Martha.s.alvarado.civ@mail.mil or by phone at 703-681-5702.

Martha Alvarado, MPH, CIP
Research Ethics and Compliance Officer
Army Human Research Protections Office
(AHRPO)

Appendix J

PAO Clearance/Level of Dissemination Classification

CLEARANCE REQUEST FORM v5.2

Requirements based on MAMC Reg 360-2 = http://go.usa.gov/xkMbx

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Attach approval documents by clicking Edit PDF to the right, and then link button on top menu.

Submission Title*: Sleep Restoration in the Active Duty Population

Submission Type*: Conference presentation

Subject Type*: (●) Human Subjects Only ( ) Animal Subjects Only ( ) Other:

Authors:

Melissa Boetig, AN-BC; Teresa Timms, AN-BC

Enter all authors in the form of firstname lastname, suffix, separated by a semicolon (;).

First Madigan Author:

Email: melissa.boetig@gmail.com

Dept/Serv: Family Medicine

Other: MCED DNP-FNP student

Chief Email: tommy.l.thompson58.mil@mail.mil

Destination of Item:

USUHS Research Week, 13-18 May 2018, Bethesda Maryland

Journal name or Conference, Date, Location or Destination (whichever is applicable)

Protocol/Determination # *Enter protocol/determination number*

Funds requested?* (●) No ( ) Yes

Provide Author's signature and Author's Department chief on the next page before submitting.

Signature of author:

[redacted]

Signature of Department Chief;

[redacted]

Signature of Public Affairs Officer rep:

[redacted]

Signature of OPSEC rep:

[redacted]

Signature DCI Administrator:

[redacted]

Human Protections Administrator/Veterinarian (If required):

Chief, DCI [redacted]

DEPARTMENT OF THE ARMY
HEADQUARTERS, CARL R. DARNALL army MEDICAL CENTER
36065 SANTA FE AVE
FORT HOOD, TEXAS 76544-4752

REPLY TO
ATTENTION OF:

19 APRIL 2018

MCXI-CS-PAO

MEMORANDUM FOR RECORD

SUBJECT: Approval of Presentation Materials – MAJ Teresa Timms

1. In accordance with AR360-1, the presentation materials, *Sleep Restoration in the Active Duty Population* submitted by MAJ Teresa Timms to be presented at CRDAMC Nursing Grand Rounds, Scott & White Health Medical Center Campus, and USU have been reviewed.

2. Materials were reviewed at the local level and found to contain no objectionable material.

3. Recommend inclusion or attachment of disclaimer if the student will use a title or other identification connected with DOD. Disclaimer: "the views expressed in this paper are those of the author and do not reflect the official policy or position of the Department of the Army, DOD, or the U.S. Government."

4. Reviewed materials are cleared for release.

5. POC for the above information is the undersigned and can be contacted at (254) 288-8005 or email mikaela.t.cade.civ@mail.mil.

MIKAELA T. CADE, MPPA
Public Affairs Officer

Appendix K

DNP Project Completion

Appendix J: Daniel K. Inouye Graduate School of Nursing
DNP Project Completion Verification Form

DOCTOR OF NURSING PRACTICE PROJECT
Completion Verification Form

The DNP Project titled: Sleep Restoration in the Active Duty Population was completed at Fort Hood, TX and Joint Base Lewis McChord, WA by the following student(s):

(type student name)	*(signature)*	*(date)*
Teresa Timms	[redacted]	5/2/18
Melissa Boetig		5/2/18

The DNP Practice Project Team verifies that the following components of the DNP project, accomplished by the above students, is of sufficient rigor and demonstrates doctoral level scholarship to meet the requirements for USUHS GSN graduation:

- Presentation of DNP project to the leadership/stakeholders at the Phase II Site,
- Abstract/Impact Statement (*Appendix F*), and
- DNP Project written report.

Verified by:

(type name)	*(signature)*	*(date)*	
Dr. Diane Seibert	[redacted]	9 May 18	Senior Mentor
MAJ Sheila Medin		9 May 18	Team Mentor
LTC Tommy Thon		9 May 18	Team Mentor
			Team Mentor

Form Version: 26 Aug 2017