

IMPROVING THE PRACTICE MODEL IN A MILITARY CLINIC

A Scholarly Project

Presented to the

Faculty of Liberty University

In partial fulfillment of the requirements for the Degree of

Doctor of Nursing Practice

By

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ABSTRACT

Military members and their families face numerous stressors due to the unique lifestyle of this career (Lester, 2011). The occupational impact on these members creates a highly stressful and physically demanding environment with low morale, chronic medical complaints, and poor mental health for these individuals. This project incorporated the current patient-centered medical home (PCMH) model and fused it with the operational medical model for all the active duty members in this unit. The combination of models allowed the provider to have a better understanding of the population's needs. By embedding in the units, the provider developed a team approach to disease prevention, health awareness, injury reduction, and allowed for better access to care. The team and leadership worked together and determined the needs of the population and developed a plan to meet those needs.

Keywords: Active Duty medicine, operational medicine, military medicine, Special Forces medicine.

Copyright

Dedication

This scholarly project is dedicated to my amazing husband who not only supported me, but also pushed me to become the very best I could be and never let me give up. All I am and all I strive to be is due to your belief in me. To my beautiful daughter, Nicole who stood beside me and always reminded me of the importance of service before self. I could not have accomplished this without the two of you. I love you both very much.

Acknowledgements

To the men and women of this elite air craft maintenance unit who sacrifice so much to ensure our freedoms and protect this great nation.

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List of Abbreviations

Patient-centered medical home (PCMH)

Doctor of Nursing Practice (DNP)

Military Health Services (MHS)

Veterans Administration (VA)

Primary Care Manager (PCM)

Military Adolescent School Health Institute (MASBHI)

Healthcare Effectiveness Data and Information Sheet (HEIDUS)

Nurse Practitioner (NP)

Hemoglobin A1C (Hem A1C)

Low-density Lipoprotein (LDL)

Coronary Artery Disease (CAD)

Primary Care Provider (PCP)

Department of Defense (DOD)

Aeromedical Services Information Medical System (ASIMS)

Data Analysis Response System (DART)

Institutional Review Board (IRB)

Resource Management Officer (RMO)

SECTION ONE: INTRODUCTION

“I am a soldier, I fight where I am told, and I win where I fight,” General George Patton (Mead, 2017). This statement identifies the mentality of the aircraft maintainers stationed at a local Air Force Base. This proud unit is responsible for the elite “Strike Eagles” F15 fighter unit. This group of dedicated members accomplishes the security of this nation by their commitment and dedication to train, practice, and execute their mission. Just as a marathon runner trains for a competition, these airmen train daily in preparation for the challenges faced by today’s military. To be a success, this unit must be driven, focused, and willing to sacrifice. This scholarly project has enhanced the ability of these members to seek both mental and physical health care by embedding a medical team within the unit to improve both the quality and access to care. These amazing individuals dedicate their lives to ensuring we as American citizens can practice our beliefs and live as followers of Christ.

Background

This aircraft maintenance unit has a population of 1,100 members. The unit’s leadership has noticed a considerable amount of occupational impact to its members, which is demonstrated in the population’s health by an increase in the obesity rate, physical fitness test failures, chronic diseases, alcohol misuse, anxiety, and depression. Unfortunately, balancing the nation’s budget, military cut backs, and a 17-year war has created a significant impact on our military forces. This unit may work 12-14-hour days and weekends, and have alternating work shifts, deployment tasking every twelve months, low manning, and work in extreme weather environments. These stressors impact not only the members who serve but the families that support them.

Challenges/Opportunities

The challenge for these members to acquire medical care is two-fold. The first challenge is the mission. These maintainers are required to resupply and inspect each plane post flight and have the plane ready for the next flight within three hours. The unit is required to ensure a specified number of flying hours are obtained for not only training requirements but also mission necessity. This constant state of production must be preserved in the midst of low manning, harsh weather conditions, and recurring deployments, which requires the entire force to work at 120%. The second challenge is the location of this unit. This unit is located on the far end of the base at the flight line. In order for these members to attend one medical appointment, they are required to give a hand-off of their plane to another member, return their toolbox across the flight line, verify all tools are accounted for, change out of their coveralls and into their uniform, walk to their car which is parked a quarter of a mile from the flight line, and drive across the base. According to the unit's leadership, one 15-minute medical appointment will cost the unit an average of two hours, and for this unit, mission comes first. An opportunity to improve the health of this unit was to have the medical team on-site two days a week to provide medical care. By providing this change, the members only needed to walk inside the hanger and be evaluated. The 15-minute appointment now only cost the unit 15 minutes. Currently, this unit has the highest no show rate for medical appointments which is costly for the medical group. This practice change is a benefit for both groups: for the unit by reducing lost manning hours and for the medical group by reducing unused appointments.

Implications for Practice/Health Care Outcomes

An evidence-based project for the family practice clinic was the enhancement of the current patient-centered medical home (PCMH) model used at this facility for the benefit of the maintenance unit. The current operational tempo coupled with the stressors related to military

life has placed enormous mental and physical stress on these members. The demanding work environment of this unit has created low morale, chronic medical complaints, and poor mental health for these individuals. PCMH is a great model for preventative health, but it is geared toward the civilian community (Winsor, et al., 2013). Although PCMH's focus is preventative medicine, it does not consider the unique challenges of some of the special units in the military. The military uses a unique model for their flyers and special operators, which is the operational model. Although the flyers in this unit are cared for through this operational model, no consideration has been given to these maintainers who face similar demands and stressors to the pilots. The findings of a study completed on a C-17 aircrew demonstrated that the ground crew experienced the same occupational stressors as the pilots, yet only pilots are entitled to this type of proposed medical care (Chappelle, et al., 2014). This is a major oversight because of these maintainers this elite F-15 force can fly and protect this nation. The practice change for this project was to combine the preventative health measures of the PCMH model with the operational model focused on continuity with the primary care manager (PCM) and embedding the medical team in the unit.

Why This Topic Should Be Evaluated Further

The advanced practice nurse can significantly impact this type of unit by changing how medical care is provided. Research has established that to obtain military mission readiness, the member's health must include occupational health support, strategic alignment through committed leadership, organizational and functional alignment, and management of health and safety information (Erdman, 2016). This article highlights the need for an organizational alliance to manage health and safety (Erdman, 2016). This unit ensures the security of our nation through their hard work and dedication to their mission. To improve the quality of life for these

members, an alliance between the medical group and maintenance group must be developed.

These members need all the available resources to ensure they can successfully complete their mission.

Problem Statement

The project was focused on improving the overall medical care provided to this maintenance unit. Due to the numerous deployments, long hours of physical labor, and harsh weather conditions, the leadership has noted poor health perceptions in the members, an increase in depression and anxiety symptoms, and an increase in physical fitness test failures. Physical fitness is a major component in the military's ability to sustain its mission: four fitness failures will result in administrative discharge for the member. Many of the members have limited education or other technical training to support themselves or their families. The additional loss of manning could jeopardize the ability to sustain the current state of readiness for this unit. The project decreased the unit's lost manning hours related to the logistics of the flight line and increased the member's access to medical care. The goal of this project was to increase the population's health noted in a reduction of physical fitness test failures, a reduction in the appointment no show rate, and an improvement in the unit's readiness statistics.

Purpose of the Scholarly Project

The purpose of this evidence-based project was to determine whether the combination of the PCMH and operational medical model directed by the nurse practitioner for this maintenance unit will decrease the medical appointment no show rate, reduce the number of physical fitness failures, and increase unit's readiness (ability to deploy).

Significance of the Scholarly Project

This unit needs a change in the way medical care is provided. In 2017, an analysis evaluated the population's health. This analysis performed by Wright-Patterson Air Force Base noted high levels of stress, emotional exhaustion, disrupted sleep, lack of physical exercise, increased caffeine and alcohol consumption, tobacco abuse, and chronic muscle/skeletal pain such as neck, knees, back, and shoulders. The significance of this project was to impact the mental and physical health for those who protect this nation. These members need quality medical and mental health care that is obtainable while they continue with their mission. This type of care concept has been proven to be effective with special units like this one (Tein, 2011). With so many new threats emerging in this world, we need to ensure our military members have the best and most accessible medical care to allow them to continue the fight.

Clinical Question

For the aircraft maintenance squadron, does the use of an embedded operational approach as compared to the current patient-centered medical home model at the clinic decrease lost manning hours and physical fitness failures while increasing access to medical care and mobility readiness?

SECTION TWO: LITERATURE REVIEW AND SYNTHESIS

For this project, the acronym of PCMH is the patient-centered medical home medical delivery model. The model provides care to its population that is patient-centered but provider-driven. The overall goal of this approach to medicine is focused on preventative health. Another term used in the project is operational medicine. Operational medicine is defined as a medical model that provides healthcare in an unconventional setting and tailored to the special needs of the specified population.

For this project, the term squadron is defined as a group of military members belonging to the same operational unit. The term aircraft maintainer or maintainers are military members who work in the maintenance squadron. This unit is charged with the routine maintenance and repair of the F-16 strike eagle aircraft. Each unit is trained on the specifics of its plane. These units work together, train together, and deploy together. For members to train and deploy, the member must be mobility ready. The term mobility ready or readiness is contingent on each member's mental and physical well-being. Various medical conditions, certain medications, fitness failures, or administration actions can trigger a 'code 31' to be placed on a member. This code makes the member ineligible for deployments or trainings. The term physical fitness testing is a test which is required by all military members every six months to determine if the member is physically fit for military duty. The test is scored by gender and age. The test measures the member's ability to complete a one-and-a-half-mile run, sit-ups, push-ups, and waist circumference at a specified time.

Conceptual Framework

The Iowa Model was the conceptual model for the project. Initially the Iowa Model project was developed as a research utilization tool for the University of Iowa Hospitals. It was later refined to guide the implementation of evidence-based projects at an organizational level (Schaffer, 2012). The model guided change related to the current evidence with emphasis on the entire healthcare system at an organizational level (Bergstrom, 2012). The model gave a framework for evidence-based projects to provide the project with direction and structure. The model was a blend of the Transforming Care at the Bedside, Transtheoretical Model of Change, and Institute of Medicine Aims (Hall, 2014).

Theoretical Framework

The conceptual framework used in the project is Neuman's Systems Model. The model was developed by Betty Neuman and published in 1974. The model provides a framework that allows the nurse to provide care in a holistic perspective. The model is founded on the patient's relationship to stress, the reaction to stress, and rebuilding factors that are vibrant. The model was designed to be adaptive to a variety of circumstances, and to be interpreted in many ways. The core philosophy to this theory is derived of energy resources that are surrounded by three items: several lines of resistance (these can be internal factors assisting the patient to resist the stressors); the normal line of defense (that is known as the patient's equilibrium); and the flexible line of defense (that is the vibrant nature that can quickly change in a short amount of time). The model encourages the nurse to be active in keeping the system stable by using the three levels of prevention. The first level is primary prevention; this level protects the normal line and strengthens the flexible line of defense. The secondary level works to strengthen the internal lines of resistance, which decreases the reaction and increases resistance factors. Last is the tertiary prevention which readapts, stabilizes, and protects the patient's return to wellness after treatment.

Search Strategy

The goal of this project was to enhance how medical care was delivered to this specified population. The literature search topic was focused on medical practice models and their impact on their population. The databases used for the literature search are as follows: CINAHL, Medline, and Military and Government Journal. The keywords used in the search were as follows: "PCMH," "Operational medicine," "military providers," and "special operation forces." The date criteria set for this search was 2008 to present. A total of 859 articles were used for this

project. The inclusion criteria for these articles were noted as: material published within the last 5 years, written in the English language, having relevance to the project as not all civilian operations will meet the military requirements, full text, peer reviewed, expert opinions will be credentialed and demonstrate their expertise. Exclusion criteria were articles that had a narrow application, could not be utilized in a military setting, journals that were focused on operational cost as the clinic budget and finances are not in the scope of this project due to the military setting, and literature of an expert opinion that was not well-cited and the credentials were not established. After applying exclusion criteria, there were 14 studies remaining. Of these, two were quantitative, seven were qualitative, and five were expert opinion studies.

Critically Appraising the Literature

PCMH.

For the PCMH concept, six articles were reviewed. Five were research studies and one an expert opinion. Fandre (2012) provided the expert opinion. He ensured his credentials and his professional experience were well-cited in the article. Fandre (2012) stated the PCMH model requires accurate enrollment and continuity for meaningful interpretations of these metrics. This project is geared to enrolling with one primary care provider and promoting total continuity of care, which is the true foundation of PCMH. The outcome of the proposed project should be similar to the expert's conclusion as the author's focus was on the military health system and not a civilian population.

The five studies chosen for this review on PCMH did not use a randomized sample. The lack of randomization may promote bias and limit generalization, which may alter the intended outcome of the proposed project. Dawson (2015) completed a study on an innovative way to use the PCMH model in school with military dependents. Dawson (2015) only used three

schools in the local area of San Antonio, Texas. Unfortunately this choice limits the findings and the ability to generalize the results. Roseland (2107) completed a longitudinal observational study on the benefit of PCMH on chronic diseases. Roseland (2017) determined significant improvement in the chronic disease metrics with the use of PCMH, but an observational study is subjective and may promote the potential of bias in the study.

Howard, Etz, Crocker, Skinner, Kellecher, Hahr, Miller, and Cracklin (2016) produced a qualitative study on choosing words wisely in the PCMH model. Qualitative studies are a weaker study approach due to the subjective content and potential of bias. The study was based on a civilian population may alter the intended outcome as the needs of the military population differ greatly.

Flieger (2017) provided a qualitative study on relationships in the PCMH model. A qualitative study is more subjective, and it was not a randomized study which could promote bias. The study concluded that emphasizing relationship-centered care requires attention to reflection, learning, and collaboration within the team. One of the major tenets of PCMH is collaboration which substantiates these findings.

Wong, Roaland, Fihn, and Nelson (2016) also provided a study on the PCMH model in primary care at a Veterans Health Administration (VA). Wong, et al. (2016) noted the study was funded by the VA. The authors also noted that Dr. Wong and Dr. Roslan are supported by a VA Health Services Research and Development Career Award. This could result in bias. Observational studies are also subjective. This again raises a concern for the validity of the study, as an observational study is subjective to the researcher's view. The study was used because the population of the study was a veteran-based population. The findings are consistent with other studies which demonstrate increases in PCM visits connected to PCMH were greater

among patients with higher comorbidity. Health systems implementing PCMH should account for the population-level comorbidity burden when planning for PCMH-related changes in PCM utilization. Although the aforementioned studies have the potential of bias due to the lack of randomization, the studies do demonstrate that PCMH can promote innovation, collaboration between patients and the medical team, and produce health benefits for patients with chronic disease.

Access to care.

Three articles used in the review lacked in randomization of the sample selections, which can promote bias and limit generalization of the findings. Leroux, Cote, Kun, Dabney, and Wells (2017) developed a cohort study that focused on the Navy. This narrow focus limits the findings, as each corps is unique. The study demonstrated a slight improvement in access to care in a Navy facility which brings the possibility of improvement with access to care by embedding the medical team in this unit.

Savage, Lauby, and Burkard's (2013) mixed study design had a very limited focus area, which limits generalization of the findings. The qualitative portion of the study has the potential of bias as it is more subjective. Hudal, Julian, Kyle, Dorrane, and Ranchendain (2013) developed a case study, which is subjective and can promote bias. All three studies lacked the randomization needed to allow the findings to be generalized. Although the lack of randomization weakens the studies, all three determined the same conclusion: access to care is improved with the PCMH concept.

Nurse practitioner.

Two articles selected for this project used a nurse practitioner. O'Neil (2018) provided a case study on the Royal Air Forces use of a nurse practitioner in an alternate health facility in

support of military training. Case studies are subjective and may promote bias. A convenient sample was used which limits the generalization of the study. In all cases reviewed, a nurse practitioner was the sole provider managing the medical care. Brino (2013) provided an expert opinion on the use of nurses and physicians' assistants in the PCMH model. Brino (2013) provided his credentials, which validate him as an expert in this field. The cited material was focused on the military health system which generalizes his finding to the population of interest in this project. Although the potential for bias is a concern in the studies provided by O'Neil (2018) and Brino (2013), both studies clearly support the use of nurse practitioners in the military setting, as they are versatile and can easily fill the gaps left by physicians.

Operational medicine.

All three articles selected for this review were an expert opinion. All three articles were well-cited, and the author was validated as an expert in his field of study. Llewellyn (2017) provides information on the other branches of service and how those sources utilized the operational medicine concept in practice, but no information was provided on the Air Force units. Perez (2013) is a physician who is the current director of the Dominican Central Armed Forces Hospital. The Dominican Central Armed Forces is clearly not the United States military, but the life style and work environment may be similar. Tien (2011) cited a population which was the Canadian military. This is a military population but a different country from the proposed population which could impact the outcome of the project. Tien (2011) stated that understanding the cause of the injury can assist with prevention. He also encourages the medical provider to build collaboration with the unit's leadership and their members (Tien, 2011). Although the articles were not geared towards the United States Air Force, they all are related to

the general military population and therefore should be considered in the review regardless of their origin.

Summary of Literature

Military medicine is not a ‘one size fits all’ (Perez, 2013). Research of the literature clearly acknowledges that the needs of the various populations must to be considered. For medical to truly focus on population health, the team must understand that different units, different squadrons, and different bases all have unique missions, and we must consider how those missions impact the health and well-being of troops. This again, establishes the need for embedding the medical team into this unit, as the team will be able to experience first-hand the challenges of the unit. The PCMH model is considered a holistic multidisciplinary approach to providing care. Holistic care may only be accomplished by a solid understanding of the population. It is important to develop medical providers to understand these challenges and adapt the medical care accordingly (Perez, 2013). Health research and innovation in the military medical system is a critical key to minimizing the loss of life and/or disability (Tien, 2011). We know the operational approach to medicine works in special operation units and with the flying community, but this approach to medical care has not been applied to the men and women who support those units. Research has demonstrated that the supporting members face the same stressors as the pilots, yet only the pilots are afforded this type of medical innovation (Chapelle, et al., 2013). It is time to make a change.

Synthesizing Research

The research has demonstrated that medical care should be enhanced by an innovative approach to the PCMH model. Perez (2013) discussed the unique nature of the military and the military health system. He encourages the health care system to focus on the value of military

readiness or a member's ability to deploy. The article suggests that the inability to quantify the value of readiness in a monetary means prevents the ability to compare the military system to the civilian system. Simply put, dollar amount cannot be placed on the military's ability to respond to threats to this nation. Basically, the foundation for the military health system is to ensure the member is 'fit to fight'. Military healthcare providers are trained to evaluate members medically to ensure they can deploy safely to a combat zone both mentally and physical. Numerous medical conditions and physical limitations can prevent a member from deploying. These conditions reduce the military's readiness or ability to go to war. A civilian clinic works to make a monetary profit; military clinics focus on ensuring the member's readiness regardless of the cost. To enhance the military provider's ability to sustain a ready force, focus should be placed on working with the line (unit) commanders (Perez, 2013). No matter how beneficial medical models such as PCMH are internally, if the unit commanders are unable to maximize readiness, the system will fail (Perez, 2013).

Another study concluded that emphasis should be placed on relationship-centered care (Flieger, 2017). This concept encompasses the medical team working as a unit, the patient-team component, and the medical team-unit leadership component. All three will be critical for the success of the project. The team-based care offers significant opportunity to go beyond relationships and collaboration (Flieger, 2017). The study recognizes implications to acknowledge PCMH implementation is not a linear process. Research continues to suggest taking medical care outside the four walls of the clinic. A study was reviewed which took the PCMH model outside the clinic. The project was called Military Adolescent School Based Health Initiative (MASBHI). While using the PCMH model, the medical team was embedded in the school to promote the physical, behavioral, and emotional well-being of the military

dependents enrolled at those schools. The study reviewed 1,112 students and concluded that when using this innovative way of medicine, students were three times more likely to get vaccinations (61% vs. 23%). The study also demonstrated that students received wellness exams 61% of the time (20% more than 41% of the general population in the schools). The model has a decrease in utilized clinical time due to a decrease in no show rates: 2% vs. 12%. The study determined the program saved 2,949 in lost student hours of schools and 1,966 lost military hours for their parents. The study concluded the nation needed a call for and improvement in military and community collaboration on behalf of increasing the quality of life of our nation's warriors and their families (Dawson, 2015).

Perez (2013) also focused on some of the challenges in the military health system such as availability of support staff, patient and staff satisfaction, HEIDUS metrics, and ER utilization, all of which needs to be considered while implementing this project. The project was geared toward enrolling the unit's members with one primary care provider and promoting total continuity of care which is the true foundation of PCMH. Continuity of care has not been the focus for this medical group. Continuity will be the foundation for providing care to these individuals.

A major tenet of the PCMH model is access to care. A study utilized 21 United States Navy primary care clinics to determine if utilizing the PCMH model will increase access to care for enrolled patients. Although there were statistically significant differences in appointment availability pre- and post certification, the differences were so small that patients may not have noticed a difference. The study demonstrated that only minimal improvements in appointment availability will be noted with this model (Leroux et al., 2017). Research on a Navy not Air Force population was conducted which may alter the outcome. The high tempo of the project's

unit limits the members' ability to receive medical care during the duty day. By providing these appointments on the flight line, access to care will be increased.

Utilizing portions of the PCMH model such as the patient-centeredness and preventative health promotion and embedding those concepts within the unit, may enhance the medical care received by these individuals by tailoring the care to the unit's specific needs and increasing the patient's access to care. A case study completed on the military health system with the overall goal of providing better quality in care that is accessible, and cost-effective. The study concluded that patient self-management would be increased by better communication with patients and the medical team (Hudal et al., 2013). The article states the model requires a development of trust and a strong provider-patient relationship. The article also determines several key factors that were identified for success of the model which were: access to care, changing to proactive patterns, offering an after-hours clinic, setting clear expectations for performance, and enhancement of continuity (Hudal et al., 2013).

Care for each unit should be tailored to the population it serves. Performance metrics are focused on access to care, patient-centered care, cost, staff satisfaction, and patient satisfaction. The concept must balance military readiness by population health outcomes and the patient experience. The article determined the concept was designed to adapt to the population's needs by grouping these units into the unique populations and determining the trends that need to be addressed (Hudal et al., 2013). Two major tenets of PCMH is access to care and population health; by grouping this unit with one provider and embedding into that unit, full implementation of the tenets was accomplished.

The PCMH model is considered a holistic multidisciplinary approach to providing care. Savage, Lauby, and Burkard (2013) describe the comparison of access to care, emergency room

visits, and the population health management. The result was a seven percent increase in access, a decrease in emergency room visits by 75.3%, and an improvement in the Healthcare Effectiveness Data and Information Set (HEDIS) metrics. HEDIS metrics are used by the military health system to measure the population's health. The survey also noted that 75% of the staff reported job satisfaction. The article stated that access and continuity are major factors for the improvement of the population's health (Savage et al., 2013). The project's goal was to improve the access by providing appointments on the flight line reserved for this unit only. Continuity assured by the empanelment being assigned to one provider and the minimization of cross-booking. Savage et al., 2013 concluded that access can influence continuity, and with continuity comes a decrease in emergency room usage and becoming proactive with health (Savage et al., 2013).

The project utilized a nurse practitioner to develop and manage the medical team within this unit. Brino (2013) focused on nurse practitioners and physician assistants being utilized more in the military health system to decrease the need for physicians. The author discussed how the military is struggling to get physicians to serve in the armed services. The PCMH model allows better utilization of the physicians, as they are expected to take the more challenging cases. The nurses and physician assistants are employed as primary care managers and direct the medical care for those empaneled to them. The team utilizes a registered nurse, a case manager, a disease manager, and a healthcare integrator to help facilitate the care of those enrolled. The concept of the PCMH model is to utilize all means necessary to manage the healthcare needs of the specific population and adapt the care to that population (Brino, 2013).

Brino's (2013) work clearly demonstrates the need to group similar units together and allow each primary care manager to direct the care for the needs of that population. The

previous status quo of this medical facility was to place new patients with the next available primary care manager. By grouping units, the primary care manager will better identify trends and better manage their population.

Another study located for this project was a case study conducted by the Royal Air Force which evaluated an off-site health care facility developed to support training exercises. The staff provided 24-hour medical care. The team consisted of two nurse practitioners (NP), a registered nurse, a medical technician, and x-ray technicians. The one-month trial demonstrated the NP was fully capable of managing the primary care and emergency needs of this unit. The concept allowed the members to remain at the location and continue with their mission. Completed a second exercise. Again, the NP managed an array of illnesses and injuries on-site. The NP also cared for a few critical injuries which she successfully coordinated air transport. The exercise demonstrated the flexibility of the provider and the need of the medical team. The United States Army recognized NPs as ‘providing world class primary health care’ (O’Neil, 2018). The researcher concluded that success was demonstrated in the utilization of a NP-led clinic in both the United States military and internationally. The researcher stated NPs are being recognized as important health resource in the Air Force which can lead to more effective utilization of their skills during combat and peace time operation (O’Neil, 2018).

The researcher goes on to discuss the versatility of NP’s in this setting. The researcher highlights the flexibility of nurses and how they can be utilized in more innovative ways to provide better care for the military members. The article demonstrates why the use of a NP verses a physician would be better suited for this project by highlighting the flexibility of this core. The article also demonstrates in both cases how the embedding of the medical team can minimize lost training time and allow for completion of the military mission.

A longitudinal observational study on the relationship between the qualities of care related to the PCMH model was completed. The study used 77 clinics which promoted most components of PCMH. The clinic with the PCMH model in place had significantly larger improvements in five of seven chronic diseases. BP was < 160/100 in diabetes, ranging from 1.3% to 5.2% of the patient population meeting measures, and two of eight process measures (HbA1c measurement, LDL measurement in CAD) than the 69 clinics with the least PCMH components (Roseland, 2017). Clinics with moderate levels of PCMH components showed few significantly large improvements than the lowest PCMH clinics. Veterans' Health Administration primary care clinics with the most PCMH components utilized in the clinic in 2012 had greater improvements in several chronic disease quality measures in 2009-2013 than those only utilizing a few components (Roseland, 2017). The project was geared toward emphasizing all the components of PCMH.

Howard (2016) suggested that medical teams should maximize the benefit of the patient-centered medical home model. Howard (2016) reviewed 10 innovative practices and interdisciplinary content experts to discuss innovative practice redesign. The author determined that to facilitate change (such as the proposed practice change) an openness to change is required (Howard et al., 2016). True transformation needs to be embraced and rooted in the team. New terminology must represent the values of all those involved (Howard et al., 2016). For this project, the medical team was a part of this population's daily activities, which drove the medical team's ownership of this unit. The medical team was open to change and willing to embrace this concept which allowed the team to step outside of the clinic walls and provide medical care.

Wong, et al (2016) discussed how five medical practices noted that the type of language used with patients may support the patient's health improvement. Terms were selected to

develop creative patient-centered medical home implementation in the Veterans Health Administration and primary care use. The medical practices felt language was important for reinforcing changes in a patient's medical condition. The practices also noted that the PCMH model improved care to patients with chronic disease as it focuses on preventative health. PCMH was associated with greater PCM visits starting at four per quarter following implementation for high- and low comorbidity patients, respectively. Changes were larger for high comorbidity patients (eight to 11 greater visits per 1000 patients per quarter). Among patients age < 65, PCMH was associated with greater visits for high comorbidity patients starting eight quarters following implementation, but fewer visits for low comorbidity patients in all quarters. The difference in visit changes across groups ranged from 18 to 67 visits per 1000 patients per quarter many of these members suffer from chronic disease such as prediabetes and obesity. Increases in PCM visits connected to PCMH were greater among patients with higher comorbidity. Health systems implementing PCMH should account for population-level comorbidity burden when planning for PCMH-related changes in PCM utilization (Wong et al, 2016).

The project incorporated some of the characteristics noted in the military special operations medical model. An article discussed the basic concepts of operational medicine and how the model is focused on supporting the nonmedical mission, preparing care for the team, executing evaluation prior to a mission, advising command regarding the unit, and the prevention and treatment of diseases (Llewellyn, 2017). The article states that the Army uses this concept to embed the medical team within special operating units. The medical teams undergo the same physical training as the unit and are responsible for the medical training of the operators in the unit (Llewellyn, 2017). According to the article, the goal of operational medicine is the success

of the mission. The medical team works to enhance the human performance of the team and prevent disease and future injuries (Llewellyn, 2017). An article describes operational medicine as the provision of medical care in unconventional places, and the hands-on care to those individuals tasked with the demanding job of assuring our safety (Perez, 2013). Uncertain times and technological advances demand that medical care be provided in high risk and unfriendly environments. Terrorism, disasters, and war are just a few challenges the military providers must face caring for these individuals who are protecting and defending our country.

It is important to develop these medical providers to face these challenges and adapt to the unique situations faced by many of the soldiers in order to care for and protect those who protect this country (Perez, 2013). Perez (2013) discusses how saving lives and minimizing disability remains the top priority for the military health system. For operation medicine, this means medical teams may deploy to the battlefield, work in the units, or work in the clinics. Health research and innovation is the key to minimizing the loss of life and/or disability (Tien, 2011). Tien (2011) states that having a solid understanding of the causes of injury can assist with evaluation and treatment which will expedite the patient's recovery. Understanding the cause of the injury can assist with prevention (Tien, 2011). The author encourages the medical provider to build collaboration with the unit's leadership and their members, which can provide a better understanding of the mechanism of injury and assist to develop preventable measures to be put into place in the future.

Summary of Literature

Military medicine is not a 'one size fits all' (Perez, 2013). Research of the literature clearly acknowledges that the needs of the various populations must to be considered. For medical to truly focus on population health, the team must understand that different units,

different squadrons, and different bases all have unique missions, and we must consider how that mission impacts the health and well-being of its troops. This again, establishes the need for embedding the medical team into this unit, as they will be able to experience firsthand the challenges of the unit. The PCMH model is considered a holistic multidisciplinary approach to providing care. Holistic care may only be accomplished by a solid understanding of the population. It is important to develop medical providers that understand these challenges and adapt the medical care accordingly (Perez, 2013). Health research and innovation in the military medical system is a critical key to minimizing the loss of life and/or disability (Tien, 2011). We know the operational approach to medicine works in special operation units and with the flying community, but this approach to medical care has not been applied to the men and women who support those units. It is time to make a change.

SECTION THREE: METHODOLOGY

Design

This project utilized the Iowa Model. The Iowa Model constructed by Titler and colleagues in 1994 and revised in 2001. Initially developed for the University of Iowa Hospitals was later revised to guide evidenced-based projects such as this one (Schaffer, 2012). The model provided this project with a framework which gave direction and structure to the project.

A team was formed in the initial steps of the process. The team consisted of the flight leadership, primary care manager (a nurse practitioner), medical technician, and the group practice manager. The team did a thorough review of the literature. The review concluded that there was enough evidence to make a practice change, so the team proceeded to the next step. The next step was to highlight the evidence that validated the need for the change. A thorough literature review was conducted on the use of both practice models and their impact on the

groups for which they were intended. The team secured enough evidence and proceeded with a pilot change. An evaluation of the pilot determined the change should be implemented (Schaffer, 2012). For this project, a portion of the selected unit was used as the pilot. The squadron is broken down into four flights, two of those flights were selected for the initial stages of the project. Once the pilot was deemed successful, the final step was to implement the change within the entire organization and monitor the metrics to determine the significance of the change (Dontje, 2007).

Measurable Outcomes

The measurable outcomes for this project will be to: 1.) reduce the current medical appointment no show rate for this unit; 2.) to improve the HEDIUS metrics; 3.) reduce the number of physical fitness test failures; and 4.) improve the mobility readiness statistics.

Setting

This project was accomplished at a local Air Force Base which noted healthcare concerns within a maintenance unit. The foundation of the proposed project was to group this squadron with the nurse practitioner to identify trends within the unit. Grouping the squadron with one PCM aligns with the medical group's strategic plan for 2017-2018. Due to the unique design of the flight line, members are removed from the work center an average of two hours for every 15-minute medical appointment per the unit's leadership. Allowing the medical team to come to the flight line and evaluate patients will reduce the lost manning hours and enable the members to be evaluated without impacting the unit's very critical mission. The setting for a portion of this project will be on the flight line. The command works in a building located at the center of the flight line. It is here that the command suggests the medical team be established. The leadership has reserved an office for the on-site team to use for appointments or walk-in evaluations. This

location will allow all members to have access to the medical team and allow the leadership to be in constant contact with the medical team. The provider will have the opportunity work in the unit to learn the occupational challenges of the unit, work with the commanders as an advisor, and provide medical care 50% of the week. During the other 50% the provider will be available in the clinic located at the medical group. The PCM and team will utilize auxiliary staff such as physical therapy, behavior health, dieticians, exercise physiologist, and clergy to assist with improving the metrics as previously discussed.

Population

The subjects of this project were one of four aircraft maintenance units at this base. This unit has 1,077 members, male and female, with ages ranging from 19 to 50 years of age. This sample was a convenience sample which was determined by the medical group leadership due to the high no show rate of these members and the significant occupational stressors noted by the unit's leadership. The inclusion criterion for the project were all patients seen at the on-site clinic must be an active duty member of this unit. The only exclusion criterion for this population was the member must be on active duty orders to receive medical care. The unit has numerous reserve members and civilian employees. This exclusion is a requirement by the Department of Defense (DOD) and the medical team will not be able to waive this requirement. The civilians and reservists are not included in the metrics for this project.

Ethical Considerations

For this scholarly project, no cultural and ethical values were violated. As medical officers, the providers are trained to acknowledge and respect those values. A variety of chaplain staff were available within the unit if needed, as these individuals have a broad range of religious knowledge and experience. The DNP project team completed the research ethics

training, which was designed to ensure no harm would be committed to human subjects. The project details were submitted to Liberty University's Institutional Review Board (IRB) for review and were approved prior to initiating this project. No consent of the participants was required, as the participants continued to receive quality medical care as per the recommended practice guidelines.

Data Collection

For the purposes of the scholarly project, several programs were used. The Care Point program was used to accurately track the HEDIUS metrics. This program tracks the metrics of chronic diseases and preventative health compliance (pap smear, mammogram, flu vaccinations) which allowed the team to validate improvements in the metrics for these individuals impacted by this change. The physical fitness test scores and the readiness mobility components are tracked in a system called Aeromedical Services Informational Medical System (ASIMS). Pre and post implementation metrics were recorded for validating the population's response to the implementation of this project.

As military members, individuals are required to ensure all medical requirements are completed within the allotted time. This metric includes preventative health exams, post deployment exams, annual labs, and vaccinations. All these components are carefully tracked and briefed to the wing's (base) command. A deficit in any one of these components may prevent members from deploying, which impedes the unit's mission. The last metric to be tracked for this project is the appointment no show rate. This metric was tracked by using a program called the Data Analysis Reporting System (DART) found in the Care Point system. This program was able to determine the no show rate and break it down according to squadrons.

Tools

This scholarly project did not use tools. Appointment times were limited, and the use of questionnaires and surveys would delay the member's ability to get back to the mission. These members work out on the flight line and have limited access to a desk and/or a computer. This study strictly uses archival data; no instrument was needed.

Intervention

Once the IRB approved the scholarly project, the unit was moved to the nurse practitioner as the sole provider for this group. This movement was part of the strategic plan of the medical group which happened to coincide with this project and is not a part of the project's scope. This change did allow for the provider to identify trends within the unit. The goal of this project was to continue with the PCMH model, which is focused on continuity and preventative health and couple it with the operational model which is focused on the occupational piece to medicine. The medical team determined a baseline for the metrics, identified trends in the population, and worked with the unit's commander to determine any concerns of the leadership. The PCM reviewed the metrics with the command's input, worked with the medical team, and developed a plan of care for this unit.

Initially the NP began by seeing patients one afternoon a week on the flight line. Over time and with the success of the project, the number of appointments on the flight line increased two days a week. The medical team also spent time in the unit conversing with the members for insight on their perceived needs. The medical team used this time to understand the occupational hazards and its impact on the members. Once trends were identified, the medical team incorporated the auxiliary staff for assistance in managing the population. This management

method is part of the PCMH model. The number one diagnosis of this unit was obesity, then lower back and knee pain, followed by anxiety/depression.

Staff such as the exercise physiologist, behavior health provider, physical therapist, and dietician were employed to assist the medical team with managing and improving the overall health of this unit. First physical therapy was placed in the unit one day a week, which provided direct access to these members. This allowed the members to address the acute muscular-skeletal issues quickly and allow the PCM to address other complaints. The behavior health provider began seeing patients on the unit one afternoon a week and again provided direct access. To address the obesity, the PCM utilized the exercise physiologist, dietician, and the behavior health provider to develop a six-week class that was designed specifically for the ‘maintainer’ population. The class was made to address the physiological, behavior, and knowledge components of obesity. Members who fail their fitness test will be required to attend, although the class will be open to anyone wanting to lose weight and/or improve their overall health.

Another way of addressing the unit’s obesity rate was to employ the dietician to work with the unit’s four snack bar managers. Members are not able to leave for lunch due to the fast pace of their mission and the logistics of the flight line. The dietician provided healthy resources that not only tasted good but had a long shelf life. He focused on these members as athletes due to the physical demands of the job in the harsh weather environment. The dietician also trained the cooks on how to make simple but healthy meals. The cooking area is small with minimal resources for cooking, so their options are limited.

This integrated approach to medical care has the advantage of the provider and patients working with the same commander, and all the participants are working towards the same goal.

By using this approach to medical care, the medical team got to know the workplace and workforce intimately. The team does a similar degree of physical training and is exposed to the same hazards and environmental conditions as their patients (Braithwaite et al., 2009).

Data Analysis

HEIDUS metrics. Care Point was used to capture the HEDIUS metrics. The program was able to identify the population's health now that the unit was moved under the NP. The program is designed to notify the team of the current state of their population and what the potential critical areas are. Care Point is used to address everything from preventative health to chronic disease management. No calculations were required, as the system will compile this information for the team.

Mobility readiness/physical fitness failures. Aeromedical Services Informational Medical System (ASIMS) was used to capture the physical fitness test scores and the readiness mobility component. Pre and post metrics were used to validate the population's response to this project. These statistics are automatically uploaded when a physical fitness test is administered. The unit's readiness and fitness failures may be calculated by the system individually or as a unit.

No show Rate. The no show rate was monitored and analyzed by the Care Point program. The program has a feature to manage the group's practice called the DART. The unit's no-show rates were produced by the DART pre and post project.

The data for this project includes the pre and post metrics on the unit's appointment no show rate, mobility status, physical fitness test failures, and HEIDUS metrics. The paired sample T test was used for pre-posttest data. This test compares the repeated population sample over a period to determine if the mean ranks are different (University of Sheffield, 2018). It not only

notes the difference in the sign, but it also acknowledges the significance of the observed difference (Boston University of Public Health, 2017). If the P-value is <0.05 , evidence proves the mean ranks are different (University of Sheffield, 2018).

Timeline

The project was granted IRB approval on May 25, 2018. After a meeting with the unit and medical group's leadership in late July, the project will continue beyond the conclusion of this study. It was felt that embedding of the PCM team has been so successful that other PCM teams are progressing to a similar set-up with units like AMXS.

Feasibility Analysis

A budget was not developed as no additional costs were incurred for this project. The PCM team has a specified number of patients they care for and allotted a set amount of weekly appointments. Both the number of patients empaneled to the PCM team and the number of appointments seen by this team remained the same; only the location changed. The medical group provided equipment such as the exam table, vitals machine, scale, and otoscope. The group recently moved to a new facility and received all new equipment. These items remained on the equipment inventory for the family health clinic and simply moved to the flight line. The family health clinic provided the medical supplies as the team would have used these regardless of the project in the clinic or on the flight line. The unit provided the furniture, computers, room, and utilities. All these items were present prior to the start of the project. The ability to access the electronic medical record was the greatest difficulty, as both the medical group and the unit are on separate ports. Both commanders gave permission for access to each unit's server which enabled the communication squadron to provide a connection to the medical group's server from the unit.

SECTION FOUR: RESULTS

Descriptive Statistics

The subjects of this project are one of four aircraft maintenance units at this base. This unit has 1,100 members, male and female, with ages ranging from 19 to 50 years of age. This sample was a convenience sample which was determined by the medical group leadership due to the high no show rate of these members and the significant occupational stressors noted by the unit's leadership.

The first measurable outcome was the unit's medical appointment no show rate. At the beginning of this project, the unit had 179 booked appointments. Of those appointments, 143 were kept, and 48 appointments were no shows. This data gives a no-show rate of 26.82%. In the month of July, the unit had 131 booked appointments and only seven were no-shows, a 5.34% no-show rate. This metric was both clinic and flight line appointments. At the flight line only, the no-show rate was noted as .003%.

In the month of May, the fitness test pass rate was 867 out of 896. The fitness test failure rate was 3.26%. In August, the fitness test pass rate was 1,018 out of 1077. Seven members were exempted from taking the fitness test due to pregnancy. Also, 15 members were delinquent in testing. The unit had an influx of 181 members in the month of July. This influx was due to a return of a deployment. Members are not required to test during a deployment and therefore were not noted in the fitness numbers for May. The fail rate was 3.44%. The influx and the delinquent members may skew the data. This unit is on a continuous rotation for deployments and at no time will all the members be present.

For the measurable outcome of mobility status, the unit had 103 members who were considered nondeployable. At the end of this project, 88 members were coded as nondeployable,

which is a 15% decrease. Again, with the large shift in members, this metric may be skewed.

Additional observation from the previous year noted this type of fluctuation throughout the year.

A longer study of this metric to ensure the 15% decrease remained constant should be completed before publishing it as a clinically significant change.

The outcome measurements for the HEDIUS metrics were not obtained for this project due to the delay in reporting. The metric upload has a two-month delay and with the short duration of this project that data could not be utilized. The HEDIUS metrics did provide the medical team with the top diagnosis for this unit. The top five diagnoses for this unit were obesity, back pain, knee pain, depression, and anxiety. The medical team will continue to monitor this metric over the next year to determine the impact of the practice change. The trending in the diagnoses allowed the medical team to home in on the priorities for this unit and tailor the medical services to their specific needs.

Measurable Outcomes

A convenience sample was used to obtain the data for this project. The members for this sample were male and female averaging in age from 18 to 50 years. The data collection for the following statistics began on May 25, 2018 and ended August 1, 2018. The paired sample T-test was used to determine if the project improved the metric of fitness test failures, mobility rate, and no-show rate.

Prior to initiating this project, the unit booked 179-appointments; 48 appointments were no-showed, giving a no-show rate of 26.82%. At the end of this study, the unit booked 131 appointments, and only seven were no-shows, a 5.34% no-show rate. This metric included both clinic and flight line appointments. At the flight line only, the no-show rate was noted as .003%. (N=2) The pre-post project mean no-show rate was 44.5, the standard deviation was 4.95, the

standard error mean was 3.5, and the study used a 95% confidence interval of the difference lower level being .028 and upper 88.97, $t=12.71$, $df 1$, and 92-tailed) significance .050. The no-show rate demonstrated the test statistic of 12.714. This finding is clinically significant, as there was a reduction in wasted appointments. This reduction and the availability of appointments on the flight line increased the access to care. This statistic alone demonstrates a cost savings for the medical group and a reduction in lost manning hours for the unit.

Table 1			
No Show Rate			
Headers:			
<u>Appointment</u>	<u>Booked Appts</u>	<u>No Showed Appts</u>	<u>Rate</u>
Pre Project	179	48	26.82%
Post Project	131	7	5.34%

For the fitness test at the end of May, the breakdown for the unit was 42% scoring excellent, 55% scoring satisfactory, and 3% failing (all members were current). In August, the unit noted 43% scored excellent, 54% scored satisfactory, 3% failed, and .06% were non-current. (N = 1076) The pre-post mean was .00849, standard deviation was 8.88124, standard error mean was .22075, the study used a 95% confidence interval of the difference lower level being -.52277 and upper .53974, $t = .031$, $df = 1075$ and (2-tailed) significance .975. The fitness scores could be skewed due to the number of delinquent members. These members were not included in August's data. Although the data did not demonstrate improvement in the failure rate, this project has initiated several new programs which in time may significantly impact these metrics. Programs such as the exercise physiologist and dietician working with patients at the flight line are good examples.

Table 2 Fitness Scores			
Headings			
<u>Month</u>	<u>Excellent</u>	<u>Satisfactory</u>	<u>Failure</u>
May	42%	55%	3%
August	43%	54%	3%

For the mobility status, the unit had 103 members on a nondeployable status. At the end of this project, only 88 members were coded as nondeployable which is a 15% decrease. The large shift in members may have created this decline and would skew the data. A consistent fluctuation has been noted throughout the year and additional time needs to be dedicated to observing this data before publishing it as a clinically significant change.

The outcome measurements for the HEDIUS metrics were not obtained for this project due to the delay in reporting. The metric upload has a two-month delay, and with the short duration of this project that data could not be utilized. The HEDIUS metrics did provide the medical team with the top diagnosis for this unit. The top five diagnosis for this unit were obesity, back pain, knee pain, depression, and anxiety. The medical team will continue to monitor this metric over the next year to determine the impact of the practice change. The trending in the diagnosis allowed the medical team to home in on the priorities for this unit and tailor the medical to their specific needs.

SECTION FIVE: DISCUSSION

Implications for Practice

The unit is subjected to 12-hour shifts, physically-demanding jobs, harsh weather environment, and recurrent deployments. The current demand has increased the physical and medical concerns of this unit. This project improved the quality and accessibility of medical care

by grouping the unit together, identifying trends, collaborating with other disciplines, and embedding in the unit. The anticipated future outcome of the implementation of the revised medical model, given more time, will be an improvement in the HEIDU metrics, fitness scores, mobility status, and health perception of the members. During the short time of this project, the medical team provided 192 appointments at the flight line. Per the unit's leadership, each medical appointment at the clinic will cost the unit two hours of production time. If that is truly the case, this project would have saved the unit 384 lost manning hours. The project also noted a significant reduction in no-showed appointments. Per the medical group's resource management officer (RMO), each missed medical appointment costs an average of \$344. If the difference is estimated as a reduction of 41 appointments a month, the cost savings to the medical group would be \$14,000 a month. With the delay in metrics, it is difficult to obtain the true impact of this project. It will be over time that the true health significance of this project will be realized. It is evident the practice change has demonstrated a cost savings in the reduction of wasted appointments and the loss of production for this unit.

Although the HEDIUS metrics were not available for the conclusion of this study, a significant enhancement to this project was initiated by using these metrics and identifying trends within the unit. By evaluating these trends, the medical team was able to tailor the medical care specifically for this unit. An example of tailoring care to the unit's needs was accomplished by utilizing the trends and making changes accordingly. Obesity was the number one diagnosis. Understanding the impact obesity can have on the member's health, the team decided to implement a few changes.

First, the medical team employed the dietician to work with the unit's snack bar managers. The team evaluated the types of food offered by the snack bar and developed a list of

healthily alternatives. The team also provided the leadership and snack bar managers with a training to assist them with developing a better understanding of how diet can impact not only the members' health but also their ability to perform. The team focused on treating the unit's members as extreme athletes due to the high physical demands of the job being performed in harsh weather environments. The team also worked with the snack bar managers to provide recipes and cooking demonstrations.

Finally, the team developed a healthy lifestyle class. The class utilized the PCM, dietician, exercise physiologist, and behavior health provider. The flight line conference room was used for the class one day a week for one hour. Initially the class was set up for individuals who failed their fitness test with the intention to later offer the class to anyone who is struggling with their weight or wanting information on a healthier lifestyle.

It has only been a few months; the medical team has embraced this concept and is working diligently to improve the care that is provided to this unit. The team will continue to identify trends and look to utilizing all available resources to continue to have the greatest impact on these members. This project not only enhanced the medical care provided to these maintainers, it also allowed the medical team to understand the value of the medical care they provided and how that care impacted the overall mission. The project developed a partnership between the medical group and the maintenance group which allowed the maintenance mission to become a part of the medical group's mission, everyone working towards the same goal.

Although as Americans, we pray for peace, it is our duty to be ready to defend that peace and our way of life. These members are the very foundation to ensuring we are ready to defend our liberties. We need to take every means possible to ensure these members are physically, mentally, and spiritually ready to secure our way of life.

Sustainability

The project to date has been very successful. The current medical group leadership sees value in allowing the medical teams to work in the units, as it increases the team's awareness to the occupation impact of the members and broadens the team's understanding of their role as medical providers in the mission. The medical group's leadership has given permission to expand this project to another unit like this one. By training other PCM teams to utilize this concept in other units, this practice change can be sustained, as it will in time be the norm, not the exception. The new base leadership has been especially supportive of the concept, as the project provides the support for this unit's vital mission, and sustaining the mission is critical to the security of our nation.

Dissemination Plan

The medical team shared the success of this project with other PCM teams. The team provided both the successes and failures of this project with the entire family health unit. The base leadership was briefed on the project for additional support for other projects like this one. The author will write an article that discusses the implementation process and how to successfully establish the embedment of a PCM team in a unit. The Air Force Surgeon General was briefed at a conference by our group practice manager and chief nurse on the success of this project. After the briefing, four other bases requested information regarding the success of the project and how to implement a similar process at their base. Most recently, the medical group submitted this project to the Air Force Medical Operations Agency for consideration as a 'best practice'. Hopefully over time, more bases will develop an understanding of the importance of partnering with the units to develop a strong relationship and a team approach to health care.

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Appendix A

Level of Evidence

Article Title, Author, etc.	Study Purpose	Sample	Methods	Study Results	Level of Evidence	Limits of the Study	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
<p>Fandre, M. (2012). Promises and Pearls of the Military Health System: Implementation of the PCMH. <i>Military Medicine</i>, 177(12).</p>	<p>The article discussed the unique nature of the military and the military health system.</p>	<p>Nine primary care clinics in the military health system</p>	<p>Expert opinion</p>	<p>The author encourages the health care system to focus on the value of military readiness. The article suggests that the inability to quantify the value of readiness in a monetary means prevents the ability to compare the military system to the civilian. Per the author focus should be placed on working with the line (unit) commanders. The author also states that no matter how beneficial the model is</p>	<p>Level seven as it is an expert opinion.</p>	<p>A level seven is the weakest of the studies but the credentials and experience is well-cited.</p>	<p>Yes, this article would be included. Per the author, the program requires accurate enrollment and continuity for meaningful interpretations of these metrics (Fandre, 2012). The project is geared to enrolling with one primary care provider and promotes total continuity of care which is the true foundation of PCMH. Continuity of care has not been the focus for this medical group. If the proposed project is approved, continuity will be the foundation for providing care to these individuals.</p>

				internally, if the unit commanders are unable to maximize readiness, the system will fail. The author focused on some challenges such as availability of support staff, patient and staff satisfaction, HEIDUS metrics, and ER utilization.			
Tien, H. (2011). Introduction to the Canadian forces operation medical support. <i>Journal of Trauma, 71</i> (5).	Operates medicine means to deploy to the frontline, the units or clinics. Health research and innovation is the key to the reduction of loss of life and/or disability (Tien, 2011).	n/a	Expert opinion	The author states that having a solid understanding of the causes of injury can assist with evaluation and treatment which will expedite the patient's recovery. Understanding the cause of the injury can assist with prevention. The author encourages the medical provider to build collaboration	This is an expert opinion, level seven article.	A level seven is the weakest of the studies but the credentials and experience is well-cited.	Yes, this article will be used in the project. This again, establishes the need for embedding the medical team into this unit as they will be able to experience first-hand the challenges of the unit. The article is intended to bring an expanded knowledge of the innovation in the military medical operation.

				with the unit's leadership and their members. This can provide a better understanding of the mechanism of injury and assist to develop preventable measures to be put into place in the future by utilizing occupational medicine and exercise physiologist.			
O'Neil, D, Luther, M. (2018). Nurse practitioner led health facility (Role1) on exercise precision support. <i>Journal of Military and Veteran's Health</i> , 21(3).	Author discusses how the Royal Air Force develop a health care facility in support of training exercises.	Hand-selected medical team chosen for this project	Case studies	The one month trial demonstrated the NP was fully capable of managing the primary care and emergency needs of this unit. The ability allowed the members to remain at the location and continue with their mission. A second exercise was accomplished . Again the NP managed an array of	Level four as it is a case study.	Cases are selected by the author this could promote bias. Case studies are subjective report of the author.	Yes, this article will be used. The author highlights the flexibility of nurses and how they can be utilized in more innovative ways to provide better care for the military members. The article demonstrates why the use of a NP verses a physician will be better suited for this project by highlighting the flexibility of this core. The article also demonstrates in both cases how the embedding of the medical team can minimize lost training time and allow for completion of the military mission.

			<p>illnesses and injuries on site. The NP also cared for a few critical injuries which she successfully coordinated air transport. Again the exercise demonstrated the flexibility and need of the medical team. The United States Army recognized NPs as 'providing world class primary health care' (O'Neil, 2018). The author concluded that success was demonstrated in the utilization of a NP-led clinic in both the United States military and internationally. The author stated NPs are being recognized as important health resources in</p>			
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				the Air Force which can lead to more effective utilization of their skills during combat and peace time operation (O’Neil, 2018). The author goes on to discuss how versatile NPs are.			
Brino, A. (2013). Military redefines medical home model: Nurses and physician assistants play key role. <i>Change Healthcare</i> . Retrieved from: http://www.healthcareitnews.com/news/military-redefines-medical-home-model .	The military struggles to get doctors to come in and serve in the armed services. This model allows better for use of the physicians as they are expected to take the more complex case load.	n/a	Expert opinion	The nurses and physician assistants are employed as a primary care manager and direct the medical care for those empaneled to them. The team utilizes a registered nurse, a case manager, a disease manager, and a health care integrator to help facilitate the care. The team also uses the electronic medical records, electronic messaging, and virtual appointments as opposed to all face-to-	Level seven article as it is an expert opinion.	This is the lowest level of the studies; author notes his credentials and is an expert in this field.	Yes, this article will be used. In the project. The article clearly demonstrates the need to group like units together and allow each primary care manager to direct the care for the needs of that population. The current status quo of this medical facility is placing new patients with the next available primary care manager. By grouping the units, the primary care manager will better identify trends and better manage their population.

				face appointments . The concept of the PCMH model is to utilize all means necessary to manage the health care needs to the specific population and adapt the care to that population (Brino, 2013).			
Leiberthal. R. (2017). Measuring the cost of the patient-centered medical home(PCMH)-A cost-accounting approach. <i>The Journal of Ambulatory Care Management</i> , Vol 40(4), pg 327-338. DOI: 10.1097/JAC.0000000000196	Goal of the study was to show the financial impact of utilizing the PCMH model.	Small to mid-sized facilities with the NCQA approval	General methodology for cost accounting to the clinical activities data gathered from the sample to create a taxonomy of costs, cost offsets, and revenue increases related to the PCMH .	The study demonstrated the cost benefit of using the PCMH model. Findings: Cost offsets can be used to defray part of the cost recognition. The cost of PCMH transformation varied by practice with no clear level or pattern of costs. The study suggests that small- and medium-sized practices may experience difficulty	Level four - cohort study	Well cited resources, limitation noted by the convenience sample for the studies which were focused on small to mid-sized facilities in a regional area, not nation wide.	No, this article will not be used as it findings demonstrated very little for this project. The model's focus is based on preventative medicine which is of great benefit to the patient but no clear financial gain by using the model was noted in the survey. The facility in the project is a mid-sized practice and may benefit from the implementation of this project financially.

				with the financial burden of PCMH recognition.			
Llewellyn, C. (2017). The symbiotic relationship between operational military medicines, tactical medicine and wilderness medicine: A view through a personal lens. <i>Wilderness and Environmental Medicine</i> , 28.	The article discusses the basic concept of operation medicine this is to support the overall mission, care for the team, advice to commanders regarding the unit, and prevent and treat diseases.	n/a	Expert opinion	The article discussed the medical teams undergo the same physical training as the unit and are responsible for the medical training of the operators in the unit. According to the article, the goal of operational medicine is the success of the mission as a whole. The medical team works to enhance the human performance of the team and prevent disease and future injuries (Llewellyn, 2017).	The article is a level seven or expert opinion	The article was well cited, author was an expert in his field. The author included the other branches of services in the article and how they utilize this concept in practice.	Yes, this article will be used as it is the basic foundation of the project. The article explains the impact of the operational medicine model on special units and how those units benefit from using this model. The proposed project will utilize concepts from both the PCMH and operational model to enhance the care that is provided to this unit.
Perez, B (2013). Tactical and special operational medicine	Armed Forces medicine, "The Best Medicine in the	N/A	Expert opinion	The article further describes operational medicine as the provision	The article is a level seven which means it is an expert opinion.	Author notes in the article is education history and clinic experience to validate	Yes, this article will be used as it validates the need for grouping this units with one provider. The needs of the various populations need to be

<p>support: New challenges new medicine. <i>Journal of Rescue and Disaster Medicine</i>, 5(1).</p>	<p>Worst Places”; the definition of Special Ops Medical Support per this article (Perez, 2018).</p>			<p>of medical care in unconventional places, and the hands-on care to those individuals tasked with the demanding job of assuring our safety. Uncertain times and technological advances demand that medical care be provided in high risk and unfriendly environments . Terrorism, disasters, and war are just a few challenges the military providers must face caring for these individuals who are protecting and defending our country. It is important to develop these medical providers to face these challenges and adapt to</p>		<p>his expertise. Although his is an expert, it is just his opinion.</p>	<p>considered. In order for medical to truly focus on population health, the team must understand that different units, different squadrons, and different bases all have unique missions and we must consider how that mission impacts the health and well-being of its troops.</p>
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				<p>the unique situations faced by many of the soldiers in order to care for and protect those who protect this country (Perez, 2018). The article focused on the importance of training and developing medical providers to adapt to the needs of the units. It continues with the concept that military medicine is not a 'one size fits all' (Perez, 2018).</p>			
<p>Hudal, R., Julian, R., Kyle, J., Dorrane, K., & Ranchendain, S. (2013). A case study in transferring the military health system. <i>Military Medicine</i>, 178(3).</p>	<p>The overall goal of the study is to provide better quality in care that is accessible and cost-effective.</p>			<p>The study concluded that patient self-management would be increased by better communication with patients and the medical. The article states the model</p>	<p>This is a case study on the military health system (MHS) and how care is delivered level four study.</p>	<p>All cases were well identified. This was a convenient sample which limits the ability to generalize the findings.</p>	<p>Yes, this article will be included. The article determined the concept was designed to adapt to the populations needs by grouping these units into the unique populations and determine the trends that need to be addressed. The study determined that for success with using this model, the team must adapt the model's concept to fit the needs of the unit. The</p>

			<p>requires a development of trust and a strong provider-patient relationship. The article also determines several key factors that were identified for success of the model which were: access to care, changing to proactive patterns, offering after-hours clinic, setting clear expectations for performance, and enhancement of continuity. Care for each unit should be tailored to the population it serves. Performance metrics are focused on access to care, patient-centered care, cost, staff satisfaction, and patient satisfaction. The concept</p>			<p>study's conclusion is the intent of the proposed project.</p>
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				must balance military readiness by population health outcomes and the patient experience.			
Rosland, A. (2017). PCMH implemented and improvement of chronic disease quality: A longitudinal observational study. <i>Health Services Research</i> . DOI: 10.1111/1475-6773.12805.	Examine the association between clinics' extent of PCMH usage and increase in chronic illness care quality.	Veterans Assoc. primary care clinics across the United States	longitude descriptive study	The 77 clinics with the most components in place had significantly larger improvements in five of seven chronic disease. BP < 160/100 in diabetes), ranging from 1.3 percent to 5.2 percent of the patient population meeting measures, and two of eight process measures (HbA1c measurement, LDL measurement in CAD) than the 69 clinics with the least PACT components. Clinics with moderate levels of PACT components showed few significantly larger	Level six	Lack of randomization in the study which can promote bias. It is an observation which can be subjective	Yes, this article will be included. Veterans' Health Administration primary care clinics with the most PCMH components utilized in the clinic in 2012 had greater improvements in several chronic disease quality measures in 2009-2013 than those only utilizing a few components. The project is geared to emphasize all the components of PCMH.

				improvements than the lowest PACT clinics			
Howard, J., Etz, R., Crocker, J., Skinner, D., Kellecher, K., Hahr, K., Miller, W., & Cracklin, B. (2016). Maximizing the patient-centered medical home model by choosing words wisely. <i>Journal of the American Board of Family Medicine</i> , Mar-Apr, vol 29(2), pp.248-253.	The conference reviewed 10 innovative practices and interdisciplinary content experts to discuss innovative practice redesign.	Data was retrieved from the Agency for Health Care Research and Quality-funded Working Conference for PCMH Innovation 2013.	Session and interview transcripts were analyzed by utilizing the grounded theory which identifies patterns and explore their significance.	Language innovations were used by five practices. A selection of terms used to develop creative reimagining of traditional roles and spaces that highlight practice goals. Participants felt language was important for reinforcing changes.	Level six, qualitative study	Qualitative studies are a weaker study approach due to the subjective content and potential of bias. Also a convenient sample which lacks generalizations.	Yes, this article will be used in the project. In order to facilitate change an openness to change is required. True transformation needs to be embraced and rooted in the team. New terminology must represent values of involved. The medical team will be an active part of this population's daily activities which drives the ownership of the team.
Wong, E., Roaland, A., Fihn, S., Nelson, K. (2016). Patient-centered medical home implementation in the Veterans Health Administration and primary care use: differences by patient	Will the PCMH model improve care to patients with chronic disease.	1 % random sample of 9.3 million patients enrolled in the Veterans Health Administration (VHA) at any time between 2003 and 2013.	Session and interview transcripts were analyzed by utilizing the grounded theory which identifies patterns and explore their significance.	Among age 65+ patients, PCMH was associated with greater PCP visits starting four and ten quarters following implementation for high- and lowcomorbidity patients, respectively. Changes were larger for high-	Level six, observational	This study was funded by the VA and Dr. Wong is supported by a VA Health Services Research and Development Career Award. Dr. Rosland is supported by VA HSR&D CDA 10-209. This could result in bias. Observational studies are subjective.	Yes, this study will be included in the project as many of these members suffer from chronic disease such as prediabetes and obesity. Increases in PCP visits connected to PCMH were greater among patients with higher comorbidity. Health systems implementing PCMH should account for population-level comorbidity burden when planning for PCMH-related changes in PCP utilization. The project was developed to identify

<p>comorbidity burde. <i>Journal of General Internal Medicine.</i> 31(12): 1467-74. doi: 10.1007/s11606-016-3833-9.</p>				<p>comorbidity patients (eight to 11 greater visits per 1000 patients per quarter). Among patients age < 65, PCMH was associated with greater visits for highcomorbidity patients starting eight quarters following implementation, but fewer visits for low-comorbidity patients in all quarters. The difference in visit changes across groups ranged from 18 to 67 visits per 1000 patients per quarter</p>			<p>the trends within this unit and gear the medical care towards the greater good of the population.</p>
<p>Flieger, S. (2017). Relationship centered pcmh. <i>Health Care Management Review</i>, Apr-Jun, vol 42(2):112.</p>	<p>Review relationship centered PCMH.</p>	<p>Nine primary care practices, convenient sample</p>	<p>Eighty-three interviews were conducted with administrative and clinical staff at the nine pilot practices. these</p>	<p>Value was noted in the structural components, these structures are not enough. Emphasizing relationship-centered care requires attention to reflection, learning, and collaboration.</p>	<p>Level six, Qualitative study</p>	<p>Qualitative study which is more subjective, it was not a randomized study which could promote bias.</p>	<p>Yes, this study will be included. The study recognizes implications to acknowledge PCMH implementation is not a linear process. The Implementing from a structural perspective is not enough to be successful. Inspection agency should only be used as a guide. Set time aside for communication, team-</p>

			<p>inter-views were done between Nov.and Dec.2011 They were tran-scribed, coded, and analyzed using both a priority and emergent themes</p>	<p>This can be increased by focusing on setting time aside for communicati on and relationship building through structured meetings and some focus on the implementati on process. The team-based care offers significant opportunity to go beyond relationships and collaboration.</p>			<p>based care and reflection of team structure. This process will be utilized with monthly leadership and medical team The The study is a level four or cohort study. The focus of this study was to measure the difference in appointment availability using this model.study is a level four or cohort study. The focus of this study was to measure the difference in appointment availability using this model meetings.</p>
<p>Leroux, T., Cote, N., Kun, H., Dabney, A., & Wells, R. (2017). Transitioning to PCMH: Association with appointment availability. <i>Military Medicine</i>, 182(2).</p>	<p>The focus of this study was to measure the difference in appointment availability using this model.</p>	<p>The study utilized 21 United States Navy primary care clinics from 2011 to 2014.</p>	<p>The avail-ability of appoint-ments were measured by using the third next available appoint-ment over a 29-month time period.</p>	<p>The results of the study were appointment availability improved slightly post certification. Although there were statistically significant differences in appointment availability pre- and post certification, the differences were so small that patients may not have noted a difference</p>	<p>The study is a level four or cohort study.</p>	<p>The study lack random method of selection which can promote bias, unable to generalize the findings</p>	<p>Yes, this study will be used in the project. The study concluded that although a slight improvement in appointment availability following the implication of the model, implementing the model in the military setting may not have all the expected outcomes as with the civilian setting. The study demonstrated that only minimal improvements in appointment availability will be noted with this model. According to the research, policy makers should decide which aspect of the PCMH model should be implemented. Per the</p>

							guidelines, access to care is one core tenet of the medical home and appointment availability is an important indicator of access (Leroux, et,al. 2017). The high tempo of this unit limits the members' ability to receive medical care during the duty day. By taking portions of the PCMH model such as the patient-centeredness and preventative health promotion and embedding those concepts within the unit, it may enhance the medical care received by these individuals by tailoring the care to the unit's specific needs.
Savage, A., Lauby, T., & Burkard, J. (2013). Examination of selected patient outcomes and staff satisfaction in primary care clinics at a military treatment facility after implementation of the PCMH model. <i>Military Medicine</i> , 178 (2),	Examine the patient and staff satisfaction with PCMH.	The primary care clinics in this study are U.S. Navy facilities located throughout the United States and include family medicine, pediatric medicine, and internal medicine.	A mixed study design approach was selected. Data were mined from the Command's Business Report portal, the Pay for-Performance-Based "Get To Goal" report, and through	The result was a seven percent increase in access, a decrease in emergency room visits by 75.3%, and an improvement in the Healthcare Effectiveness Data and Information Set (HEDIS) metrics. HEDIS metrics are used by the military health system to measure the	This is a level three study	Lack of randomization may promote bias, a true randomized control study would have increased the significance of these findings	Yes, this study will be used in the project. The article stated that access and continuity are major factors for the improvement of the population's health (Savage, et, al. 2013). The plan for the project will be to improve the access by providing appointments on the flight line reserved for this unit only. Also continuity will be assured due to the empanelment being assigned to one provider and the minimization of cross-booking. Per the article the access can influence the continuity and with continuity comes a decrease in emergency room usage and becoming proactive with

			an anonymous voluntary questionnaire survey providing both descriptive qualitative and quantitative data interpretation.	population's health. The survey also noted that 75% of the staff reported job satisfaction.			health (Savage, A., et, al. 2013)
Dawson, R. (2015). Military adolescent school-based health care: An innovative way to develop PCMH for adolescent medicine. <i>Journal of Adolescents' Health, 1</i> (56).	The schools used the PCMH model and embed the medical team in the school to promote the physical, behavioral, and emotional well-being of the military dependents enrolled at those schools.	Three schools with military dependents were used in the study. Schools were located in the San Antonio area. The study reviewed 1,112 students .	Quality of life assessed by Varni's 1998 Pediatric Quality of life inventory total score and subscale scores	The study concluded that using this innovative way of medicine, students were three times more likely to get vaccinations (61% vs. 23%). The study also demonstrated students received wellness exams were 61% vs. 41% of the general population in the schools. The model has a decrease in utilized clinical time due to a decrease in	The article was a level three due to the lack of randomization.	The study lacked randomization which could create bias and it was limited to a small area. If the study was conducted in schools nationwide, it would have provided a broader picture of the true benefit.	Yes, this study would be used. The study concluded the nation needed a call for and improvement in military and community collaboration on behalf of increasing the quality of life of our nation's warriors and their families (Leroux, et, al. 2017). The program is very similar to the proposed project. This study describes how to enhance the PCMH model by moving the medical team out of the clinic and into the patient's environment.

				no show rates, two % vs. 12%. The study determined the program saved 2,949 in lost student hours of schools and 1,966 lost military hours for their parents.			
Casimiro, L., H1, Hall, P., Kuziemy, C., O'Connor, M., & Varpio, L. (2014). Enhancing Patient-engaged teamwork in healthcare: an observational case study. <i>Journal for Interprofessional Care</i> , 29(1):55-61. doi:10.3109/13561820.2014.940038	To determine the benefit of team approach to medicine	A total of 140 participants from one hospital. This was a convenience sample, at time of the observation	An instrumental case study design.	In order to achieve the optimal environment, the members of the team must be consistently aware of the situation and each member embedded on the team must consistently examine their roles in the health problem, and to determine what pattern of team interaction could work best for the particular situation and their resources.	Level IV	The interviews were conducted with students as opposed to busy providers, this could skew the data.inability to generalize due to a convenience sample versus a random.	The study would be beneficial to show how a team approach embedded in the units in improves the overall health of the members.
Fifield, J., Forrest, D., Martin-Peele, M., Burleson, J., Goyzueta,	Transition to PCMH	26 practices in the five primary	This was a randomized control	The conclusion by the authors was the regardless	This was a randomized control study, Level II study	The conclusion by the authors was the regardless of size, practices	One of the three authors cited an honorary acknowledgment by a founder in the PCMH; the other two cited no bias.

<p>J., & Fujimoto, M. (2012). A randomized, controlled trial of implementing the patient-centered medical home model in solo and small practices. <i>Journal of General Internal Medicine</i>, 28(6):770-7. doi:10.1007/s11606-01202197-z</p>		<p>counties of New York City.</p>	<p>study, Level II study</p>	<p>of size, practices can make rapid and sustained transition to a PCMH when provided external supports</p>		<p>can make rapid and sustained transition to a PCMH when provided external supports</p>	<p>This could create a bias, otherwise the research was a well designed randomized control study.</p>
<p>Russell, D.W., Pangelian, S.I., Whalen, R.J., Thomas, J.L., & Riviere, L.A., (2013). Embedded behavioral health providers: An assessment with the Army National Guard. <i>Psychological Services</i>, 11(3), 265-277. Doi:10.1037/a0037005</p>	<p>.The impact of direct access on units</p>	<p>1,260 Army national reserve units pre-deployment of which 453 participated. The study was not a true experimental study as there was no condition randomization</p>	<p>This was a cross sectional study, Level III.</p>	<p>The study demonstrated that direct access helped unit commanders maintain operational readiness by reducing psychological stressors. It also provided an opportunity to connect soldiers with behavioral health related topics through formal and informal settings.</p>	<p>This was a cross sectional study, Level III.</p>	<p>The study had a large sample size but underpowered to detect effects because of a number of the outcomes of interest demonstrated non-independence associated with members in the 12 units. Another limitation was the cross sectional only demonstrated the correlational association rather than the effect interferences. This needed to be a longitudinal</p>	<p>The study did emphasize the overall improvement in the unit with the direct access to the provider by embedding within the unit.</p>

						study. Also not a true experimental study as the controls were in place, either the unit had BHOP or not.	
<p>Tvaryanas, A. P., Moupin, G. M., & Fouts, B.L. (2016). A 10-year cross-sectional analysis of Air Force Flight and Operational Medicine Clinic Health Care Services. <i>Military Medicine</i>, 181(5), 424-433. Doi:10.7205/milmed-d-15-00086</p>	<p>Optimal design model</p>	<p>The sample was 743,995 distinct individuals. The authors used a randomized sampling</p>	<p>This study was a retrospective cross-sectional analysis of outpatient health care encounters, Level IV</p>	<p>The study concluded that optimal design model would be a microsystem: one for occupational medicine and the other for primary care. The researchers suggested integrating the necessary examination-related services and procedure.</p>	<p>This study was a retrospective cross-sectional analysis of outpatient health care encounters, Level IV</p>	<p>The authors cited a limiting factor was the dependence of accurate diagnosis and services coding. The military providers are not reimbursed based on coding. The author did cite that the funding was secured by using Air Force Defense Health programs research funds which could promote bias as these are connected.</p>	<p>This article supported the need for both the operational and PCMH model in military care.</p>
<p>Moore, A., Hamilton, J., Krusel, B. (2016). Patients provide recommendations for improving patient's satisfaction. <i>Military Medicine</i>, 181, 357</p>	<p>Improvement of care provided</p>	<p>The population was a convenience sample. 148 active duty members and their families.</p>	<p>This was a strong mixed design, level V due to the qualitative portion of the survey</p>	<p>Participants suggested that health care providers need to be more courteous, attentive listeners, patient, caring, respectful, and understand</p>	<p>This was a strong mixed design, level V due to the qualitative portion of the survey</p>	<p>The author did not note if they had a conflict of interest. The study used randomization for the sample to reduce the bias.</p>	<p>This study will support the need to improve the care provided to military members and some recommendations for the teams which may improve patient satisfaction.</p>

				<p>patient needs. Among these participants, patient satisfaction is dependent on health care providers and clinic leadership being accountable for these patient-centered attributes of health care delivery.</p>			
<p>Ostfeld, I., Paran, H., Chen, J., Barneis, Y., Dreyfuss, U., Kedem, H., Glassberg, E. (2014). Special forces medicine in Israel history and future directions. <i>Journal of Special Operations Medicine</i>, 14(3). https://www.jsoonline.org</p>	<p>Defining medical care of operators in other countries.</p>	<p>n/a</p>	<p>expert opinion. All experts were cited and are knowledgeable in their fields of study.</p>	<p>Due to understanding the similarities between training elite athletes and SF warriors, field of military sport medicine is incorporated and recently established a medical center, specially designed for SF warriors. The PCM is the commanders' medical advisor. PCM's responsibility includes planning the medical part of all</p>	<p>Level VII The study was well cited but expert opinion is one of the lowest levels of research.</p>	<p>Expert opinion is the lowest of the level of evidence criteria as it is the opinion not tested results.</p>	<p>The significance of this study will be to note what other countries are utilized to improve the members' capabilities. Present concepts worldwide accept the importance of integrating medical teams and advocates the combination of medical with tactical approaches. Currently, the IDF fully recognizes the importance of operating SFs and of providing them with unique advanced medical support. The authors suggest that further development of SFM in Israel is expected.</p>

				<p>operation plans, providing medical training to the unit, and providing medical support during operations. They are responsible for medical care to the units' warriors during all training. The unit's senior physician is also responsible for dental, physical therapy, and mental services for the unit. Thus, he relies on professional consults from the different specialized medical advisors</p>			
<p>Marshaii, R., Doperak, M., Milner, M., Motsinger, C., Newton, T., Padden, M., Pastoor, S., Hughes, C., LeFurgy, J., Mun, S., (2011).</p>	<p>PCMH review</p>	<p>n/a</p>	<p>All experts were cited and are knowledgeable in their fields of study.</p>	<p>The MHS has made significant progress in developing and testing the PCMH model. Strong patient-provider</p>	<p>Level VII expert opinion.</p>	<p>The author did not note if they had a conflict of interest. The study used randomization for the sample to reduce the bias.</p>	<p>MHS has similar setbacks and benefits when compared with the civilian world, except the model in the MHS must include provisions focused on readiness and the transient environment of the military. Author's suggest, PCMH has potential to reduce costs</p>

<p>Patient-centered medical home: An emerging primary care model and the military health system. <i>Military Medicine</i>, 176. https://www.researchgate.net/journal/0026-4075_Military_medicine</p>				<p>relationships, greater patient engagement in treatments are essential. Creates more accessible and comprehensive care. This article suggests that the MHS should continue to define and refine its policies, noting staffing, interoperability of IT systems, workflows, communication, and sustained assessment of the PCMH model,</p>			<p>and improve the quality of care, it should not be considered either the ultimate or quick solution to solve the health care system's problems. Medical Home can better connect various parts of the system, but more studies are needed to delineate whether or not it is truly the model that can improve health care services and accommodate patients' health needs for years to come.</p>
<p>Chappelle, W., Goodman, T., Cowper, S., Prince, L., Thompson, W., Restivo, N (2014). Occupational sources of stress and symptoms of distress among C-17 pilots and loadmasters. Air Force</p>	<p>Occupational stress on support</p>	<p>Random sample of two bases; A total of 343 C-17 aircrew participated in the study; 233 (67.93%) were pilots and 110</p>	<p>Qualitative study - Level VI Self-reported open ended Descriptive statistics were calculated for the overall and subscale scores for</p>	<p>The findings of this study provide a baseline for C-17 aircrew sources of occupational stress and percentages of pilots and loadmasters experiencing elevated levels of clinical distress. These airmen are relied</p>	<p>Level VI Qualitative</p>	<p>Qualitative has greater risk of bias; subjective</p>	<p>Yes, the study demonstrates the crew or support staff has the same stressors as the pilots. The maintainer population would fall under support staff</p>

<p>Research Laboratory. Case Number: 88ABW-2014-564</p>		<p>(32.07%) were loadmaster</p>	<p>the OQ-45.2. Univariate analyses of covariance (ANCOVAs) were conducted to identify group differences between pilots and loadmaster for overall total and subscale scores assessing symptom distress,</p>	<p>upon to support a vast array of operations. Further analyses on occupational stress and clinical distress among C-17 pilots and loadmasters are warranted to aid in ensuring the occupational well-being of these essential airmen. Most pilots have an operational model in place; the remaining ground crew does not. These individuals face the same stressors and deployments as the pilots.</p>			
<p>Chapman, P., Cabrera, D., Vareia-Mayer, C., Bavier, M., Enitsky, C., Figley, C., Thurman, R., Lin, C., & Mayer, C. (2012) USA training, deployment preparation,</p>	<p>Stressors during deployment</p>	<p>Random sample - Study groups comprised 841 combat medics, of which 385 were attached to</p>	<p>3-year longitudinal study designed. The variables are grouped as training and preparedness and as</p>	<p>Stressors includes the types of shifts required during deployment, intensity and frequency of combat, and the unique nature of daily life on the front</p>	<p>Level VI, descriptive study</p>	<p>Unable to generalize; study performed on Army soldiers only unable to determine the effects on other branches and special forces. Responses were given three months post deployment</p>	<p>Yes, the article not only focuses on the stressors of deployment but also the impact to the medics.</p>

<p>and combat experiences of deployed health care personnel: Key findings from deployed U.S. Army combat medics assigned to <i>line units</i>. <i>Military Medicine</i>, 177(3). https://www.researchgate.net/journal/0026-4075_Military_medicine</p>		<p>military installations across Europe and 456 at Fort Hood, The focus of this article is on the 347 combat medics surveyed 3 months after returning from a 12-month deployment to OEF/OIF theatre. 96% response rate which reduces bias</p>	<p>combat experience and exposures. Lickert scales used for deployment preparedness, effectiveness of mental health training, perceived threat, combat experience, and aftermath of battle. Used Teleform for data entry, process and output.</p>	<p>lines. Medics are not only vulnerable to primary traumatic stress and injuries but also secondary to traumatic stress or compassion fatigue as part of their role as medical service providers. A strong emphasis is needed for medics to "reset". This should be seen as normal for health care providers such as the combat medic rather than a sign of weakness</p>		<p>which could skew the response. The answers were given via Likert scale, a qualitative study would give more depth to the answers.</p>	
<p>Leroux, T., Kum, H., Dabney, A., Wells, R., (2016). Military deployments and mental health utilization among spouses of active duty</p>	<p>Impact of deployment on the families</p>	<p>There were 2,530 military spouses throughout the 36-month study timeframe and 491</p>	<p>Retrospective, longitudinal approach evaluating outpatient mental health services utilization from</p>	<p>Leaders should continue to monitor the well-being of their service members' families throughout all deployment phases. The study</p>	<p>more descriptive in nature. Level VI</p>	<p>Not able to generalize due to sample was retrieved from families of aircraft carrier. The model was analyzed through a generalized estimating equation (GEE)</p>	<p>Yes, article clearly demonstrates the impact of deployments on families. By grouping and working with units, PCM teams can lean forward to reduce that impact and provide support</p>

<p>service member. <i>Military Medicine</i>, 181(10). https://www.researchgate.net/journal/0026-4075_Military_medicine</p>		<p>(19.4%) spouses were present for both deployments.</p>	<p>military health insurance claims of spouses whose service member is assigned to an aircraft carrier p < 0.05, p < 0.01. CI = 95%. This was not an experimental study as there was no control group</p>	<p>highlights the important mental health needs of members and their families. Families have a unique burden placed upon them throughout the member's career. When a member knows his family is mentally prepared to cope with the separation, the member can focus on the mission.</p>		<p>with a negative binomial distribution, due to over dispersion concerning mental health visits</p>	
<p>Braithwaite, M., Nicholson, G., Thornton, R., Jones, D., Simpson, R., McLoughin, D., & Jenkins, D. (2009). Armed forces occupational health: A review. <i>Occupational Medicine</i>, 59. doi:10.1093/occmed/kqp140</p>	<p>Enhance-force preparation and sustainment</p>	<p>n/a</p>	<p>Article/research dated between 2000-2009. The vast majority 2009 which is the year to article was published</p>	<p>To meet the challenges of the military, providers must continue to provide the best evidence-based advice to enhance force preparation and sustainment. All consultations in the Armed Forces.</p>	<p>A review of literature, Level V</p>	<p>Authors did not cite the inclusion or exclusion criteria. Authors did note that often in occupation medicine for the military, other countries will be cited such as the Royal Army. The literature had a wide range of all branches of service and included the Royal army which allow the</p>	<p>Yes, provided a thorough review of the challenges face by military providers.</p>

						study to be generalized.	
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Appendix B

IRB Approval

May 25, 2018

Kristina Zuccarelli IRB Exemption 3212.052518: Improving the Practice Model in a Military Clinic

Dear Kristina Zuccarelli,

The Liberty University Institutional Review Board has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study to be exempt from further IRB review. This means you may begin your research with the data safeguarding methods mentioned in your approved application, and no further IRB oversight is required.

Your study falls under exemption category 46.101(b)(4), which identifies specific situations in which human participants research is exempt from the policy set forth in 45 CFR 46:101(b):

(4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

Please note that this exemption only applies to your current research application, and any changes to your protocol must be reported to the Liberty IRB for verification of continued exemption status. You may report these changes by submitting a change in protocol form or a new application to the IRB and referencing the above IRB Exemption number.

If you have any questions about this exemption or need assistance in determining whether possible changes to your protocol would change your exemption status, please email us at irb@liberty.edu.

Sincerely,

G. Michele Baker, MA, CIP Administrative Chair of Institutional Research The Graduate School

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Appendix C

CITI Certificates

Kristina Zuccarelli ID: 5894495

Collaborative Institutional Training Initiative

View-Print-Share Completion Record - 21101690

Name: Kristina Zuccarelli (ID: 5894495)
Institution: Liberty University (ID: 2446)
Course: Biomedical & Health Science Researchers
Stage: Stage 1 - Basic Course
Completion Date: 07-Oct-2016
Expiration Date: 07-Oct-2019
21101690

Record ID:

View-Print-Share Completion Record – 21596784

Name: Kristina Zuccarelli (ID: 5894495)
Institution: Liberty University (ID: 2446)
Course: Social & Behavioral Researchers
Stage: Stage 1 - Basic Course
Completion Date: 06-Dec-2016
Expiration Date: 06-Dec-2019
Record ID: 21596784

Appendix D

4 Medical Group Support Letter

20 April 2018

MEMORANDUM FOR INSTITUTIONAL REVIEW BOARD AT LIBERTY UNIVERSITY

FROM: 4 MDG/CC
1050 Jabara Ave
Seymour Johnson AFB NC 27531-2468

SUBJECT: Scholarly Project for Liberty University

1. Please be advised that I grant Kristina Zuccarelli permission to complete a study on embedding a medical provider at the flight line for the scholarly project at Liberty University. I understand that only data on the unit as a whole will be utilized and no individual medical information will be obtained or used for this study. I understand the study is merely to demonstrate the pre and post statistics of embedding a provider at the unit and its impact on the unit's overall health. All medical care provided at the flight line will adhere to current practice guidelines and no risks or experiments will be completed on these patients. The proposed study will be conducted for a period no longer than 31 December 2018.

2. If you have any questions, you can reach me at DSN 722-1812, commercial (919) 722-1812, or by email at craig.a.keyes.mil@mail.mil.

CRAIG A. KEYES, Colonel, USAF, MSC
Commander, 4th Medical Group

Appendix E

Permission to Use Iowa Model

You have permission, as requested today, to review and/or reproduce *The Iowa Model Revised: Evidence-Based Practice to Promote Excellence in Health Care*. Click the link below to open.

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Citation: Iowa Model Collaborative. (2017). Iowa model of evidence-based practice: Revisions and validation. *Worldviews on Evidence-Based Nursing*, 14(3), 175-182.
Doi:10.1111/wvn.12223

□

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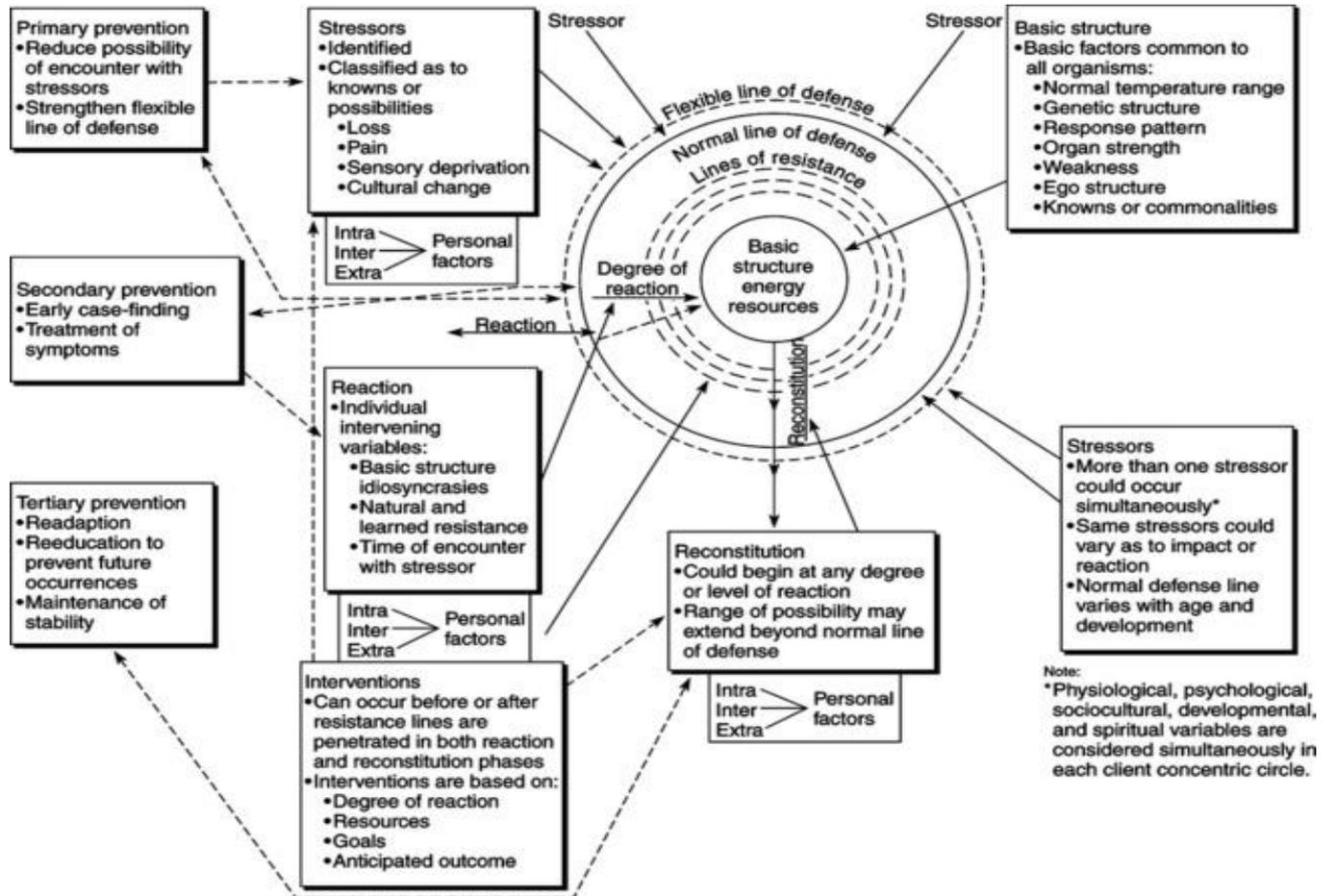
Kimberly Jordan –University of Iowa Hospitals and Clinics <noreply@qualtrics >
Reply all | □ Today, 12:08 PM Zuccarelli, Kristina □

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Please contact UIHCNursingResearchandEBP@uiowa.edu or 319-384-9098 with questions.

Appendix F

Neuman's Theory



(Nurse Key, 2017)

