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ID 21378: The USPHS Scientist Category: The Contributions of Psychologists to the USPHS Mission

Selected presentation type: Poster

The U.S. Public Health Service (USPHS), formally established in 1889, aimed to provide trained and mobile health professionals to promote and administer health programs, provide disease prevention services, assure drug and medical device safety, and provide health expertise during health emergencies. There are currently approximately 130 doctoral-level psychologists serving in the USPHS Commissioned Corps across 16 Agencies and Departments. On July 1st, 2021, all active duty USPHS psychologists were integrated into the USPHS Scientist Category, which was established in 1945 for Commissioned Corps officers with scientific training backgrounds (e.g., biomedical, health, behavioral, natural, physical, social sciences). As of January 2022, there were more than 400 Scientist Officers working across the federal government, and USPHS Psychologists comprised approximately 33% of all officers in the Category. To highlight the contributions of psychologists to USPHS and the Scientist Category, the Scientist Professional Advisory Committee's Visibility Subcommittee collaborated with the Psychologist Integration Subcommittee to survey current USPHS psychologists. A total of 32 officers responded to the survey, including officers from ranks of O-3 to O-6. Respondents reported serving in nine Agencies across five Departments, including the Department of Justice (50%), the Department of Defense (19%), and the Department of Health and Human Services (13%). Respondents had served in USPHS for up to 29 years, with an average of seven years of service. Seventy-two percent of respondents provide direct clinical care as part of their primary work responsibilities, and 91% serve in a supervisory billet or position, overseeing up to 200 staff (mean=27). USPHS psychologists furthermore reported participating in 89 official PHS deployments over approximately 30 emergency and public health responses, with individual officers deploying up to 10 times over the course of their career (mean=3 per officer). The most frequently cited responses USPHS psychologists deployed to were the COVID-19 pandemic (20 deployments), Hurricane Maria (12 deployments), and the Unaccompanied Children or Unaccompanied Minors missions (5 deployments). Other notable responses psychologists participated in were the West Africa Ebola Outbreak, Operation Allies Welcome, the Sandy Hook Shooting, and the 2018 California Camp Fire. All respondents (100%) reported that the COVID-19 pandemic significantly impacted their work environment, and USPHS psychologists demonstrated great resilience during such changes as navigating institutional lockdowns, working longer hours, modifying clinical care settings, and increasing the use of telehealth technology. Through their leadership and commitment to excellence in public health, USPHS psychologists will continue to play vital roles in the Scientist Category and support the mission of USPHS to protect, promote, and advance the health and safety of the nation.

Learning Outcomes

- To welcome all active duty, doctoral-level psychologists who have integrated into the USPHS Scientist Category
- To identify the outstanding contributions and accomplishments of USPHS psychologists to the various high-priority USPHS missions and initiatives
- To recognize the continued dedication and high-quality leadership of USPHS psychologists in supporting the mission of USPHS to protect, promote, and advance the health and safety of the nation

ID 21381: Army Health Systems Doctrine and Training in Relation to Antibiotics: A Systematic Review

Selected presentation type: Poster

Introduction:

In the early 2000's when Tactical Combat Casualty Care (TCCC) was developed, the adoption of prophylactic antibiotic use was not mainstream. Back then, guidelines were derivative of civilian trauma guidelines which did not include widespread prophylactic antibiotic use. Current protocols across the Department of Defense (DoD) have embraced the use of prophylactic antibiotic use before reaching a military treatment facility (MTF) as evidenced by TCCC guidelines and several Joint Trauma System (JTS) Clinical Practice Guidelines (CPG).

This review intends to find trends associated with the use of antibiotics in the military setting and answer the research question: Do current Army doctrine and practices address these issues and how can they be reworked to address them if needed?

Materials and Methods:

Methods were developed in accordance with PRISMA guidelines. The primary author utilized four databases to locate articles: MEDLINE (EBSCOhost), Cochrane Central Register of Controlled Trials (Wiley), CINAHL Complete (EBSCOhost), and Embase (Elsevier). The following keywords were utilized: "Combat casualty," "antibiotic," "trauma," "prehospital." This ultimately led to 19 articles included in the review.

Results:

19 articles were included in the final review and placed into one of the following categories: overall antibiotic use, guideline adherence and practices, strains, and infection risk factors. Overall, the Army Health System has shown that there is room for improvement in terms of antibiotic stewardship and training regarding antibiotics.

Conclusion:

Infectious diseases pose a substantial risk to combat wounded. The Army Health System must anticipate encountering challenges with delivering care to patients suffering infections in addition to serious combat injuries. A systematic review of the literature highlights several areas for improvement, primarily areas involving pathogen surveillance, treatment of pediatric populations, and the Army's operational domain of training.

Learning Outcomes

- Describe barriers to effective pathogen surveillance in combat wounds during the Global War on Terror
- Identify areas the Army can improve training, guidelines, and equipment for better compliance with antibiotic protocols
- Explain weaknesses in existing research regarding battlefield antibiotic use and infection control practices

ID 21382: Instructor Development Workshops for Advanced Life Support Training Courses Held in a Fully Virtual Space

Selected presentation type: Poster

Background: Various face-to-face training opportunities have been lost due to the COVID-19 pandemic.

Instructor development

workshops for advanced resuscitation (ie, advanced life support) training courses are no exception. Virtual reality (VR) is an

attractive strategy for remote training. However, to our knowledge, there are no reports of resuscitation

instructor training programs

being held in a virtual space.

Objective: This study aimed to investigate the learning effects of an instructor development workshop that was conducted in

a virtual space.

Methods: In this observational study, we created a virtual workshop space by using NEUTRANS (Synamon Inc)—a commercial

VR collaboration service. The instructor development workshop for the advanced life support training course was held in a virtual

space (ie, termed the VR course) as a certified workshop by the Japanese Association of Acute Medicine. We asked 13 instructor

candidates (students) who participated in the VR course to provide a workshop report (VR group). Reports from a previously

held face-to-face workshop (ie, the face-to-face course and group) were likewise prepared for comparison. A

total of 5 certified

instructor trainers viewed and scored the reports on a 5-point Likert scale.

Results: All students completed the VR course without any problems and received certificates of completion.

The scores for

the VR group and the face-to-face group did not differ at the level of statistical significance (median 3.8, IQR 3.8-4.0 and median

4.2, IQR 3.9-4.2, respectively; $P=.41$).

Conclusions: We successfully conducted an instructor development workshop in a virtual space. The degree of learning in the

virtual workshop was the same as that in the face-to-face workshop.

Learning Outcomes

- Learners will be able to describe how to hold a workshop in a virtual space.
- Learners will be able to describe that a workshop in a virtual space has a learning effect comparable to a face-to-face workshop.
- Learners will recognize that a workshop in a virtual space is appropriate as a remote training course.

ID 21383: Public Health Engineering: How We Can Improve Outcomes in Communities

Selected presentation type: Poster

As engineers, we might not immediately visualize ourselves as servants to public health, but we undoubtedly play an important role. Whether we are engineering solutions for improved facilities or remediation processes in our ordinary work or volunteering abroad to improve WASH-related outcomes, it's more than just the numbers we crunch that have a lasting impact. The ways we engage with communities to build relationships that last, the unique avenues we explore to reaching solutions, and the open-mindedness to cultural and social nuances can substantially impact how our projects succeed or fail in the long term. For those of us who work with marginalized communities, it is vital we are especially cognizant of not just our actions but of our room for improvement. In this presentation, I would like to provide examples of what outcomes engineers can control, best practices through experience in the field, and situations where project failures have occurred and why. I will draw on my own experience with Engineers Without Borders as well as critical analysis research and theory development through my education in American Indian Studies and Public Health. Although only a junior officer, I hope to provide insight useful to all ranks and experiences.

Learning Outcomes

- To make participants of traditional engineering training think critically about project approach
- To provide examples of how cultural intelligence can positively or negatively impact project outcomes
- To present best practices of how engineers can engage in their work to produce better results, including specific approaches to public health solutions

ID 21385: Tricare Extended Care Health Option (ECHO) Program And Military Families With Medically Complex Children: Prevalence Of Pediatric ECHO Enrollees and Their Use Of Healthcare Services In The Military Health System

Selected presentation type: Poster

In the U.S., there are over 14 million children (19.4%) who have special health care needs. Approximately 220,000 military personnel have a family member with special needs and 20% of children who are military connected. The Extended Care Health Option (ECHO) Program is a TRICARE program aimed at reducing the disabling effects of chronic medical conditions for beneficiaries of the Department of Defense (DoD) healthcare program. However, little is known about military connected children enrolled in the program. The aim of this study was to examine the demographic makeup of pediatric ECHO beneficiaries and their healthcare claims data. This is the first study to evaluate healthcare utilization of this subset of military dependents. A cross-sectional study was performed on pediatric (aged 0-26) TRICARE Prime beneficiaries enrolled in ECHO during FY 2017-2019. TRICARE claims (private sector care) and military treatment facility (MTF) encounters (direct care) data from the Military Health System (MHS) Data Repository were utilized to evaluate health service utilization and identify the most frequently reported ICD-10-CM diagnostic and Common Procedural Terminology codes associated with care for this population. A total of 2,001,619 dependents were enrolled in TRICARE Prime during FY 2017-2019, of whom 21,588 (1.1%) were enrolled in ECHO. The greatest number of children enrolled in ECHO were of White race (67.6%), male gender (74.3%), and age 5-9 (36.9%). Pediatric beneficiaries enrolled in ECHO were older and a higher percentage were of male gender when compared to their non-ECHO enrolled counterparts. The majority of ECHO enrolled children were dependents of Active Duty service members (74.6%), in the Army (42.7%), and who were of senior enlisted rank (68.1%). On average, children enrolled in ECHO had an annual mean of 16 outpatient visits and one hospitalization per year, and utilized a substantial amount of therapeutic, home care, and care coordination services. Majority of encounters (65.4%) were provided in the MTFs. Inpatient visits, therapeutic services, and in-home nursing care were the top utilized private sector care services. Outpatient visits encompassed 94.8% of health care encounters, and neurodevelopmental disorders, including autism and cerebral palsy, were the top principal diagnoses among ECHO beneficiaries. As healthcare interventions continue to improve, the prevalence of children with medical complexity and developmental delay will continue to rise and the pediatric TRICARE beneficiaries eligible for ECHO will likely increase. Families of CSHCN need support to successfully navigate the complicated health, education, and community systems, and this is especially true of military families of CSHNC who also need to repeatedly reestablish these care systems due to multiple relocations during a sponsor's military career. Family readiness affects the morale, retention, and readiness of our service members, and the DoD needs its service members to be present for duty, committed to outstanding performance, and focused on mission requirements without being distracted by family worries. Improving services and supports for dependents with special healthcare needs is needed to maximize their developmental trajectory and benefit the health and functioning for both the parents and the children for whom they are caring.

Learning Outcomes

- Describe the prevalence of ECHO enrollment among the MHS pediatric beneficiaries during FY 2017-2019
- Identify demographic characteristics and healthcare utilization patterns among pediatric ECHO beneficiaries
- Discuss the public health significance of children with special health care needs and their impact on military readiness

ID 21394: Telehealth and the Assessment of Suicidality in the Emergency Order of Detention (EOD) Process: A Systematic Review

Selected presentation type: Poster

Background: Emergency Orders of Detention (EOD) are used to hold potential suicide victims against their will for their protection and to allow for further assessment of need for treatment. The COVID-19 pandemic has altered the way these evaluations are being completed, in that virtual telehealth conferences are more frequently utilized to assess patient risk. The purpose of this systematic review was to identify the types of suicide screening tools utilized by telehealth providers, describe consistency or discrepancy between suicide assessments conducted in-person vs. telehealth, and determine if there is any variance in hospitalization admissions and involuntary holds rates when telehealth is used in the assessment of suicide risk.

Methods: A systematic review of current research was conducted utilizing the PRISMA model. Five electronic databases were used to search for several Boolean phrases surrounding suicide, emergency order of detention, telehealth, and many variations thereof. The search spanned from 2001 to 2021. Of the eight (n=8) articles returned by the search, only three (n=3) met inclusion criteria for this review.

Results: The main findings of this review describe little to no record of the type of standardized suicide screening tools used between providers. Additionally, the research does not comment on consistency or discrepancy between suicide evaluations conducted via telehealth or in-person. One article did, however, describe an increased likelihood of hospitalization admissions and involuntary holds during in-person evaluations vs. those conducted via telehealth.

Discussion: Suicide is among the leading causes of preventable death in the United States. This systematic review describes inconsistencies in the protection of this at-risk population. Little is described in the current research about the types of assessment tools used in the EOD process when conducted via telehealth, although hospitalization rates are lower and involuntary commitment fewer among patients who received a telehealth suicide assessment. Further research is needed to account for the difference in admission and involuntary hold rates. Overall, the authors of this review found that protecting citizens by telehealth EOD is noticeably under-researched.

Learning Outcomes

- Virtual assessment of suicidality
- How to complete an emergency petition
- Protection of at risk populations

ID 21397: Prevention and Diagnosis of Perinatal Alcohol Exposure and Fetal Alcohol Spectrum Disorders in the US Military Health System: A Mixed Methods Study

Selected presentation type: Poster

Alcohol use and alcohol use disorders (AU/AUD) during pregnancy, perinatal alcohol exposure (PAE) and fetal alcohol spectrum disorders (FASD) are urgent public health issues. FASD includes the broad range of diagnosable effects in an individual prenatally exposed to alcohol, and is a disability that requires diagnosis, support, and intervention along its spectrum. Alcohol use and alcohol-related burdens on the United States' health care system are on the rise, with 1 in 7 pregnant people consuming alcohol in 2022, up from 1 in 9 in 2020. The most conservative prevalence estimates of FASD are 1 in 20 children in the US. Although early pediatric screening for prenatal alcohol exposure has been shown to lead to better childhood outcomes, the average diagnostic age of FASD has stubbornly remained around 10 years. Elevated alcohol consumption has deep roots in the culture of some military populations. The Military Health System (MHS) cares for approximately 2 million children who are nationally representative of the Nation's children. As FASD goes largely un- or misdiagnosed, the Center for Health Services Research at the Uniformed Services University is leading inter-professional, collaborative research to investigate the full FASD continuum of care in the MHS using an integrated public health approach to maximize lessons learned from the translatable, actionable knowledge that is generated. The project's goal is to develop FASD-informed prevention trainings and clinical guidelines for diagnosis, and adapt existing service delivery mechanisms to provide support for individuals with FASD and their military families. Through three tightly interlocking lines of effort, we will 1) conduct an environmental scan including the inventory and synthesis of existing DoD alcohol use focused programs and of national and DoD clinical practice guidelines; 2) adopt a community needs assessment methodology using qualitative methods to understand the lived experiences and needs of patients, caregivers and diverse inter-professional providers in the MHS with respect to prevention and early diagnosis; and 3) apply modeling and predictive analytic methods to longitudinal military electronic health record data to rigorously examine population health outcomes and risk factors across to improve identification of individuals who may benefit from further screening. Particular topics such as the increasing rates of alcohol use and alcohol use disorder among women with and without children, identification of at-risk women, and early identification of at-risk infants and children including the investigation of race-based health disparities are timely and relevant, and present an opportunity to contribute to national discussion around health system improvement and reform of clinical practice. The MHS patient population and associated healthcare records afford an ideal setting to develop improved understanding and resources to address the FASD care continuum. Findings are expected to be generalizable to the general population and other large health systems given the 'universal' nature of the MHS.

Learning Outcomes

- Define and describe alcohol use and alcohol use disorders and their epidemiology in the US general population and the Military Health System, particularly during the prenatal period.
- Describe detection methods for alcohol use and alcohol use disorders in pregnancy and existing interventions.
- Define and describe fetal alcohol spectrum disorders and their epidemiology in the US general population and the Military Health System.
- Describe the goal, objectives and expected outcomes of the FASD project.

ID 21399: Evaluating Nursing Knowledge and Readiness in Providing Care for Post-9/11 Veterans in Civilian Healthcare Settings.

Selected presentation type: Poster

Since 2001, over three-million military service members deployed overseas in support of the post-9/11 Global War on Terror. Of those, 7,057 have been killed in action, 5,116 have committed suicide, 279,652 died from ill-defined, unknown causes, and 520,966 have been diagnosed with cancer while serving on active duty. Post-9/11 veterans are 192.75% more likely to be diagnosed with cancer when compared to their civilian counterparts and are more likely to utilize civilian providers (75%) more than the Department of Veterans Affairs for their care. The purpose of this quality improvement project was to investigate the level of nurse knowledge, beliefs, and perceptions in providing care to post-9/11 veterans in civilian settings. A descriptive project design with a 15-question survey was implemented. The survey was sent to registered nurses practicing in civilian settings. A sample of 537 registered nurses practicing in civilian settings responded. Findings included that 93% incorrectly chose mental health conditions as most likely occurring condition in post-9/11 veterans, while 7% correctly chose medical illnesses as most prevalent. Nurse respondents reported a perceived prevalence of post-traumatic stress occurring more often than cancer and malignancies at a ratio of 19:1. These findings highlight the high potential for cognitive biases which may lead to misdiagnoses and delayed diagnoses in post-9/11 veterans presented for care with medical symptoms, furthering the need for education and policy implementation. This quality improvement project revealed significant gaps in civilian nurses' clinical knowledge in screening, assessing, identifying, treating, and recommending resources for post-9/11 veterans and medical-related conditions.

Learning Outcomes

- Recognize the risk for malignancies in the post-9/11 veteran population in relation to exposures to toxins while in service.
- Identify barriers to adequate care and accurate diagnoses post-9/11 military veterans may face while seeking medical care in the civilian setting.
- Recite and predict states in which civilian providers pose the highest risk in knowledge deficit in post-9/11 military veteran healthcare.
- Explain the misconceptions and beliefs civilian providers have in relation to post-9/11 military veterans.
- Explain how healthcare provider 'anchoring' occurs and the outcomes it has in caring for post-9/11 veterans.
- List six actionable items based on the identified structural barriers across six dimensions in accurate, quality, educated healthcare.

ID 21404: Use of long-acting injectable buprenorphine (BUP-XR) among Veteran Health Administration Patients

Selected presentation type: Poster

The rate of opioid use disorder among patients in the Veterans Health Administration (VHA) in the US is 7 times higher than that of non-VHA enrollees¹. The purpose of this study was to provide a better understanding of how long-acting injectable buprenorphine (BUP-XR; SUBLOCADE®) is being utilized in the VHA system and assess the impact of BUP-XR on all-cause healthcare resource utilization (HCRU) and costs.

Data for this analysis were obtained from the VHA utilizing the Veterans Affairs Informatics and Computing Infrastructure (VINCI) for administrative claims and pharmacy dispensation. In this retrospective study, patients aged ≥ 18 years were identified by receiving BUP-XR or sublingual (SL) buprenorphine based on pharmacy claims during the identification period from July 2018 through December 2019. Patients were eligible for inclusion if they had at least one medical or pharmacy utilization at least 6 months prior (ie, pre-index) to their first pharmacy or medical record for treatment (ie, index treatment date) and another at least 12 months post index treatment date, and no evidence of BUP-XR in the pre-index. Patients receiving BUP-XR during the identification period were assigned to the BUP-XR cohort, while those using SL buprenorphine without evidence of BUP-XR were assigned to the SL buprenorphine cohort. Patients were evaluated for demographic and clinical characteristics. To assess the impact of treatment, HCRU and costs were assessed from index to <6 months and from 6-12 months post-index.

228 patients were assigned to the BUP-XR cohort while 20,689 were assigned to the SL buprenorphine cohort. BUP-XR was primarily used among a cohort of younger patients (mean age 44.3 vs 49.6 years) who were more likely to have concurrent non-opioid substance abuse disorders resulting from alcohol or non-opioid drug use (77.6% vs 79.9%) and were more likely to have comorbid mental health-related conditions, with a high proportion of patients having depression (63.2% vs 46.8%), anxiety (47.8% vs 30.2%) and/or bipolar disorder (14.9% vs 9.5%) compared to the SL cohort.

After propensity score matching on demographic and clinical characteristics that may influence the propensity to receive BUP-XR, 228 patients in the BUP-XR cohort were matched to 1,837 patients in the SL buprenorphine products cohort. From index to <6 months post-index, both medical and pharmacy HCRU and costs were higher in the BUP-XR cohort. While higher pharmacy costs persisted in the BUP-XR cohort from 6-12 months post-index, a reduction in medical costs was seen. Total medical costs in the BUP-XR cohort reduced by 39.7% from \$40,531 in the 6 months following index BUP-XR treatment to \$26,356 in months 6-12 following index treatment. In the SL cohort, total medical costs reduced by 23.9% from \$17,835 in the 6 months following index SL treatment to \$13,563 in months 6-12 following index treatment.

While medical costs did not converge between BUP-XR and SL buprenorphine cohorts by the end of 12-month follow-up, a trend for reduced HCRU and medical costs over the 12-month period was identified. Future research should explore the longer-term benefits of BUP-XR.

Learning Outcomes

- Describe current BUP-XR utilization patterns among OUD patients within the VHA
- Explore the impact of demographic and clinical characteristics on the propensity to receive BUP-XR
- Report all-cause HCRU and costs in patients receiving BUP-XR within the VHA

ID 21405: Racial Disparities in Highly Effective Contraceptive Use among U.S. Active Duty Service Women, FY 2016-2019

Selected presentation type: Poster

Healthy People 2030 identifies family planning, to include contraceptive management, as a significant health behavior warranting targeted public health efforts. Ineffective family planning leads to negative reproductive health outcomes. Active duty service women (ADSW) are at increased risk of unintended pregnancy as compared to the general U.S. population. Potential impacts include compromised individual medical readiness due to being temporarily non-deployable. Unintended pregnancy in theater results in unplanned medical evacuations jeopardizing unit security and mission success. The Military Health System (MHS) provides universal healthcare benefit coverage for all ADSW, to include access to all current contraceptive methods. This study focused on highly effective contraceptives (HECs), which included any method of reversible contraceptive with a failure rate of less than 10 percent under typical use and permanent female sterilization. Disparities persist within the U.S. healthcare system, especially regarding women's reproductive health. Racial disparities have been reported within the general U.S. population regarding contraceptive use and method preference. Despite universal coverage, racial disparities in healthcare utilization have been observed in the active duty population. The MHS has been identified as a potential model for investigating health disparity mitigation efforts aiming to increase utilization of family planning services. Using administrative and claims data from the MHS Data Repository (MDR), this study conducted a cross-sectional study of ADSW in the U.S. Army, Navy, Air Force, and Marine Corps during FY 2016 to 2019, and determined the association, if any, between race and HEC use. HEC methods were categorized as short-acting reversible contraceptive (SARC) use only, long-acting reversible contraceptive (LARC) use only, multiple HEC method use, and female sterilization. Descriptive statistics of the study population demographic data and trends in HEC use and method preference were performed to describe HEC use among our ADSW population. Additionally, logistic regression analyses—both unadjusted and adjusted—by patient demographics (age, race, rank, marital status, and service) were performed to test the probability of HEC use in total and by method. Of the 729,722 ADSW identified for inclusion in the study, 435,370 (59.7 %) used at least one HEC during the study period; with 21.9% using SARCs only, 19.8% using LARCs only, 16.8% using multiple HEC methods, and 1.2% with female sterilization. Black (0.94 OR, 0.92-0.95 CI), American Indian/Alaskan Native (0.85 OR, 0.82-0.89 CI), Asian/Pacific Islander (0.81 OR, 0.80-0.83 CI), and Other (0.97 OR, 0.94-0.99 CI) women were significantly less likely to use a HEC when compared to White women. The odds of HEC use by method for racial minority subgroups varied depending upon the HEC method considered. This study found that racial disparities in HEC use and method preference persist within the MHS, demonstrating that universal coverage of health benefits does not guarantee mitigation of racial disparities. The MHS is an excellent model for investigating contraceptive and fertility intentions and behaviors among racial minority groups. Identifying effective interventions to mitigate racial disparities in reproductive health outcomes will ultimately lead to a more effective and medically ready fighting force.

Learning Outcomes

- Identify what is a highly effective contraceptive (HEC) method.
- Recognize the Military Health System (MHS) as a model for investigating healthcare disparity mitigation efforts due to its universal coverage of the healthcare benefit.
- Describe the role healthcare disparities play in the association between contraceptives utilization and negative reproductive health outcomes for racial minority women.
- Discuss the military relevance and public health significance of racial disparities persisting within the MHS despite universal coverage of the healthcare benefit.

ID 21420: A cohort study of BMI changes among US Army soldiers during the COVID-19 pandemic in 2020-2021

Selected presentation type: Poster

Background: The Coronavirus Disease 2019 (COVID-19) pandemic has profoundly disrupted daily life across the United States and the globe. In response to the COVID-19 pandemic, broad sweeping regulations were put into place for the DoD and the US Army, limiting movement and restricting the fighting force's regular activity. Obesity and BMI have been growing problems in adults and children of the general US population and the US Armed Forces, with up to 17.3% of Army soldiers being categorized as obese (Shiozawa et al., 2019). It is essential to address what subsequent effects there may have been on the health and readiness of a "locked down" force.

Methods: We conducted a retrospective cohort study of Active-Duty US Army soldiers using data in the Military Health System Data Repository calculating BMI from before the pandemic (February 2019- January 200) and during the DoD's pandemic mitigation efforts (September 2020- June 2021). Using the Stuart-Maxwell test, we calculated BMI percentiles and assessed the percent change in BMI categorization during the study period.

Results: 191,894 soldiers were included in the cohort; 50.5% with overweight and 23.2% with obesity during the pandemic. T-test and Stuart-Maxwell test indicated significant differences and changes in BMI across the categories, especially in the obese category, with a 5% growth and 27% change. Significant absolute changes were observed during the pandemic, with 26.7% shifting from healthy to overweight and 15.6% from overweight to obese. In those with obesity, absolute increases were observed across every demographic category, with the most impacted groups being female, younger, White, and lower-ranking soldiers.

Conclusions: We observed a significant increase in BMIs amongst Active-Duty Army soldiers during COVID-19 mitigation efforts by the DOD. Higher rates of obesity result in decreased health of the force. Future pandemic mitigation efforts should specifically address the needs of younger and more junior enlisted soldiers. The Army should further investigate the persistence of COVID-19 pandemic-related BMI increases and refocus special intervention programs to promote and educate on maintaining healthy lifestyle habits.

Learning Outcomes

- Identify who was at risk for changes in BMI during COVID-19.
- Appreciate the magnitude and implications of the BMI increase problem during COVID-19.
- Understand the need for Public Health and healthy lifestyle management programs moving forward.

ID 21427: Leveraging Social Determinants of Health Screening to Improve Health Disparities in Primary Care Settings

Selected presentation type: Poster

Background: Compared to other industrialized nations, the United States spends disproportionately less on social services, and more on health care. This is true despite evidence that social determinants of health (SDOH) including income, educational attainment, employment status, and access to food and housing affect an array of health outcomes, particularly among low-income populations. Individuals with unmet social needs are more likely to have difficulties self-managing chronic health conditions, have repeat “no-shows” to medical appointments, and be frequent emergency department users. Looking at SDOH data can help practitioners better recognize the root causes that affect population health. Screening for SDOH is an important first step in addressing the major causes of poor health and health care outcomes in vulnerable patients. By collecting SDOH data at baseline, and throughout the course of an interventions, providers will be better able to tailor care to the most needed areas of need and assess the impact of their efforts on patients’ health and service needs when addressing social factors. In addition to using SDOH data for evaluative purposes, these data can be used to inform patient risk stratification tools.

Methods: For this quality improvement (QI) project, the PRAPARE screening tool was used. Adults attending one local health clinic were assessed. Data collected from the PRAPARE tool was analyzed using descriptive statistics to determine the percentage of responses relevant to the patients seeking care at the local clinic regarding social needs and risks.

Results: This study demonstrated that over the last few decades, there has been a growing literature on screening for the social determinants of health in primary care settings and there is a need in this area. Thus, screening for social determinants of health is an emerging area of clinical practice that still requires a great deal more research and ongoing continuing population health education on how to efficiently screen in practice. Many promising opportunities to assess SDOH across a continuum of backgrounds, levels of need, and settings are emerging within the field of complex care. These assessments will yield invaluable information to providers seeking to develop personalized, holistic care plans for patients.

Conclusions: Transforming medical practice to have a larger impact on prevention and health as well as meeting the goals of national initiatives such as Healthy People 2030 will require screening for social determinants of health and development of coordinated care systems that meet social needs. Screening for social determinants of health should not occur in isolation, especially because most of the remedies for social issues lie beyond the health sector. The presence of such family-level protective factors as specific support in times of need, social connections, and resiliency correlates with positive long-term outcomes. Screening for adverse SDOH should therefore be accompanied by identifying the strengths and assets of patients and families. Awareness of assets and opportunities related to the built and social environment within communities is an additional resource for health promotion.

Learning Outcomes

- At the end of this session the participant will be able to define what social determinants of health (SDOH) are
- At the end of this session the participant will be able to list at least four social determinants of health (SDOH) and their effects on the health outcomes of individuals
- At the end of this session the participant will be able to list at least 3 reasons why we need screen for social determinants of health (SDOH)

ID 21434: Innovations in High Reliability: Integrating Foundational Practices leads to positive outcomes.

Selected presentation type: Poster

The VHA has supported high-reliability organization (HRO) leader coaching for VA Medical Centers in recent years enabling them to establish strong safe and reliable foundational practices. However, many VA medical centers conduct these practices as separate functions. This presentation highlights the value of integrating these functions using disruptive innovations, systems re=design, continuous process improvement, change management, HRO leader coaching, and an Office to Reliability to improve the patient experience, health outcomes, and staff satisfaction. When effective HRO leader rounding, safety forums, and tiered huddles are integrated and effectively transmit and collect data from each other key process indicators are affected and generally improve. This poster highlights some case studies from the VA Long Beach Health Care System.

Learning Outcomes

- Operationalizes the foundational principles of high reliability organizations.
- Demonstrates the effective use of disruptive innovation.
- Moves from theory to practice for military leaders, VA directors, and hospital executives.
- Provides empirically supported best practices in high reliability.

ID 21442: EFFECTS OF WILDFIRES ON WATER INFRASTRUCTURE

Selected presentation type: Poster

The increase of wildfire frequency and its impacts from climate change is well documented, but the indirect effects from wildfires on water quality and how it impacts public utility water infrastructure and public health are less understood.

This poster analyzes and compiles the latest research on wildfire impacts on water quality, which can assist an array of professionals from operations and maintenance to policy writers to consider the direct and indirect effects from wildfires due to an increase in wildfire frequency, severity, and magnitude. Wildfire intensification is caused by increased drought, increased wind events, and less precipitation, all of which are a result from climate change (IPCC, 2022). As stated in the 2022 IPCC Summary for Policymakers, “wildfires in many regions have affected ecosystems and species, people and their built assets, economy activity, and health,” (IPCC, 2022). Therefore, asset managers must start planning for detrimental damage to infrastructure and resources. Drinking water systems in the United States are impacted by climate change primarily through the reduction in available surface and ground water, significant shifts in timing and volume of run-off, reduced water quality, increased contamination of water supplies, and an increased dependency on electrical systems to provide drinking water.

This poster highlights the direct and indirect impacts of wildfires on drinking water quality, water distribution systems, and water sources. Direct impacts result from effects that have occurred at the wildfire instances and locations. Direct impacts result from effects of change in environmental stability, which includes solubility, water temperature, pH, loss of infrastructure, soil matrix, sediment loads, turbidity, and nutrient load changes. Indirect impacts result from effects that have occurred at a farther distance from a given wildfire instance, which include Dissolved Organic Matter (DOM), (pyrogenic) organic matter (PyDom), polyfluoroalkyl substances (PFAS), deposition of carbon compounds, metal concentration changes, and harmful algal blooms (HABs).

The poster provides recommendations to mitigate risks wildfires pose to drinking water infrastructure, available tools and information, and the opportunities to further enhance resilience and adaptation to wildfire’s direct and indirect impacts.

Learning Outcomes

- Understand the interrelationships of climate change, public health, and wildfires on potable water.
- Identify techniques for drinking water infrastructure and construction to reduce risks posed by wildfires

ID 21505: The Medical Support to the Space Domain. An Allied Perspective?

Selected presentation type: Poster

With the London Declaration in 2019, NATO Heads of State and Government declared Space as the Alliance's "fifth domain" of operations (alongside land, sea, air and cyberspace). The current mission for the military is to manage those activities related to the defense and security of the Earth's orbit, where satellites relay core services for the functioning of our operations and more comprehensively of our societies. The Space Domain is a physical environment that has always been under continuous pressure of technological innovation and human ambitions. The Artemis program series will drive the international cooperation to extend human presence to the Moon during this decade and use that experience to reach Mars during the next decade. Exploration of the solar system away from Earth is led by civilian agencies and is not in the focus of the military. However, when the focus of exploration moves deeper into the Solar System, a volume of space can be left behind unguarded and become a dangerous terrain for uncontrolled exploitation (i.e., tourism, scientific/commercial/industrial undertakings, other militaries' initiatives...), generating new safety requirements for the launching States. Consequently, the mission for the military may be forced to adapt to new trends. Relatively to the medical support challenge and in line with the UN Treaties and Principles on outer space, we propose a framework based on the standing Allied Aeromedical Doctrine where multinational military assets can peacefully contribute to providing a safe and secure environment as space becomes more and more populated. New medical services need early planning of about 8-10 years to deliver acceptable standards of care in sufficient quality and quantity. Additionally, medical capabilities and practices could require innovative approaches to perform in remote, unfamiliar, and hazardous environments, incorporating evolving technologies and applying unprecedented solutions. Longstanding and solid multinational military organizations such as NATO can provide – in this case anticipate – interoperable standards and achieve economy of scale for a sustainable collective space medical infrastructure.

Learning Outcomes

- Discuss the current medical involvement and its possible evolution relatively to the Allied Space Domain.
- Recognize the need for partnership in the medical sustainment of the Allied Space Domain.
- Describe how the current Aeromedical Doctrine in NATO can anticipate interoperability requirements.

ID 21507: Healthcare Utilization of Battlefield Trauma and Trauma-related Infections

Selected presentation type: Poster

Inpatient care for complex battlefield trauma is often resource intensive, including admission to the intensive care unit (ICU), surgeries, and medical management. Adding to the challenge is the high proportion of infections that develop during the initial trauma hospitalization, including those with multidrug-resistant (MDR) Gram-negative bacilli. As 'Improved Readiness, Better Care, Better Health, and Lower Cost' is a priority aim of the Military Health System (MHS), findings from well-designed clinical studies are needed to inform allocation of resources to treat wounded military personnel. We evaluated the hospital resource utilization among wounded military personnel related to occurrence of inpatient infections with and without MDR Gram-negative bacilli. Data were collected through the Trauma Infectious Disease Outcomes Study. The study population included military personnel wounded during deployment 1 June 2009 through 31 December 2014 and admitted to Landstuhl Regional Medical Center (LRMC; Germany) before transitioning to participating military hospitals in the United States, and consented to review of electronic medical records through the MHS Data Repository. Patients were classified by infection status as having a trauma-related infection with an MDR Gram-negative bacillus (MDRGN-I), infection attributed to a pathogen other than Gram-negative bacilli (non-MDRGN-I), or no infection. Among 1,336 wounded military personnel, 149 (11%) patients had an MDRGN-I, 328 (25%) had a non-MDRGN-I, and 859 (64%) had no infection during their initial hospitalization. After restricting to patients with infections diagnosed within two weeks post-injury (four weeks for osteomyelitis), the study population included 468 patients: 148 (32%) with an MDRGN-I and 320 (68%) with a non-MDRGN-I. Patients in the MDRGN-I group were more severely injured, required greater volume of blood within 24 hours post-injury, and had a higher proportion of amputations compared to the non-MDRGN-I group ($p<0.001$). Patients with MDRGN-I had a greater number of infections (median of 2) compared to non-MDRGN-I patients (median of 1; $p<0.001$) with a higher proportion of sepsis, skin and soft-tissue infections, osteomyelitis, and bloodstream infections ($p<0.05$). Patients with MDRGN-Is had a longer duration of hospitalization (median of 59.5 days; IQR: 40.5-84 days) compared to a median of 42 days (IQR: 30-61; $p<0.001$) for non-MDRGN-I patients. During their hospitalization, 135 (91.2%) patients with an MDRGN-I were admitted to the ICU compared to 251 (78.4%; $p=0.001$) non-MDRGN-I patients. Use of mechanical ventilation and central venous catheters were more frequent among patients with MDRGN-Is compared to non-MDRGN-I patients ($p<0.05$). Patients with MDRGN-I had a greater receipt of aminoglycosides, aminopenicillin, carbapenems, polyenes, polymyxins, TMP-sulfa, triazoles, and vancomycin than non-MDRGN-I patients ($p<0.05$). A total of 7,826 clinical cultures were collected from MDRGN-I patients (median of 34.5), compared to 6,831 clinical cultures (median of 15; $p<0.001$) from patients with non-MDRGN-I. Developing an MDRGN-I was associated with approximately a 12-hour longer stay per day compared to patients with non-MDRGN-I. When adjusted for infection suspicion clinical microbiology workups, surgeries, and 1st 24-hour blood transfusions, along with other factors shown to be empirically associated with hospitalization, an MDRGN-I stay is approximately 4-hour longer than non-MDRGN-I stay. Examination of incremental changes in healthcare cost is warranted.

Learning Outcomes

- Describe the inpatient healthcare utilization requirements among combat casualties
- Examine differences in healthcare utilization among combat casualties per infection status
- Understand the impact of multidrug-resistant Gram-negative infections on the duration of hospitalization following combat-related trauma

ID 21512: Human performance teams assessment study: preliminary findings

Selected presentation type: Poster

To meet the goals of Total Force Fitness (TFF), the Department of Defense (DoD) has greatly increased its financial investment in the hiring of Human Performance Team (HPT) assets. These assets may include professionals in widely varying fields, including but not limited to clinical psychologists, dieticians, athletic trainers, chaplains, social workers, strength and conditioning coaches, performance psychology practitioners, and medical providers. HPTs provide services across the entire continuum of care: from recovery and restoration, to prevention, intervention, and performance optimization. Although resources continue to be allocated for hiring and training HPTs, little is known about what key individual and team-based provider characteristics impact the quality of services. Further, moving services toward more holistic care is necessary to meet the goals of providing the integrated care necessary for addressing complex health and performance issues for our warfighters (e.g., GAO-22-104486).

Team-based and individual practitioner characteristics represent critical components of effective patient-centered care in the civilian sector, and these characteristics have been associated with improved patient outcomes (Street et al., 2009; Robinson et al., 2008), as well as treatment satisfaction (Hong & Oh, 2020; Yun & Choi, 2019). Individual characteristics such as honesty, discipline, creativity, humility (Babiker et al., 2014), perseverance (Meyer et al., 2021; Bosch & Mansell, 2015) and situational awareness (Cruthirds et al., 2021) have been explored as contributors to effective healthcare teams. Team-based dimensions such as leadership and followership (Varpio et al., 2018), clear and shared purpose (Breitbach et al., 2017), shared goals (Babiker et al., 2014), effective communication (Kim et al., 2019), trust (Bosch & Mansell, 2015) and psychological safety (Edmondson, 1999) have likewise been examined as factors impacting healthcare team performance and functioning.

Therefore, this study aimed to close a gap in our collective knowledge base across TFF assets with a goal of developing targeted interventions for enhancing interprofessional and multidisciplinary collaborations among HPTs employed by HPO/TFF programs across the DoD. A primer on the importance of interprofessional and multidisciplinary collaboration will be summarized. Study methodology involved a cross-sectional, exploratory, qualitative focus group approach. Focus groups were conducted with a convenience sample of HPT professionals, assigned to multiple DoD locations via an internet-based video call. Data collection for this study is ongoing and the data will be analyzed by the end of 2022. Emergent themes regarding collaboration, barriers to integrated care, and optimal human performance teams will result from content analyses. Preliminary findings from this study will be highlighted and recommendations for HPO/TFF programs will be provided.

Learning Outcomes

- Describe major considerations for working in multidisciplinary HPTs.
- Identify factors that bolster or act as barriers to HPT collaboration.
- Explain how human performance team assets can be integrated to optimize service member care/readiness.

ID 21513: The Effectiveness of an Inpatient Falls Prevention Program in Preventing Falls in Incarcerated Males

Selected presentation type: Poster

Background and Purpose:

The inpatient Nursing Care Center (NCC) at the Federal Medical Center (FMC) Lexington houses the most medically complex patients (mean age of 62.5) within the Federal Bureau of Prisons, many of whom possess significant functional mobility impairments. From 2021-2022, falls occurring on the NCC at FMC Lexington increased by 177%. The Rehabilitation and Orthopedic Department at FMC Lexington obtained reports on 52 confirmed falls and estimated as many as 75 total falls occurred on the NCC during a one-year period. The estimated potential falls costs liability on the NCC totaled over \$2,572,000 during the aforementioned one-year period.

Case Description:

In response to the increase in falls among the inpatient population at FMC Lexington within a one-year period, the Rehabilitation and Orthopedic Department performed a data analysis on 52 falls that occurred on the NCC. The data analysis revealed that the most common falls mechanisms included the following: transfers (43.3%), toileting activities (21.1%), failure to lock wheelchair brakes (15.6%), slipping (11.6%) and knees buckling (11.6%). Data analysis revealed that 96.2% of the falls were unwitnessed. Furthermore, an inmate companion was present in only 3.8% of the falls.

Following the completion of the data analysis, the Rehabilitation and Orthopedic Department at FMC Lexington developed an innovative falls prevention program that included a 10-page falls prevention guide with seven cost effective recommendations to reduce falls. The recommendations included the following: 1) Installation of a call light system; 2) Implementation of hourly rounding for high falls risk patients; 3) Utilization of bed and chair alarms for high falls risk patients; 4) Relocation of the highest falls risk patients to the rooms closest to the nurses' station; 5) Increasing the number of inmate companions on the NCC; 6) Including physical therapy in the post-falls follow-up procedures; 7) Including physical therapy in the falls risk screening procedures for all new admissions to the NCC. The call light system was not implemented secondary to the lengthy approval process required for the purchasing and installation of the system.

Outcomes:

Since its implementation, the Rehabilitation and Orthopedic Department's falls prevention program has reduced the number of falls on the Nursing Care Center by 71.1%. Furthermore, in one quarter, the falls prevention program reduced FMC Lexington's potential falls costs liability by \$411,528. The falls prevention program also reduced FMC Lexington's estimated annual falls costs liability by \$1,408,845. The total cost to implement the falls prevention program was \$1,085, which included the purchasing of the bed alarms and chair alarms.

Discussion:

This case-series presents evidence that the implementation of a falls prevention program is effective at reducing falls in medically complex federal inmates. This case-series highlights the significant improvement in overall quality of patient care as well as the health-related cost savings that can be achieved through the implementation of a successful falls prevention program. This type of falls prevention program can be successfully implemented in other federal health environments that provide medical care to high falls risk patients with functional mobility impairments.

Learning Outcomes

- Identify the average cost of a falls-related injury.
- List the three most common falls mechanisms that were identified on the Nursing Care Center at FMC Lexington.
- Describe five falls prevention measures that were implemented on the Nursing Care Center at FMC Lexington.
- Identify the total cost associated with the implementation of the falls prevention program on the Nursing Care Center at FMC Lexington.

ID 21515: The Impact of High-Fidelity Simulations on Military Medical Student Readiness

Selected presentation type: Poster

Introduction Simulation is a key aspect of the Military Unique Curriculum (MUC) at the Uniformed Services University (USU). The Department of Military and Emergency Medicine (MEM) conducts rigorous high-fidelity simulations for the military medical students during each year of their medical school training: the Patient Experience (first year), Advanced Combat Medical Experience (ACME) (second year), Operation Gunpowder (third year), and Operation Bushmaster (fourth year). There is currently a gap in the professional literature regarding students' progression through each of these simulations. This study, therefore, explores the experiences of military medical students at USU in order to understand how they learn and develop as they progress through these high-fidelity simulations.

Materials and Methods Using a grounded theory approach to qualitative research design, we analyzed qualitative data from 402 military medical students across all four years of military school who participated in the four high-fidelity simulations during 2021-2022. Our research team used open and axial coding to categorize the data and to make connections between each of these categories, which we articulated in a theoretical framework and illustrated in a consequential matrix. This research was approved by the Institutional Review Board at USU.

Results During the Patient Experience, the first-year medical students described the stress, chaos, and lack of resources that military physicians face as they experienced the realism of the operational environment. Later at ACME, the second-year medical students practiced their medical skills hands on for the first time in the simulated stressful operational environment. As a result, they gained confidence and began to formulate their professional identity. Next, at Operation Gunpowder, the third year medical students advanced to more complex tactical field care as they performed prolonged casualty care, forward resuscitative care, forward resuscitative surgical care, and en route care as a team, often revealing gaps in their knowledge that needed to be filled. During the capstone simulation, Operation Bushmaster, the fourth year medical students closed these gaps and solidified their professional identity as leaders and physicians, culminating in a strong confidence regarding their readiness for their first deployment.

Conclusions Each of the four high-fidelity simulations impacted the students in unique ways as they were incrementally challenged to practice and build upon their knowledge, skills, and abilities related to combat casualty care, teamwork, and leadership in the operational environment. As they completed each of the simulations their skills improved, confidence grew, and professional identity solidified. Therefore, completing these rigorous simulations progressively over the course of four years of medical school appears to be a worthwhile process for enhancing the deployment readiness of early career military physicians.

Learning Outcomes

- Describe the steps of grounded theory qualitative data analysis used to analyze the data in this study.
- Analyze military medical students' progression through four high-fidelity simulations.
- Identify the benefits of high-fidelity simulations for military medical students' deployment readiness.

ID 21516: Leveraging Technology to Maximize Impact on Veteran Care and Services

Selected presentation type: Poster

Department of Veterans Affairs (VA) Information Technology (IT) modernization envisions transforming the way VA does business to propel operational capabilities forward and meet customer-driven demand and requirements. Yet experts agree, the risk of digital transformation failure falls around 80%. This poster defines digital transformation and provides an overview of the biggest challenges facing its success. Data includes a single point-in-time poll of 57 Veterans Health Administration employees who were asked “What barriers have you experienced or witnessed to successful implementation of technology?” Included in the poster are the benefits of digital transformation followed by practical and proactive means to aid in successful technology adoption.

Learning Outcomes

- Define Digital Transformation
- Identify challenges to implementation of IT modernization
- Describe benefits to technology and clinical operations for the improvement of Veteran care and services
- List ways to aid in successful digital transformation

ID 21517: Findings from the Army Medical Department (AMEDD) Resiliency Needs Assessment of Staff Burnout: Associations with Negative Health and Organizational Outcomes

Selected presentation type: Poster

While burnout can develop among all types of professions and occupational settings, the negative consequences of burnout in the medical community have garnered attention. This assessment was designed to examine levels of burnout in Military Health System (MHS) staff working at Army installations and the factors that influence the development of burnout. Anonymous data was collected from 13,558 active duty Soldiers and civilian MHS employees (aggregate response rate =25.3%) from 25 AUG to 15 NOV 2021. Burnout was measured using the Copenhagen Burnout Inventory and the Mini-Z. Results showed nearly half of staff who responded (48%) reported being burned out, an increase since last measured in 2019 (31%). Factors related to increased burnout included concerns about work/life balance and workload, low job satisfaction and feeling disconnected from others. Burnout was associated with increases in adverse physical and BH outcomes including poor general health, reduced physical and mental health functioning, and depression. Burnout was associated with considerations of no longer working in healthcare. Results indicate that burnout is a common problem across MHS Army staff and is related to significant adverse health consequences for the individual and reduced retention of staff for the organization. These findings highlight the need to address burnout through policies that standardize health care delivery practices, providing support to leadership to promote a healthy workplace, and individual support to those who experience burnout.

Learning Outcomes

- Describe burnout in healthcare staff, how it is measured, and rates of burnout and resiliency throughout Army Medical Department (AMEDD) staff.
- Identify specific factors related to increased rates of burnout in AMEDD staff and consequences of increased burnout.
- Identify potential lines of effort to address burnout that could be used in a resilience program for AMEDD staff.

ID 21521: Extremely Sensitive Saliva Testing for Viral Diseases

Selected presentation type: Poster

ApoH Technology LLC in collaboration with ERP International is evaluating the potentials for application of ApoH technology platform as a non-invasive, ultrasensitive detection of SARS-CoV-2 using mouthwash samples. The novel feature of the Apolipoprotein-H (ApoH)-based diagnostic technique is its ability to bind, with a very high affinity (nanomolar scale), to viral and bacterial pathogens. The unique sample preparation technique is fast, reliable and a proven method, compatible with most of the existing detection methods, and enhance diagnostic sensitivity by at least over one to two-orders of magnitude. Given that SARS-CoV-2 and other respiratory pathogens (viral and bacterial) are present in the oral cavity, the technique offers a non-invasive sampling and testing alternative significantly enhancing current detection and diagnostic methods. In our experience, hepatitis B virus (HBV), hepatitis C virus (HCV) human immunodeficiency virus (HIV), influenza, as well as many other human and animal viruses and more than 200 species of bacteria, have been successfully detected using the agnostic pre-analytical sample processing feature of ApoH technology, demonstrating results far exceedance in the performance of any detection test used. This unique agnostic sensor-capturer property of ApoH to bind to pathogens for their enrichment, which not only critically increases the sensitivity of detection tests (qPCR or other), but also allows a better assessment of their infectiousness as well as the discovery of unknown infectious agents by using an even more sensitive NGS-metagenomic approach (more reads). One of the major current problems in the accurate detection viral pathogens from clinical or environmental samples is the frequency of false negative results. Indeed, these uncertain results, which delay or prevent immediate rest against the threat, are usually due to the lack of sample cleaning, the absence of a universal preparation method (diagnostic) and the difficulty of a rapid and reliable concentration of these pathogens. Based on previous successful uses of ApoH for ultrasensitive pathogen detection, the applicability of ApoH sample preparation system was performed to the capture of SARS-CoV-2 in various human fluids. The sample-processing ApoH technology uses specially designed solid matrices (i.e., magnetic beads coated with ApoH and synthetic ApoH derivatives) for selective capture and concentration of SARS-CoV-2, including all related viral variants of concern (VOC). The scoping studies using ApoH technology employed nasopharyngeal and oropharyngeal samples (cotton in 2 mL of virus transport medium), saliva (2 mL), and mouthwash with water (2 mL), followed by the approved diagnostic test demonstrate significantly improved detection of SARS-CoV-2 by qRT-PCR. These promising preliminary findings suggest potentials for ultrasensitive, non-invasive detection of SARS-CoV-2, drastically reduces or avoid false-negative diagnosis, and compatible with currently approved detection tests. Moreover, the ApoH pre-analytical sampling processing technology improves the efficiency of infectious disease diagnosis in general not only from human samples, but also from animal and environmental samples.

Learning Outcomes

- Pathogen Detection
- Biological Threat Detection
- Disease Surveillance

ID 21522: Patient Satisfaction, Utilization, and Preference with Synchronous Virtual Primary Care Appointments for Adult Beneficiaries at Fort Bliss, Texas

Selected presentation type: Poster

Background: The COVID-19 public health state of emergency (PHE) caused rapid implementation and advancing interest in synchronous virtual healthcare (VH), possibly changing the culture and impacting the way forward for VH after the end of COVID-19 PHE. Recognized by the National Defense Authorization Act (NDAA) of 2017, the Military Health System (MHS) promoted VH before the COVID-19 pandemic (NDAA, 2017). This evidence-based project aims to observe how virtual compared to face-to-face (FTF) synchronous appointments impact primary care utilization, patient satisfaction, and preference for adult patients at William Beaumont Army Medical Center (WBAMC) at Fort Bliss, Texas.

Methods: First, program evaluations were conducted using retrospective analysis of synchronous virtual appointments across 2019-2021 of patient utilization data from the Composite Healthcare System (CHCS) and patient satisfaction data from the Joint Outpatient Experience Survey (JOES). Second, a needs assessment was conducted across three primary care clinics of current (2022) patient preferences for VH appointments utilizing a data collection tool.

Results: Patient utilization was unable to be analyzed; however, an association of fewer FTF cancellations/no-shows was observed when virtual appointments were higher during the COVID-19 PHE. Patient satisfaction showed significance ($p = 0.0031$) between FTF and VH appointments during 2020, with patients less satisfied with FTF. No significant difference ($p > 0.05$) between VH and FTF for 2019 or 2021. Patient preferences revealed that the majority (73%) were not offered the option to book a VH appointment; however, the majority (78%) preferred the option to choose. Most patients (40%) prefer FTF appointments, 28% prefer virtual, while 32% say it depends. The emergent theme for VH was convenience (32%), while FTF was the desire for a physical exam (49%).

Learning Outcomes

- The learner will be able to identify how virtual health can meet patient needs and health care metrics at their facilities.
- The learner will be able to list common reasons why patients prefer virtual health appointments versus face to face appointments.
- The learner will be able to recognize potential cost savings in meeting patients needs with virtual health care.
- The learner will be able to describe how the expansion of virtual health aligns with strategic goals of the Defense Health Agency Quadruple Aim.
- The learner will be able to recognize how virtual health appointments are associated with improved appointment utilization.

ID 21523: Establishing Procedural Requirements for VA Employees to Complete Clinical or Research Program Requirements as Health Professions Trainees at VA Medical Facilities

Selected presentation type: Poster

In collaboration with academic institutions across the country, the Department of Veterans Affairs (VA) conducts an extensive coordinated education and training effort for health professions. In addition, VA promotes and supports its employees' continuous learning and professional development. According to the Veterans Health Administration (VHA) Fiscal Year 2022-2023 Workforce and Succession Strategic Plan, VHA currently employs over 370,000 employees providing health care services to more than 9 million Veterans at 1,293 VA medical facilities, including 171 VA Medical Centers and 1,222 outpatient sites of care. In recent years, a growing number of VHA employees seeking advanced practice degrees requested the completion of academic course requirements at VA medical facilities. The VHA has robust policies for VA employee and VA trainee appointments, supervision, roles and responsibilities. However, until recently, no procedural requirements had been established at the national level to support these dual VA employee-trainee roles. As such, a myriad of issues and challenges have been reported by VA medical facilities related to employees' "unofficial" completion of academic requirements at VA facilities. Further national analysis revealed that significant variations existed among VA medical facilities in managing employee requests to complete clinical or research coursework requirements at VA. The results of the inquiry prompted standardization of practices across all VHA facilities and the development and implementation of a single process for managing the VA employee-trainee role.

The VA Office of Academic Affiliations (OAA) established a task force to (1) examine the multi-faceted ethical, legal, and human resource issues related to VA employees completing their academic clinical requirements and/or scholarly research and non-research requirements at VA facilities and (2) establish the procedural requirements on the appointment and supervision of VA employees in a training status at VA medical facilities. The task force collected and examined a number of real-life conflicts of interest and safety/quality of care scenarios provided by the field.

The task force determined that explicit separation of VA employee and trainee roles was necessary to avoid any adverse impact of training on employment and vice versa. The task force developed and implemented procedural requirements for the appointment and supervision of VA employees as trainees at VA medical facilities. In 2018, the VHA developed a "VA Employee-Trainee Toolkit," which outlined the critical steps for requesting and approving employee academic training at a VA medical facility. These procedural requirements were piloted for two years to determine the feasibility of these processes and provided an opportunity to receive feedback from VA medical facilities. In 2022, OAA formalized these procedures as a VHA national policy.

Learning Outcomes

- Understand the Department of Veterans Affairs (VA) extensive health care workforce training mission.
- Understand the procedural requirements for the appointment and supervision of VA employees as trainees at VA medical facilities.
- Utilize the "VA Employee-Trainee Toolkit," which outlines the critical steps for requesting and approving employee academic training at a VA medical facility.

ID 21524: Now that they have the scholarship, will these RNs complete their academic program timely?

Selected presentation type: Poster

Background: According to the FY 2022-26 Veterans Health Administration (VHA) Nursing Occupations Workforce Resources Blueprint, most VA medical centers (VAMCs) identified recruitment rather than retention as the primary cause of the shortage of all nursing occupations. The primary root cause of the registered nurse (RN) recruitment challenge was identified as a lack of candidates. To meet this challenge, VHA has taken a proactive approach to develop highly qualified nursing professionals through various education and scholarship programs. The VHA Employee Incentive Scholarship Program (EISP) helps to fill difficult-to-recruit health care positions, however, completion of academic degree programs by the scholarship recipients is critical to the success of the scholarship program. **Aim:** The aim of the study was to evaluate barriers and facilitators to academic degree completion among registered nurses enrolled in degree programs supported by the scholarship program of the National Nursing Education Initiative of the Veterans Health Administration, an initiative under the EISP. **Methods:** Using a retrospective longitudinal design and administrative data we performed survival analysis (Kaplan-Meier survival functions, log-rank tests, and Cox regressions) to examine a national sample of registered nurses (N = 15,908) pursuing higher degrees through the NNEI from 2000 to 2020. The time elapsed since enrollment represented retention time. **Results:** Nurses ranged in age from 19 to 71 years, with 86% being female. The cumulative retention rates after six and twelve months were 92 and 84 percent, respectively. The latest group of nurses (enrolled between 2016 and 2020), younger nurses (<50 years), and nurses exposed to traditional degree program type, demonstrated higher retention rates than earlier groups, older nurses, and nurses exposed to non-traditional type. Male nurses who hoped to advance to advanced occupational levels after graduation were more likely to be retained than those who expected no change from their current level of practice. **Conclusion:** There are potentially modifiable factors influencing registered nurses' retention in academic programs where they enrolled to pursue nursing degrees. Several factors, besides financial support, can improve registered nurse retention rates in academic programs.

Learning Outcomes

- Describe barriers and facilitators to academic degree completion by VA RN employee scholarship recipients
- Recognize unique needs of RN candidates that should inform implementation of scholarship program locally
- Interpret basic (retention) survival curves

ID 21528: VA/DOD Clinical Practice Guideline for the use of Opioids in the Management of Chronic Pain

Selected presentation type: Poster

This poster will educate members of the healthcare team on key principles of the 2022 VA/DoD CPG The Use of Opioids in the Management of Chronic Pain. This poster will provide important information to members of the health care teams about assessing and managing risk in patients who have been prescribed opioids to manage pain. The poster will assist clinicians deliver high-quality, evidence-based care to their patients who have chronic pain and who have been prescribed opioids. Pain is common in both active-duty service members and Veterans. The use of opioids to manage pain has risks for the patient and this poster will assist health care teams to better assess and mitigate these risks.

Learning Outcomes

- Discuss assessment of patient risk when they are using opioids long-term for managing chronic pain.
- Identify evidence-based principles for initiation and continuation of opioids.
- Identify risk mitigation strategies for patients prescribed opioids

ID 21529: Operation Gunpowder: An Innovative Prolonged Casualty Care Course at the Uniformed Services University

Selected presentation type: Poster

Medical Field Practicum 201: Operation Gunpowder is part of the Uniformed Services University (USU) Department of Military and Emergency Medicine's (MEM), Military Unique Curriculum (MUC) and centers on the critical topic of Prolonged Casualty Care (PCC). PCC is, "the need to provide patient care for extended periods of time when evacuation or mission requirements surpass available capabilities and/or capacity to provide that care."¹ This essential skill is likely to become increasingly more vital in the future operating environment. For more than 20 years during the Global War on Terror, the United States had rather extensive infrastructure and air superiority resulting in fast evacuation times and rapid access to surgical capabilities. As the United States prepares for future conflicts, the reliance on PCC will become more important as we will have to operate in a semi-permissive or non-permissive environment.

Gunpowder was created by USU in response to these future threats and seeks to educate future military medical officers in the principles surrounding PCC while learners work in austere environments with limited resources. The course consists of asynchronous learning with pre-recorded lectures, in-person didactics with a focus on small group hands-on activities, and two field days. The field portion of the practicum takes place at the National Guard Training site, Fort Indiantown Gap, PA, where students are broken down into squad sized elements. Together, they must evaluate and treat two casualties, one medical and one surgical, while relying on Tactical Combat Casualty Care (TCCC) and PCC principles. Several of the principles covered include: recording and trending vital signs, performing a teleconsultation, creating nursing care plans, and implementing team wake, rest, and chow plans. Recently, MEM has partnered with the Departments of Surgery and Anesthesia to expand the curriculum to include Damage Control Resuscitation and Damage Control Surgery.

Gunpowder minimizes notionalization as much as possible and seeks to have the learners perform as many procedures on high-fidelity simulators as possible. For example, the students are educated on how to conduct a Walking Blood Bank and must set up all of the equipment on their own. The practicum recruits more than 40 subject matter experts across the country to include physicians, physician assistants, medics, and corpsmen to serve as faculty. Additionally, the recruitment of both officers and non-commissioned officers as faculty optimizes inter-professional collaboration within the learning environment. Data collected during Operation Gunpowder revealed its impact on students' professional identity, leadership capabilities, and ability to practice medicine in austere, resource limited environments.

1. Remley MA, Loos PE, Riesberg JC. Prolonged Casualty Care Guidelines 21 December 2021. *J Spec Oper Med.* 2022 Spring;22(1):18-47. doi: 10.55460/8IUQ-907J. PMID: 35278313.

Learning Outcomes

- Analyze the future operational environment and ways to effectively prepare future military medical officers to practice medicine in evolving landscapes of war
- Describe the requirements of PCC and medical planning in future operational environments
- Discuss the importance of interprofessional and interdepartmental medical education for preparing military medical officers for the future austere, resource limited landscapes of war

ID 21530: The Impact of the US Department of Veterans Affairs Advanced Fellowship Training on the Healthcare Workforce

Selected presentation type: Poster

Health professions education (HPE) is one of four statutory missions in the Department of Veterans Affairs (VA). Overseen by the VA Office of Academic Affiliations (OAA), Advanced Fellowships (AF) is one of OAA's four clinical education sections. The AF section was established in 1978 in response to VA's need for innovative clinical training and specialized skills to build the next generation of VA leaders. Advanced fellowship training programs address leading edge and interprofessional areas that advance clinical care, research and health policy fields of importance to Veteran's healthcare. In academic year 2022 there are 21 training programs across 47 VA medical facilities. Since 1978, over 3,500 fellows have completed training, and graduates have become multifaceted leaders in their respective fields. To monitor the AF's impact on the VA and national workforce, OAA collects data through an annual employment survey. The survey was completed by AF training program leaders at the end of calendar years 2020 (for fellows graduating in fiscal years 2019 through 2020) and 2021 (for fellows graduating in fiscal year 2021). Survey items include first employment position after leaving the program (e.g., VA, private sector, other government) and narrative descriptions of the types of positions taken. Data were gathered on 279 fellows in 2020 (87% response rate, and 163 fellows in 2021 (93% response rate). Key results include 42% of graduates were employed by VA; 35% employed in the private sector; 10% continued their specialty training; and 5% were employed in other government positions at the time of data collection. Greater proportions of social workers, psychologists and physicians were retained by VA compared to other professions. The survey data showed substantial contribution of AFs to the VA workforce; OAA will continue to identify and fund AF training programs that have maximum potential to advance healthcare for the VA and nation.

Learning Outcomes

- Describe the goals of the Office of Academic Affiliations (OAA), US Department of Veterans Affairs, for tracking post fellowship VA employment for Advanced Fellows.
- Describe the portfolio of health professions education programs in OAA's Advanced Fellowships section.
- Describe how Advanced Fellowships contribute to the future workforce for VA and the nation

ID 21532: Value in the Vapor: Seeking Meaningful Vaping Documentation

Selected presentation type: Poster

In the U.S. military, vaping and other Electronic Nicotine Delivery Systems (ENDS) are set to overtake cigarettes as the number one method of nicotine delivery. Previously, providers could rely on the relative standard of the pack year. Now, providers and patients are struggling to quantify ENDS use, resulting in low-value documentation. Research indicates that ENDS use carries health consequences, and as with most toxin-related diseases, the nature of exposure matters. While high quality studies continue to uncover the health impacts of ENDS, we should anticipate the need for quality exposure histories. Despite more than a decade-long conversation about ENDS, however, no consensus on standard documentation has emerged.

As an initial mitigation strategy, the investigators set out to temporize this documentation gap by seeking a conversion factor of the cigarette pack year anchored on nicotine, as well as to provide e-liquid nicotine content reference ranges and a terminology set for providers. Together, these tools would form a common framework for providers to quantify and communicate about ENDS.

Through a multi-modal review of most commonly purchased e-liquid nicotine concentrations and volumes and cigarette pack nicotine contents, average gross nicotine per volume was calculated for both modalities. For e-liquid reference ranges, review data was plotted, as appropriate to the source, to develop a frequency distribution. Terminology was collected longitudinally and narrowed for value.

While it was possible to calculate and compare gross nicotine intake in each modality, review of pertinent data indicates that direct comparison to cigarettes is not an adequate mitigation strategy. Patient ENDS use is highly idiosyncratic, varying across “puff topography”, device features, carrier liquid composition, and more. Such variability modulates the quantity of nicotine delivered and exposure to harmful or potentially harmful compounds. Thus, conversion of ENDS usage to a pack year misses the significantly different nature of the exposure. To capture critical information about patient exposure, the authors have instead integrated variables observed repeatedly across all sources to propose a standard reporting structure via the acronym “VAPE”. This poster presents the proposed common framework of a reporting structure with integrated reference ranges and high-yield terminology for providers.

Learning Outcomes

- State the importance of quality vaping exposure histories.
- Explain why vaping behaviors cannot be directly compared to combustible cigarette use.
- Describe an acronym that may help providers document patient vaping histories.

ID 21534: The Impact of Unintended Pregnancy on Military Readiness

Selected presentation type: Poster

Unintended pregnancy (UIP) is a risk factor for poor maternal mental health including perinatal depression, stress, and decreases in well-being and life satisfaction. For active duty service women (ADSW) it can also have negative impacts on their career and life goals. Additionally, UIP among ADSW can negatively impact military readiness and thus is an area of concern for the Department of Defense (DoD). While other studies have calculated the rate of unintended pregnancy among this population using self-reported survey data (5.5%), this study aims to estimate both the number of unintended pregnancies during fiscal year (FY) 2019 and the number of readiness days lost in order to better understand the impact on military readiness. Using Defense Enrollment Eligibility Reporting System records and administrative claims data from the MHS Data Repository, we identified all ADSW ages 18 to 44 years in the Army, Air Force, Navy, and Marine Corps during FY 2019; and subsequently identified those with a delivery at either an MTF or private sector facility during the same FY. Deliveries were identified using Medicare Severity Diagnosis Related Group (MS-DRG) codes for vaginal and cesarean deliveries. Analyses included estimating the rate of UIP in ADSW and the resulting total number of lost readiness days. The estimated number of unintended pregnancies was calculated by multiplying the number of deliveries by the age-adjusted rates reported in the 2018 RAND study of the 2016 Department of Defense Health Related Behaviors Survey (HRBS)—approximately 54% in active duty women and 45% by civilian women ages 15 to 44 years who experienced a pregnancy in the year prior to the survey. ADSW have up to 12 months postpartum to return to readiness standards for fitness and deployability; therefore, to estimate the total number of readiness days lost we multiplied the estimated number of unintended pregnancies by 365 days. A total of 230,596 ADSW were identified in FY 2019; of whom 12,564 (5%) had a delivery in the same year, which we estimate 6,785 of those pregnancies to be unintended (at the 54% rate) and would result in a total loss of 2,476,364 readiness days (or 81,415 months). When further stratified by age group, race, rank, and service we found the highest estimates of UIP and readiness days lost (RDL) in the following groups: ADSW aged 18 to 24 [UIP=2,816; RDL=1,027,679], of White race [UIP=3,899; RDL=1,423,062], in a Junior Enlisted rank [UIP=3,099; RDL=1,131,157], and in the Army [UIP=2,233; RDL=815,206]. Under the 2022 National Defense Authorization Act (NDAA), both primary and secondary care givers are eligible for 12 weeks paid parental leave for the birth or adoption of a child. Given the extension of parental leave to the secondary care giver, this is not just a service women's health issue – it is a readiness issue. The high rate of unintended pregnancy within an open access healthcare system requires a thorough analysis of the barriers to reproductive health planning by the DoD.

Learning Outcomes

- Learn more about the prevalence of unintended pregnancy among active duty service members
- Understand the unique challenges unintended pregnancy among active duty service members presents
- Understand the impact of unintended pregnancy among active duty service members on readiness

ID 21537: Management of Dyslipidemia for Cardiovascular Disease Risk Reduction: Synopsis of the 2020 Updated U.S. Department of Veterans Affairs and U.S. Department of Defense Clinical Practice Guideline

Selected presentation type: Poster

Cardiovascular disease (CVD) is a major cause of morbidity and mortality in the United States. Serum cholesterol and its lipoprotein carriers are known implicated factors in CVD development and progression. Although a variety of risk factors contribute to CVD, dyslipidemia remains one of the key modifiable risk factors for target to reduce risk. The VA/DoD Evidence-Based Practice Work Group convened a joint VA/DoD guideline development effort that included a multidisciplinary panel of practicing clinician stakeholders and conformed to the Institute of Medicine's tenets for trustworthy clinical practice guidelines (CPGs). The guideline panel developed key questions in collaboration with the ECRI Institute, which systematically searched and evaluated the literature from 1 December 2013 to 16 May 2019 and developed and rated 27 recommendations by using the GRADE (Grading of Recommendations Assessment, Development and Evaluation) system. This guideline is intended to promote evidence-based management of dyslipidemia to reduce cardiovascular risk and thereby improve patient's clinical outcomes. The CPG is designed to assist primary care providers or specialists in the screening and diagnosis of dyslipidemia, determination of appropriate treatment, and delivery of individualized interventions. Reducing cardiovascular risk is important for the health and well-being of active duty service members, Veterans, and their families. This poster presentation summarizes key features of the guideline in 7 crucial areas: targeting of statin dose (not low-density lipoprotein cholesterol goals), additional tests for risk prediction, primary and secondary prevention, laboratory testing, physical activity, and nutrition.

Learning Outcomes

- Participants will describe evidence-based screening for the primary prevention of dyslipidemia.
- Participants will identify when statin therapy should be initiated, for primary prevention, to reduce cardiovascular risk.
- Participants will describe evidence-based interventions, for secondary prevention, to reduce cardiovascular risk.

ID 21538: Synopsis of the 2020 U.S. Department of Veterans Affairs and U.S. Department of Defense Clinical Practice Guideline for the Diagnosis and Management of Hypertension in the Primary Care Setting

Selected presentation type: Poster

Hypertension is the leading cause of cardiovascular morbidity and mortality in the United States (US) and if untreated, can lead to macrovascular complications including stroke, myocardial infarction, or peripheral arterial diseases, as well microvascular complications including chronic kidney disease or retinopathy. Hypertension is a highly prevalent chronic disease among US adults, US Veterans and active duty service members. The VA/DoD Evidence-Based Practice Work Group convened a joint VA/DoD guideline development effort that included a multidisciplinary panel of practicing clinician stakeholders and conformed to the Institute of Medicine's tenets for trustworthy clinical practice guidelines (CPGs). The guideline panel developed key questions in collaboration with the ECRI Institute, which systematically searched and evaluated the literature from 15 December 2013 to 25 March 2019 and developed and rated recommendations by using the GRADE (Grading of Recommendations Assessment, Development and Evaluation) system. This guideline is an update to the 2014 VA/DoD CPG for Diagnosis and Management of Hypertension in the Primary Care Setting and is intended to promote evidence-based management of hypertension and thereby improve patient's clinical outcomes. The CPG is designed to assist primary care providers or specialists in the screening and diagnosis of hypertension, determination of appropriate treatment, and delivery of individualized interventions. Reducing cardiovascular risk is important for the health and well-being of active duty service members, Veterans, and their families. This poster presentation summarizes key features of the CPGs: the measurement of blood pressure, the definition of hypertension, target treatment goals, and nonpharmacologic and pharmacologic treatment of essential and resistant hypertension.

Learning Outcomes

- Participants will gain an understanding of how the definition of hypertension has evolved in recent years.
- Participants will understand the important non-pharmacological interventions that can be used to treat hypertension.
- Participants will understand the important pharmacological interventions that can be used to treat hypertension.

ID 21539: Wound Care Modalities in a Deployment Setting: A Systematic Review

Selected presentation type: Poster

Introduction: The proportion of the U.S. military population with comorbidities, such as obesity, has continued to increase and has been associated with complicated wounds. This has been exacerbated by the inequitable access to healthcare among duty stations and field operations, which was illuminated during the COVID-19 pandemic. Novel wound care modalities for wound healing and infection mitigation have been developed and should be reviewed for their feasibility in a low resource setting such as deployments.

Objective: To evaluate available literature on novel wound healing and infection prophylaxis modalities and their potential feasibility within limited resource settings.

Methods: Adhering to PRISMA guidelines, a primary search was conducted in three databases (Pubmed, Web of Science, and Embase) on June 5th, 2022, for all relevant literature using terms related to wound care, cost, and accessibility. Eligible manuscripts were required to: (1) report the presence of an existing or proposed treatment for wound care; (2) have full-text English-language access; and (3) could potentially provide a more effective, accessible, and affordable option to current treatments. The Newcastle-Ottawa Quality Assessment tool for randomized trials was used to assess quality of the studies.

Results: The initial literature search produced 4,051 references. After duplicate removal, 3,011 articles underwent title and abstract screening. This yielded 213 articles eligible for full-text review that resulted in 157 articles that were included in qualitative analysis. Of the included studies, 103 explored novel wound care modalities. Within the 157 articles that were included in qualitative analysis, 54 explored infection prevention modalities in wound healing. The heterogeneity of the sample excluded the sample from being eligible for meta-analysis.

Conclusions/Relevance: The available literature reviewed, thus far, consistently supports the existence and potentiality of novel treatments for wound care that are likely more affordable and accessible than current first-line options. The goal of this systematic review is twofold. First, we aim to review the novel modalities that have been developed for wound care prophylaxis. Second, we aim to provide additional educational information to patients in a deployment setting on the potentiality of affordable and efficacious novel wound care treatments. This review will provide necessary information about treatment options for U.S. military patients with wounds requiring care.

Learning Outcomes

- Review novel wound care modalities for wound healing.
- Compare modalities for their feasibility in a low resource setting such as deployments.
- Provide educational information to patients in a deployment setting on the potentiality of affordable and efficacious novel wound care treatments.

ID 21540: The Future Alphabet: From A to O- Spelling out the future of blood products in military medicine

Selected presentation type: Poster

Damage control resuscitation (DCR) is an internationally recognized principle set developed for acute intervention with life-threatening injuries caused by trauma and severe haemorrhage. A central tenet of DCR is the restoration of tissue homeostasis by means of haemorrhage control and fluid transfusion to address the often fatal triad of coagulopathy, blood acidosis, and hypothermia. Blood products are an essential and critical resource used in DCR. Conventional blood products require costly and time-consuming screening for patient compatibility and are further limited in austere environments by their required specific transport and storage conditions. Novel techniques to generate and utilise synthetic blood products on demand will be useful in critical care and military applications. This review discusses alternative blood products based on the latest innovations and highlights the need for further research in this area.

Learning Outcomes

- identify the key baseline design principles required for a blood products in austere environments
- enumerate current next generation synthetic blood product substitutes that can be used in the military context
- highlight the future blood products for austere environments that are likely to succeed and need for further research in this area

ID 21543: Artificial Intelligence/Machine Learning Screening for COVID-19 using a U.S. patent-pending technology known as the iDetect COVID-19 testing application

Selected presentation type: Poster

Introduction

Artificial Intelligence (AI), machine learning (ML), and deep learning (DL) have been a large focus in medical diagnostics research, particularly for the last 2 years since the beginning of the SARS CoV-19 (COVID-19) global pandemic. To date, RT-PCR and antigen testing remain the most sensitive and specific diagnostic tests for COVID-19, however, can often cause delays in proper treatment while putting healthcare workers at risk. While not fully validated yet, easily acquired bitmap image processing ML algorithms show promise.

Methods

iDetect has implemented ML through a Support Vector Machine (SVM) and has also implemented DL through a Convolutional Neural Network (CNN) that can distinguish patterns from eye photos for various diseases. The CNN and SVM accuracy and precision for diagnosing COVID-19 were assessed in four phases. Phase one was conducted in collaboration with the University of North Carolina – Fayetteville State University. Eye photo datasets were collected from subjects simultaneously PCR tested. The datasets were augmented and run through hyperparameter tuned CNN models using RT-PCR as control through all phases. During phase two, FG Labs, in collaboration with a North Carolina-based COVID-19 private testing facility, rolled out android-based mobile eye imaging devices to photograph PCR-tested subject eyes and upload them to the secure depository. Phase-three was a study conducted overseas in collaboration with foreign government officials. It focused on the mass acquisition of photos from PCR-tested subjects by technicians using android mobile devices equipped with specialized eye imaging software. The CNN and SVM were trained on 7,288 COVID positive images and 12,529 COVID Negative images. Phase four is ongoing and is scheduled to be completed 3rd quarter of 2022. To better understand what the ML models are predicting, both backpropagation and Local Interpretable Model-agnostic Explanations (LIME) were used to analyze the eye images and determine COVID-19 markers in the eyes.

Results

The data was analyzed using statistical software using standard student t-testing. The performance of iDetect SVM and algorithms showed an overall Area Under the ROC of 92%. The overall sensitivity of the iDetect is close to 90% in all eye positions except up and right, and the specificity of the iDetect is more than 93% in all eye positions. The results of eye images through both LIME and backpropagation predicted that the ML models focus on the eye region of the image for prediction. The results also highlight that Inside and outside of the eye region, the surface of the eye overlying the sclera (the white part) is given more weightage by the Model.

Conclusions

This deep learning model shows rates of diagnostic accuracy comparable to RT-PCR or antigen testing in diagnosing COVID-19. While differentiating COVID-19 from other subgroups of SARS CoV-2 hasn't been examined in detail yet, iDetects accuracy and precision continue to improve. Using patient-driven image retrieval for the analysis of COVID-19 requires no shipping, less exposure risk than in person testing, and can potentially be used anywhere where a camera and internet connection are available.

Learning Outcomes

- Understand the implications of an image-driven diagnostic tool in diagnosing Sars Cov-19.
- Appreciate the cost savings in the removal of shipping and expensive testing for diagnosis.
- Analyze further implications for deep learning models in diagnosis and management of other diseases

ID 21544: Healthcare for the vulnerable: What's contract and program management go to do with it?

Selected presentation type: Poster

Department of Homeland Security (DHS) ensures healthcare to persons in communities throughout the U.S. Immigration and Health Service Corps (IHSC), a component under Department of Homeland Security, provides on-site direct patient care to Immigration and Customs Enforcement (ICE) detainees at 20 detention facilities throughout the country and manages the provision of off-site medical care for detainees housed in approximately 240 additional Intergovernmental Service Agreement (IGSA) facilities. Contracts and Interagency agreements (IAAs) are foundational to ensure that personnel, goods, and services are available to support healthcare provision.

A wide array of contract types can be used to procure goods and services on behalf of DHS/IHSC to provide healthcare to vulnerable individuals. The program managers and contract representatives (CORS) within IHSC have varied and extensive clinical backgrounds including nursing, behavioral health, pharmacy, and military medic experience. These individuals utilize this clinical experience to help stakeholder internal and external to ICE with contract requirements that are evidence based, clinically sound and represent the needs of the providers that will rely on these services in the field. Currently, they manage more than 15 multi-million-dollar service contracts in collaboration with other IHSC components, the DHS Office of Acquisitions, and the Office of the Chief Information Officer.

When other Federal agencies can support the needs of DHS and IHSC Interagency agreements are also utilized. This can lead to a cost and time savings for DHS with acquisitions and procurement. Some of the largest Interagency Agreements are with the Department of Veterans Affairs to assist with provision of referral to outside medical care and the Centers for Disease Control which supports Tuberculosis testing to ensure population health.

PHS officers are versatile and their role in these non-clinical program and contract management positions fosters access to quality healthcare for the vulnerable populations served by DHS, IHSC. In FY21, they managed the IHSC Purchase card program obligating over \$720K for good and services. A novel pharmacy waste and returns system was implemented to replace a contract that abruptly ended leaving many sites with excess pharmaceutical waste. Established a multi-million-dollar reimbursable agreement of over with Customs and Border Protection to support COVID testing. The RMU program managed 30+ acquisition actions encompassing Service Contracts totaling \$17.4M, two Inter-agency Agreements (HHS and VA FSC) with a combined total of \$127.7M, Medical Staffing contract valued at \$92.9M, and IHSC OCIO IT portfolio valued at \$5.8M.

Contracts and perform program management can lead to enhanced public health outcomes. They provide experience and a knowledge base that ensure contract requirement are detailed and meet the needs of the stakeholders, personnel and patients and vulnerable communities who will receive care based on the contract guidelines. Time and cost savings are realized by utilizing the expertise of clinical officers to develop contract requirements that are more thoroughly fleshed out and this decreases the need for contract modification after being implemented.

Learning Outcomes

- Explain the role of USPHS officers in ensuring public health and quality healthcare when working in nonclinical positions.
- Discuss DHS and the types of contracts/agreements that support healthcare provision to vulnerable populatio
- Detail the benefits of having clinical USPHS officers working in contract and program management.

ID 21546: Depression screening in military-affiliated parents during NICU admission and prior to discharge home

Selected presentation type: Poster

Background: Parents of infants admitted to the neonatal intensive care unit (NICU) have a higher risk of depression. Opportunities to screen parents of NICU infants are limited. Military families in overseas environments may be at higher risk for depression due to detachment from social supports and mental health resources. Identification of parents at risk for depression is an important step in promoting health and wellness for military service members and their families.

Objectives: To implement depression screening for mothers and partners of infants who require NICU admission in a small overseas level III NICU.

Methods: A Plan-Do-Study-Act (PDSA) model was utilized to establish a process to screen parents of NICU infants for depression. A working group was formed which included a neonatologist, NICU nurse, medical technician, and psychologist. The Edinburgh Postpartum Depression Screen (EPDS) and Public Health Questionnaire-9 (PHQ-9) were identified as validated tools to screen for postpartum depression (PPD) and major depressive disorder (MDD), respectively. The screening tools were given to parents of all infants admitted to the NICU for ≥ 7 days after seven days and again prior to discharge. Parents who screened positive were offered a referral to behavioral health. Following the initial PDSA cycle, a list of all available mental health resources was compiled into military branch specific handouts and provided to parents.

Results: Between September 2021 and June 2022, 43 out of 66 eligible parents completed depression screening after 7 days and/or prior to NICU discharge. 19% of parents screened positive for PPD or MDD on at least one screening. 26% of mothers had a positive depression screening while 10% of partners screened positive. On the initial screening after 7 days, 21% of parents screened positive for PPD or MDD (29% of mothers and 11% of partners). At the time of discharge, 18% of parents screened positive for PPD or MDD. No parents endorsed thoughts of self harm/suicidal ideation.

Conclusion: 1 in 5 NICU parents screened positive for depression a week after birth or prior to NICU discharge. This represents a significant military population with depression symptoms that may have otherwise gone unrecognized without screening. Further study is required to determine risk factors, protective factors, and the best interventions for parents who screen positive.

Learning Outcomes

- Recognize that both parents are at risk for depression when a newborn infant requires admission to the NICU.
- Identify the value of performing depression screening of parents in the NICU.
- Describe the incidence of positive depression screening in NICU parents at an overseas level III DoD NICU.

ID 21547: Veterans Health Administration (VHA) Whole Health System Approach to Long COVID: Supporting Veterans and their primary health care teams.

Selected presentation type: Poster

It is estimated that 4-7% of those diagnosed with COVID-19, or 2% of the U.S. population, will develop Long COVID. Based on approximately 600,000 known Veterans with a diagnosis of COVID-19, this equates to 24,000-42,000 Veterans. However, these numbers have the potential to be much higher, as the Veteran Administration (VA) has more than 6 million Veterans in care. As the largest healthcare system in the country, VHA clinicians and researchers were among the first healthcare providers to recognize the national pattern that a secondary illness was occurring in those who had initially recovered from COVID-19. As a dedicated innovator in health care procedures and processes, in May 2022 VA brought together its Office of Research and Development, Long COVID Community of Practice, and Long COVID Integrated Project Team to support the primary care teams caring for Veterans suffering from Long COVID.

In August 2022, VA released the [Whole Health System Approach to Long COVID: Patient-Aligned Care Team \(PACT\) Guide](#) (VHA Long COVID Guide). The first of its kind, the VHA Long COVID Guide identifies the most common Long COVID symptoms and conditions and provides recommendations using a Whole Health approach for managing care. Whole Health supports patient-centered, proactive, whole-person care. Conventional testing and treatment are combined with complementary and integrative health strategies. It empowers the Veteran thorough mindful awareness and self-care, recognizing the fundamental importance of healthy nutrition, activity, sleep, relationships, surroundings, and the many other areas of their lives that contribute to health and wholeness. The Whole Health approach allows clinicians to personalize management based upon what is most important to the Veteran and incorporate shared decision-making.

This guide provides suggestions as healthcare providers engage in shared health care decision-making with Veterans. It is not intended to replace clinical judgement. The writing team incorporated Diversity-Equity-Inclusion and Accessibility (DEIA) into how they wrote the recommendations. They also included evidence-informed modalities such as acupuncture, chiropractic care, biofeedback, diaphragmatic or soft belly breathing and health coaching.

The VHA Long COVID Guide includes a directory of Long COVID, symptoms, and other potential conditions, and includes one-page quick reference sheets for navigating care of Long COVID.

The VHA Long COVID Guide was initially developed for Veteran patients at VHA medical facilities. With Long COVID emerging as an urgent medical situation affecting patients worldwide, VHA is making the VHA Long COVID Guide available to health care providers across the nation to help them care for their patients with Long COVID.

Learning Outcomes

- Increase knowledge of how to manage care for patients with Long COVID in Primary Care setting utilizing the VHA Long COVID Guide.
- Increase knowledge for how the Whole Health System Approach can be utilized by healthcare providers in management of patients with Long COVID.
- Understand the uses and limitations of the VHA Long COVID Guide for Patient Aligned Care Teams.
- Use the VHA Long COVID Guide as model for development of similar guides for unique patient populations.
- Ability to gain access to VHA Long COVID Guide using QR Code.

ID 21548: Improving the Culture of Safety with Safety Forums

Selected presentation type: Poster

A robust safety culture is one of the pillars of a High Reliability Organization (HRO). This involves embracing Just Culture principles, improving psychological safety, and increasing event reporting. Patient Safety Forums, as part of a comprehensive framework for HRO implementation, facilitate improvements in safety culture and safety event reporting.

The Patient Safety Forums at the Jesse Brown VA Medical Center in Chicago, IL were initiated in September of 2020 with a dedicated monthly, one-hour timeframe. All employees are invited and encouraged to attend. The Forums follow a standard format and feature strong participation by the executive leadership team and other hospital leaders. The forums are also accredited for continuing education (CE) credit by the Department of Veterans Affairs Employee Education System and the Field Accreditation Services.

The standard format for the Forums includes a brief introduction and welcome message by the Medical Center Director. This is followed by the HRO Lead presenting Veterans Health Administration (VHA) HRO Theme of the Month, facility training updates, and often a high-reliability-themed video. Then the Patient Safety Manager (PSM) presents a monthly Good Catch Award. The Good Catch Award recognizes an employee or team that reported a significant near-miss or close call safety event. The PSM also discusses the vital importance of reporting and reviews the Joint Patient Safety Reporting System (JPSR) mechanism. Subsequently, a monthly featured safety story is presented and analyzed through an interactive panel discussion. Forum topics include discussion of Root Cause Analyses, Systems Redesign Projects, other safety incidents / near misses, and current events such as the Vanderbilt Nurse Conviction. The panel discussions are moderated by the Chief of Staff and include an interdisciplinary panel of staff members who were involved in the event and or the process improvement. The panel discussions focus on reviewing safety events from a Just Culture lens and emphasize the resulting system or process improvements. The applicable HRO principles and values are discussed in relation to the safety story and the action plan. The executive leadership team's participation in the Forum demonstrates leadership commitment and sends a clear message of its importance to our journey towards zero harm.

The opportunity for CE combined with our unique panel-style format in highlighting safety events has prompted much interest from the frontline staff. Participation has increased over 233% from approximately 60 participants in September of 2020 to over 200 participants at the May 2022 Forum. Additionally, the six-month average number of close calls reported prior to the initiation of the Forums (March 2020 – August 2020) was approximately 22 events per month. The most recent six-month average number of close calls (September 2021 – February 2022) increased to approximately 69 per month. This Improvement in event reporting is likely the result of the implementation of a comprehensive framework of HRO, which includes Patient Safety Forums. Finally, employees continue to offer positive feedback, enjoy learning about how event reporting leads to improvements, and appreciate the application of Just Culture principles for evaluating errors and adverse events.

Learning Outcomes

- Describe Patient Safety Forums and how they facilitate the creation of a safety culture and reinforce the High-Reliability Organization (HRO) principles.
- Identify the characteristics of Safety Forums that promote the advancement of psychological safety.
- Recognize the importance of leadership commitment and transparency in discussing process and system failures across the organization
- Explain the importance of open and frequent event reporting and the application of Just Culture principles for the development of psychological safety.

ID 21549: Standardized enteral feeding protocol: Impact on growth, central line use, and TPN days in very low birthweight infants

Selected presentation type: Poster

Background: Very low birth weight (VLBW) preterm infants (defined as weighing less than 1500g) are at high risk for nutritional deficits and poor postnatal growth. Due to immature oral feeding skills and gut development they require total parenteral nutrition after birth with slow advancement of enteral feeds. Standardization of enteral feeding practices has been shown to improve clinical outcomes including improved growth, reduced total parenteral nutrition (TPN) use and central line days, and reduction in the rate of necrotizing enterocolitis (NEC). In a small overseas Department of Defense (DoD) neonatal intensive care unit (NICU), enteral feeding practices varied among providers who were often new fellowship graduates from different training backgrounds.

Objectives: To design and implement a standardized enteral feeding protocol with the goal of improving growth while reducing central line days, TPN utilization, and NEC rates in VLBW infants.

Methods: A Plan-Do-Study-Act (PDSA) model was utilized to create an evidence-based enteral feeding protocol. A working group was formed which included a neonatologist, NICU nurse, and a clinical nurse specialist. A literature search was performed to guide drafting of a standardized feeding protocol. Prior to implementation, details of the protocol were discussed with all NICU stakeholders. Following implementation, growth parameters (weight gain at 7, 14, and 30 days; change in head circumference and length at 30 days), days requiring TPN, central line days, and necrotizing enterocolitis incidence for VLBW infants were compared between one-year epochs before and after feeding protocol implementation.

Results: 20 VLBW infants were included in the study period. Infants in the pre-protocol epoch had a median gestational age of 28 weeks estimated gestational age (EGA) and median birth weight of 1150g. Infants in the post-protocol epoch had a median gestational age of 29 5/7 weeks and birthweight of 1270g. Neither difference was statistically significant ($p=0.25$ and $p=0.18$, respectively). Following feeding protocol implementation, no difference in median weight change was noted at 7 days of life (0.7g/day in the pre-protocol epoch versus -1.4g/day in the post-protocol epoch, $p=0.45$). At 14 and 30 days, weight gain improved by 108% (5g/day versus 10.4g/day, $p=0.02$) and 25.2% (14.3g/day versus 17.9g/day, $p=0.04$), respectively. OFC increase at 30 days of life (1.75cm versus 2.5cm), length increase at 30 days of life (3cm versus 4cm), TPN days (11.5 days versus 9.5 days), central line days (9.5 days versus 8 days) were all improved but did not reach statistical significance. One infant was diagnosed with NEC during the pre-protocol epoch for a 12.5% NEC rate while no infants were diagnosed following protocol implementation.

Conclusions: Implementation of an enteral feeding protocol improved growth, while showing a trend towards reduced TPN use, central line days, and NEC incidence in VLBW infants. Our results highlight the importance of implementing evidence-based protocols to improve outcomes in small, remote, non-academic military healthcare settings.

Learning Outcomes

- Define very low birth weight infant and describe why they are at higher risk for nutritional deficits and poor growth.
- Discuss previous NICU enteral feeding protocol literature.
- Recognize the impact of an evidence-based feeding protocol on growth in VLBW infants.

ID 21550: A survey of simulation programs in the US Military Healthcare System

Selected presentation type: Poster

The US Military Healthcare System (MHS) is a large health maintenance organization and sustains a robust system of healthcare simulation programs around the globe. The purpose of these programs is to provide skills training to medic, nursing, trauma, and advanced professionals in support of combat operations and in support of hospital based facilities. The current state of simulation-based skills training in the MHS is unknown. The aim of the present study is to provide the first comprehensive overview of skills taught in MHS simulation programs in order to inform leaders of the prevalence of skills taught, the types of learners served, and the most common methodologies employed in this worldwide healthcare system. A cross sectional survey of simulation activities was distributed to directors of all 101 simulation programs in the MHS in January 2022. The survey was developed by the authors based on a list of critical wartime skills published by the medical departments of the US Army, Navy, and Air Force. These were categorized as medic skills, nursing skills, advanced provider skills, and trauma skills; in total 90 unique skills were included. The survey was distributed online using the REDCap web platform. Respondents were asked to provide their contact information, the location of their simulation program, and the level of providers trained - combat lifesavers, medics, nurses, and advanced providers. For each skill, respondents were asked to identify the methods of simulation used - simulated patients or role players (SPs), mannequins, task trainers (TT), virtual reality/augmented reality (VR), or cadavers/live tissue. Completed responses were obtained from 57 of 101 programs surveyed, providing a representative sample of simulation training locations across the entire MHS. Among learners, 96% of simulation programs trained medics and corpsman, 93% trained nurses, 86% physicians, and 55% non-medical combat lifesavers. The five most commonly trained skills across all centers were: needle chest decompression (96% of sampled locations), tourniquet application (95%), opening a casualty's airway (95%), application of an occlusive dressing (93%), and placing an IV line (93%). This first ever comprehensive survey of simulation programs in the US Military Healthcare System demonstrated that the most common skills taught were all related to point of injury combat casualty care and addressed the most common causes of death on the battlefield. Mannequins and task trainers were the most common modalities used to teach these skills, while role players, cadavers and VR were the least common methods. This data set can be useful to help define any gaps in training, categorize most and least used modalities, and provide leaders with information to make strategic decisions about the skills taught, the learners served, and the equipment needed to deliver appropriate simulation programs for this population.

Disclaimer:

The information or content and conclusions do not necessarily represent the official position or policy of, nor should any official endorsement be inferred on the part of, the Henry M. Jackson Foundation for the Advancement of Military Medicine Inc., USU, the Department of Defense, or the U.S. Government.

Learning Outcomes

- Better understand the broad applicability of simulation-based teaching and learning of procedural skills in the context of deployment medicine.
- Recognition of the utility of simulation-based learning in addressing systemic training gaps which pose a challenge to the maintenance of medical readiness skills.
- Provide an overview of simulation-based skills training across the MHS regarding the types of healthcare providers trained, the modalities of simulation employed, the frequency of training in specific skills, and the coverage of skills training provided to specific learner populations.
- Deliver information necessary to make strategic decisions about the equipment needed to deliver simulation training and to identify opportunities for the future development of existing programs.

ID 21551: Combatting Food Insecurity in the Military: A Standardized Approach to Screening at Risk Families for WIC Eligibility

Selected presentation type: Poster

Introduction: A study released in July 2022 by the Department of Defense, *Strengthening Food Security in the Force*, found that between October 2020-January 2021, 24% of the military population experienced food insecurity, perhaps related to the COVID pandemic which has had socioeconomic consequences worsening access to food.

Though the Supplemental Nutrition Program for Women, Infants, and Children (WIC) can be an invaluable resource for families with children under 5 years of age, there is not a protocolized method to ensure families are screened at Walter Reed National Military Medical Center (Walter Reed) Pediatric or Obstetrics clinics. A previous quality improvement project at Walter Reed demonstrated that 31% of pediatric and obstetric providers were not aware of the WIC program and that 74% of those with knowledge of the program were not comfortable discussing WIC enrollment with families. This data raised concern that military families may not be screened for and enrolled in WIC, a missed opportunity to utilize an available resource to mitigate the food insecurity affecting military families.

Objective: Our project evaluated families presenting to Walter Reed pediatric and obstetric outpatient clinics for food insecurity, WIC eligibility and enrollment.

Methods: Families with military dependents less than 5 years old or active pregnancies were recruited in the waiting rooms of the Walter Reed pediatric or obstetric clinics in July 2022. A 26 question electronic survey was utilized to collect demographic information of families, screen for food insecurity, WIC eligibility and WIC enrollment. Food insecurity was evaluated using the Hunger Vital Sign screening questions. This study was reviewed by Walter Reed Institutional Review Board And designated as exempt.

Results: 437 families who presented with children < 5 years old and/or active pregnancies were screened. 54 families (12%) endorsed food insecurity. Upon screening, 32 families endorsing food insecurity were eligible for WIC benefits, with 15 (47%) already enrolled and 17 (53%) not aware of their eligibility.

Discussion: Despite the critical need to address food insecurity, our data demonstrates that WIC remains an underutilized resource for at risk military families. Our study found that the majority of families endorsing food insecurity were unknowingly eligible for WIC benefits which have shown to improve food security in the civilian sector. While the DOD presented multiple options for addressing military food insecurity, in its July 2022 report, we propose maximizing the utilization of existing programs, specifically WIC. Utilizing a formalized process to educate and screen for WIC eligibility in obstetric and pediatric military treatment facility clinics may be an optimal way to increase enrollment in the WIC Program thereby decreasing the incidence of food insecurity in military families while also promoting the health of children across their lifespan.

Learning Outcomes

- Recognize the increasing prevalence of food insecurity in the military after recent July, 2022 DOD report findings of 24% food insecurity which was consistent with 20% food insecurity found by MFAN surveys.
- Describe the benefits of the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) in providing quality nutrition for at risk families with children less than 5 years old or active pregnancies.
- Recognize the impact that enrollment in the WIC program has on combatting food insecurity in the civilian population.
- Identify that no protocol for WIC screening or enrollment exists at Walter Reed National Military Medical Center.
- Discuss the impact of implementation of a standardized WIC screening protocol at Walter Reed and its ability to significantly impact those military members endorsing food insecurity.
- Predict the impact that widespread WIC enrollment protocols would have on addressing record levels of military food insecurity.

ID 21555: Chagas disease as a disease of operational military significance: Lack of essential policies present a clear and present danger to Service Members

Selected presentation type: Poster

Chagas disease (CD), an infection with the parasite *Trypanosoma cruzi* is endemic throughout the Americas, resulting in significant morbidity and economic burdens. Approximately 6-10 million persons are infected with another 100 million at risk for acquiring infection, including US Service personnel working in the SOUTHCOM and NORTHCOM areas near the U.S. Mexico border region. Known as the “silent killer”, myocardial damage, cardiac pathology and gastrointestinal disease progresses asymptotically until irreversible end-stage heart or gastrointestinal failure is present. Physical well-being is essential for the command and control structure that accounts for military readiness. As such there are several issues of importance for US military leadership’s awareness including: 1) most of what is known about CD is only a proxy to our civilian counterparts; 2) it is crucial to determine the occurrence of CD among Active-duty Service members (ADSMs) in relation to their exposure to infected vectors of the disease while on Active-duty in order to mitigate impact on performance outcomes (e.g., fit-for-duty, career progression) and overall health readiness; 3) the high mobility of the U.S. troops to different regions in the world (e.g., SOUTHCOM countries where prevalence is 4-18% of the population and NORTHCOM regions near Southern Ports of Entry (POEs) where prevalence is estimated to be 1-3% makes imperative the importance of best surveillance and screening/diagnostic methods in place; 4) downsizing of the DoD and the Military Healthcare System creates the need for increased efficiency in evaluating preventable health conditions of the deployable force; and, 5) it is imperative to produce appropriate educational programs for clinicians and the public and to propose effective policies for creating awareness and control of this disease in the military.

Chagas disease is also a significant health threat to military working dogs (MWDs) with infections detected in 8-10% of MWDs at Joint Base San Antonio. This disease affects a number of dogs supporting various units deployed to multiple Areas of Operations (AO) as well as the dogs serving the Department of Homeland Security. Because of the important detection, security, and tracking duties these dogs provide, any loss of duty days from early retirement or death could be associated with increased risk of endangerment to humans. Similarly, the MWDs share risk factors for Chagas disease, including an outdoor lifestyle that may increase contact with vectors. Infection of MWDs may also have implications for the well-being of the human Service members serving as dog handlers.

In 2020, the Global health Engagement Research initiative (GHERI) funded our work to develop and propose appropriate policies for control and prevention of CD in the US Military and Partner-Nation health systems. This includes surveillance policies, handling protocols for positive Chagas cases, and strategies for creating awareness among the Military leadership on how to address short- and long-term impact of the disease. We seek to disseminate data collected as a result of all surveillance activities to DoD and Service leadership with recommendations on strategic prevention measures and policies to protect ADSMs at each of the military installations within the DoD

Learning Outcomes

- Following this presentation, the participant will be able to correctly identify the threat of CD to both Active-Duty Service Members (ADSMs) and Military Working Dogs (MWDs).
- Following this presentation, the participant will be able to identify the fact that although CD has historically been endemic in Mexico, Central and South America, this disease is becoming endemic in the Southern United States.
- Following this presentation, the participant will be able to understand the critical need for comprehensive DoD policies addressing the surveillance, detection, treatment and disposition of Service members testing positive for Chagas Disease.
- Following this presentation, the participant will be able to articulate why Chagas Disease is a disease of military operational importance with near-term and long-term implications to Service members.

ID 21556: Suicide-related behaviors in Airborne BCTs, CONUS and OCONUS: Descriptive Comparison

Selected presentation type: Poster

Background

Suicide-related behaviors (suicidal ideations, attempts, suicides) are considered multi-faceted in nature.

We compared demographic and clinical characteristics of active duty service members (ADSMs) exhibiting suicide-related behaviors resulting in serious incident reports (SIRs) in two US Army Airborne Infantry Brigade Combat Teams (BCTs): 2nd Brigade 82nd Airborne Division (2/82), within (CONUS) and outside the continental US (OCONUS), the 173rd. These BCTs are authorized over 3,500 personnel and maintain a 18-hour airborne deployment recall posture. Both BCTs conduct training in austere environments annually.

Methods

This descriptive analysis uses suicide-related SIR data from 2016–2021 when the first author was assigned to 2/82 (2016–2019) and the 173rd (2019–2021). The 173rd vetted suicide-related SIRs through the behavioral health officers for reporting accuracy.

Results

For the CONUS BCT, an archival data pull revealed 27 suicide-related SIRs, including five dependent SIRs, from 2016-2019. From April 2016 – December 2018, this BCT experienced six ADSM suicides; and one dependent suicide. The leading cause of death among ADSM suicides was a self-inflicted gunshot (5/6); two-thirds experienced relationship problems; two-thirds were non-commissioned officers (NCOs); and half were serving in their second enlisted contract (3/6). By rank, junior enlisted made up over half of the suicide attempts (14/27).

For the OCONUS BCT, 87 suicide-related SIRs were recorded from 1 August 2018 – 28 February 2021. Junior enlisted rank made up the majority of suicide attempts (64/87). From March 2016 – July 2019, there were six suicides with asphyxiation as the leading cause of death (5/6); most were experiencing relational problems (4/6); half were NCOs, the other half were junior enlisted. Two-thirds were serving in their second enlisted contract (4/6). A 33.7% increase was observed in suicide-related behaviors during the COVID-19 pandemic relative to pre-pandemic incidents.

For the CONUS BCT, alcohol was present in 55.6% of the suicide-related SIRs (15/27) compared to OCONUS BCT, where alcohol was present for 29.9% of suicide-related SIRs (61/87). The CONUS SIRs revealed that 55.6% (15/27) had prior behavioral health history compared to 63.2% (55/87) for OCONUS SIRs.

Discussion

Airborne BCT suicide-related SIRs suggest suicidal ideations and attempts are more prevalent among junior enlisted ranks, whereas suicides were more prevalent in NCOs and officers.

Access to firearms appears to influence the primary method for suicide, consistent with a 2018 NIH study. Self-inflicted gunshot suicides accounted for half of all suicide deaths (6/12).

More than half of CONUS SIRs involved alcohol; whereas less than a third of CONUS SIRs involved alcohol. For both BCTs, relationship problems were present in the majority of suicides for both BCTs; the majority of suicides had previous behavioral health history. Awareness of alcohol use, behavioral history, and relationship problems may be key components for suicide prevention efforts.

The SIRs reviewed do not reflect all occurrences of suicide-related events as some may go unreported or reported to personnel bound by confidentiality (i.e. chaplains) or limited distribution. Generalization of these findings to other DOD branches of services and US civilian population should be explored further and could inform DOD suicide prevention programs.

Learning Outcomes

- Analyze differences in risk factors for service members who endorse suicidal ideations and/or attempts; and those who die by suicide
- Identify impact of COVID-19 pandemic on suicide-related behaviors
- Distinguish between CONUS and OCONUS resource allocation, restrictions, and opportunities for growth
- Identify static and modifiable risk factors to inform suicide prevention efforts

ID 21558: United Kingdoms Defence Medical Service Global Health Programmes Contributing to Women Peace and Security

Selected presentation type: Poster

Importance of main streaming Women Peace and Security (WPS) in Global Health programmes, Reducing the Silo effect of undertaking GHE alone rather than as an allianc with other international partners.

UK focus for WPS including approach to reducing Gender Based Violence iaw -UN resolution 48/104 and the importance of equality and equity of women in peace process negotiations - UN resolution 1325. Challenges, Risks and why this should be everyones priority.

Recognizing that violence against women is a manifestation of historically unequal power relations between men and women, which have led to domination over and discrimination against women by men and to the prevention of the full advancement of women, and that violence against women is one of the crucial social mechanisms by which women are forced into a subordinate position compared with men (UN Res 48/104)

Statistics and the impact of a Global Pandemic on GBV.

Learning Outcomes

- Recognise the extent of gender based violence and the impact on a countries development capability.
- Explain the importance and benefits globally of undertaking WPS as a main stream objective.
- Identify military opportunities to contribute to effective WPS.
- Define the importance of Women in stabilising regions and peace negotiations.

ID 21560: Real-world effectiveness of a novel nightmare disorder treatment in the DoD

Selected presentation type: Poster

Introduction: Nightmare disorder and post-traumatic stress disorder (PTSD)-associated nightmares can be treatment-resistant in many patients. There are no recommended treatments for these conditions currently.

Methods: NightWare is a novel FDA-approved class II medical device which improves sleep in patients with nightmare disorder and PTSD-associated nightmares. It uses data from a smart watch to determine when nightmares are happening using heart rate and movement sensors, and then intervenes to interrupt the nightmare and improve overall sleep quality. We report the 14 consecutive cases of patients using NightWare and the Clinical Global Impression (CGI) of Severity and Change in their sleep and reduction of nightmare burden.

Results: Of the 14 patients in this series, 10 patients used the device for more than 7 days. 1 discontinued due to perceived lack of efficacy, 2 stopped in part due to a skin rash, and one stopped because he did not want to wear a watch to sleep. At baseline, the 10 patients included in the analysis had a mean CGI Severity score of 4.7 (SD 1.25), which indicates moderate to severe nightmares and daytime dysfunction.

Improvement in the CGI Change score with NightWare exceeded that of prazosin for this group of patients. The patients in this series that used the device had a mean score of 2.20 (SD 0.79) on the CGI Change scale, which indicates there was significant improvement from baseline. Six of the 10 patients using NightWare were also taking prazosin prior to starting NightWare. The prazosin dose ranged from 1-8 mg nightly for these patients. These 6 patients had minimal improvement with prazosin alone (CGIC of 3.16 (SD 0.41).

Conclusion: In this case series, NightWare significantly improved the symptoms of nightmare disorder in 10 of the 14 patients in this series. Patient selection for sympathetic nervous system activation is important to ensure the device's effectiveness.

Learning Outcomes

- Recognize a new paradigm for treating nightmares
- Describe the expected clinical response to treating nightmares with a medical device
- Describe how this a medical device to treat nightmares and medications interact

ID 21563: Combat Amputee Care for Global War on Terror Veterans: A Systematic Review

Selected presentation type: Poster

Background: Traumatic amputation after injuries sustained from combat during the Global War on Terror resulted in a multitude of clinical outcomes that include physical and psychological complications. The Department of Veterans Affairs (VA) and the Department of Defense (DoD) instituted the Advanced Rehabilitation

Centers (ARCs) in 2007 to help address the growing amputee service-member population.

Objective: To determine the clinical health outcomes of service-member amputees and to examine the research trends that have developed since the development of the ARCs.

Data Sources: A literature search of available resources to include PubMed, Embase, CINAHL, Medline and Web of Science was performed for relevant studies after 2007.

Results: Amputee service-members are at increased risk of detrimental health outcomes when compared to non-amputee service members. The timing of amputation has a significant impact on long-term health outcomes. Research trends were focused on pain and pain management, comparisons to Vietnam veteran amputees, prosthesis satisfaction and functionality, limb salvage, quality of life and mental health, and general health outcomes.

Conclusion: The treatment of amputee veterans requires special consideration between short-term complications, long term health outcomes and psychological diagnoses to help increase quality of life.

Learning Outcomes

- Complete a literature review of current research examining the determinants of health for amputee service-members of the Global War on Terror.
- Examine the current research trends centered around amputee service-members since the development of the Advanced Rehabilitation Centers.
- Interpret the results of appropriate articles and report specific findings that impact the clinical health outcomes of amputee service-members.
- Discuss the findings to determine potential recommendations for improving the recovery process for amputee service-members and their longterm health outcomes.

ID 21567: A Cross-Sectional Analysis of Military Physician Residency Websites

Selected presentation type: Poster

Introduction: Medical physician residency program websites often serve as the first contact for any prospective applicant. No analysis of military residency program websites has yet been conducted, in contrast to their civilian counterparts. This study evaluated all military residency programs certified by the Accreditation Council for Graduate Medical Education (ACGME) 2021-2022 to determine program website comprehensiveness, accessibility and identify areas for improvement.

Materials and Methods: A list of military residency programs in the United States was compiled using Defense Health Agency (DHA) Graduate Medical Education resources together with the ACGME database. A total of 15 objective website criteria covering education and recruitment content were assessed by two independent evaluators. Accessibility was also scored. Programs' website scores were compared by geographic location, specialty affiliation, type of institution partnership, and program size. Analysis was performed with descriptive statistics and comparison via an unpaired T-Test or Kruskal-Wallis analysis as appropriate.

Results: A total of 124 military residency program websites were evaluated with a range of scores from 0 to 15 out of 15 possible points. Six (6) programs had no identifiable website. All 3 services were represented with 43% joint-service programs. Content concerning physician education and development was more widely available than content directed toward recruitment of applicants. The number of residency program websites reporting each content criterion varied greatly, but overall, no single service had a significantly higher score across their residencies' websites. Significant variation occurred among individual specialties ($p < 0.05$) but there was no significant difference in surgical and non-surgical specialties. Civilian-associated programs (18 programs, 14.5%) were associated with significantly greater website comprehensiveness scored best on informatics measures for recruitment and performed 64% better than military-only programs overall.

Conclusion: Program information in an accessible website platform allows prospective applicants to gain comprehensive perspectives of programs during the application process without reliance on personal visits and audition rotations. Hindrances to in-person experience, as occurs with limited away rotations and COVID-19 pandemic restrictions, may be alleviated by accessible virtual information. Our results indicate that there is opportunity for all military residency programs to improve their websites and better recruit applicants through understanding their audience and optimizing their reach online.

Learning Outcomes

- To recognize the variations in military medicine residency programs' online communication of information.
- To discuss variations in information availability as they compare by geographic region, military service, civilian affiliation, and medical specialty.
- To identify gaps in information availability online among military physician residencies.
- To be able to apply new knowledge to their own endeavors in visiting residency websites, searching for information on military residency programs, or in updating websites.

ID 21575: How Does Patient Sex Impact TCCC Care

Selected presentation type: Poster

Summary: Since 2001, the military has seen a significant increase in female service members. Currently, 27.4% of the military is made up of women. With this demographic increase it is a necessity for gender specific training and models to be integrated into medical training.

The development of specific female trauma mannequins to train soldiers to identify the proper care for extended periods will assist in reducing combat deaths of female soldiers. Over the last 20 years of combat operations female veterans comprised 1.9% of all casualties and 2.4% of all deaths. In OIF, the percentage of incidents leading to death for women was 14.5% (103 deaths) versus 12.0% (4226 deaths) for men. In OEF, the percentage of incidents resulting in death for women was 35.9% (19 deaths) versus 17.0% (793 deaths) for men. (Cross, et al., 2011)

The acknowledgement of needing gender specific models for training is a step in the right direction. It proves that the military is acknowledging its female population. It also shows a determination to provide inclusive care. However, when the models are in place and being utilized will there be a difference in care based on gender?

The aim of this study is to determine if there is a delay in delivering emergent medical care to female combat casualties and to determine the cause of that delay.

Methods

Participants were volunteers who have experience in TCCC, USU medical students and active duty medical personnel in the National Capital Region. Participants treated two simulated combat casualties, one with a groin wound and one with a chest wound. One manikin was female and one manikin was male. The participants were randomized to treat casualties in a crossover design. After each patient encounter, participants underwent a recorded “think-aloud” where they narrated the video recording of their care including what was included in their thought process.

Results: Participants included 21 participants, 9 male and 12 female. All participants were able to appropriately conduct TCCC for two simulated combat patients in the time allotted. Analysis of their post-encounter think-alouds demonstrated delays or confusion in care based on novel exposure to a female manikin, minimal prior experience caring for a female patient or poor suspension of disbelief during the simulation.

Conclusions: Our pilot study has uncovered some difference in point of injury care between male and female patients in a simulated combat environment, many related to gaps in training on female casualties. Quantitative analysis of the simulated encounters is in progress, but shows very little difference in the time to care for male versus female casualties. Most interesting is the thought process or confusion participants shared and feeling uncertain about how to care for a female patient. This underscores the need for more female patient simulators to allow medical providers to practice care on a variety of patient types. Further analysis of this data can help inform future training to close the gaps discovered.

Learning Outcomes

- Describe the problem of disparity in casualty outcomes among male and female service members
- Recognizing that gaps exist in care rendered to male and female patients in a simulated combat environment, discuss how these gaps will influence future medical training to include gender specific models
- Discuss how current training paradigms contribute to disparity in care for female combat casualties.
- Describe how these differences may affect future training of combat lifesavers and medics/corpsmen.

ID 21578: Quadricuspid v. Bicuspid Aortic Valve in the Military - A Case Report

Selected presentation type: Poster

Submission Content as Entered on Form

ATTENTION STUDENTS: All student poster positions have been fulfilled for this event. No additional abstracts will be accepted for students. DHA CIP PROGRAM PARTICIPANTS PLEASE PROCEED WITH NEXT STEPS-

Supply Body of Abstract for this Poster

Background

Quadricuspid aortic valve (QAV) is a rare, congenital heart anomaly previously found incidentally on autopsy or during aortic valve surgeries with incidence rates thought to be < 0.05%, although more cases are being reported due to more routine use of advanced imaging techniques. QAV-associated cardiac symptoms typically involve aortic regurgitation (AR), or in severe cases, aortic stenosis (AS), thus sometimes warranting valve replacements. Not uncommonly, patients remain asymptomatic for decades; existing literature suggests approximately 10-66% require surgical intervention in their 50/60s. Given our limited understanding, QAV is treated similarly to bicuspid aortic valve (BAV) for the purpose of military disposition, and consideration for special military duty including special warfare and aviation. We present a case of a Special Warfare candidate who was incidentally found to have QAV with trace AR.

Case Presentation

A 22 y/o Basic Military Trainee male without significant past medical history was undergoing evaluation for Special Warfare Airman accessions when an incidental 2/6 holosystolic ejection murmur along the left sternal border (LSB) was found and was subsequently referred to Cardiology for further evaluation. He had been healthy and physically active at a high level without any symptoms his entire life, other than mild elevation of his blood pressures to 130's/80's and an asymptomatic left testicular varicocele. He denied any associated cardiovascular (CV) or pulmonary symptoms. He denied any family history of CV disease.

His physical exam was notable for a 2/6 holosystolic ejection murmur along the LSB. His EKG revealed normal sinus rhythm with left axis deviation. A transthoracic and transesophageal echocardiogram were notable for Nakamura type II QAV with trivial AR, and mildly thickened left ventricular wall with normal size, systolic, and diastolic function.

Under the current management approach to treat QAV as a BAV, this is a disqualifying military condition under the DOD Instructions 6130.03.

Discussion

Should QAV be considered a different clinical entity than BAV for military service? Both appear to stem from errors in the mesenchymal ridge swellings during embryogenesis, but the exact etiologies remain uncertain. There is strong evidence that links genetic mutations to BAV, whereas it is unclear if QAV has a genetic predisposition or is the result of hemodynamic anomalies. Existing limited literature suggests that the natural history of QAV may differ from BAV in that the latter typically progresses to moderate-severe cardiac disease in 40/50s whereas QAV manifests in 50/60s. The consensus is that exercise has no increased mortality in BAV but may worsen aortic dilatation. However, this relationship in QAV is unknown, as there are no

retrospective or prospective studies. On the other hand, a Mayo Clinic study in 2015 reported favorable long-term outcomes in patients with QAV both undergoing valve surgery and in those not needing surgery. Further comparison of these two diseases may inform future guidance in military medical readiness.

Learning Outcomes

- Quadricuspid aortic valve is rare congenital disease that often presents incidentally without symptoms on autopsies, aortic surgeries, or advanced imaging modalities.
- Quadricuspid aortic valve is treated similarly to the well-known Bicuspid aortic valve for the purpose of military disposition due to the lack of supporting literature on clinical prognosis and survival outcomes.
- In general, reports of Quadricuspid aortic valve tend to present later in life when compared to Bicuspid aortic valve, suggesting there may be a differing disease course.

ID 21583: Protecting our Clinician Workforce against career ending Patient Handling Injuries: Who's job is it?

Background: The Veterans Health Administration (VHA) is the largest health care system in the USA, providing care to over 9 million veterans at 1,242 health care facilities through 171 medical centers in the United States Territories and employs over 98,111 nurses nationwide. Our nurses are one of our most valuable assets as primary caregivers and leaders who are totally dedicated to servicing our war heroes. In 1998 it was discovered that a large portion of nurses were experiences high incidences of musculoskeletal injuries (MSI), leading to career ending injuries and working with chronic disabilities. A group of occupational health nurse leaders/researchers and health care providers determined that manual handling using body mechanics was not evidence based practice and sought to implement the Safe Patient Handling and Mobility (SPHM) program to reduce staff injuries by utilizing lifting and positioning technology.

Methods: We will present the historical journey of how the VHA implemented the SPHM program over time through a number of pilot sites which resulted in significant success in the reduction of MSI leading to VHA obtaining congressional funding to purchase SPHM technology and start SPHM program nationwide with an initial investment of 205 million dollars. We will present the steps for successful program implementation in a health care system, describing the 13 critical elements of implementation, the role of nursing leadership of how success has been achieved, review common pitfalls and challenges that nursing leaders can anticipate and overcome. We will provide an overview of how the SPHM program has had direct impact on patient care outcomes such as reduction in patient falls, PIP, LOS, CAUTI rates, ventilator days and improvements in early and continuous mobility programs. **Results:** We will discuss the research studies conducted over the years demonstrating how injuries have dropped by 50% nationwide over the past 10 years throughout VHA health care enterprise. We will report our partnerships with a number of regulatory agencies including and Occupational Safety Health Agency (OSHA), National Institute for Occupational Safety and Health(NIOSH), Centers for Disease control (CDC), Center for Engineering, Occupational Safety and Health (CEOSH), and the Joint Commission (JC). We will present how nursing leaders can help prepare the health care system prepare for site visits and report program outcomes in the most effective manner.

Conclusion: Health Care organizations who support best practice of an SPHM programs including professional organizations like American Nurses Association (ANA) and Association of Physical Therapy Association (APTA)Nursing can take advantage of VHA leadership and best practices to support safer work environments across all health care systems for all. Partnerships between VHA and DHA will support our Electronic Health Record Modernization plans and protect our heroes.

Learning Outcomes

- Describe how to determine the value and the return of investment of a SPHM program in the health care system through research findings
- Identify 13 critical elements that are the key pillars to a successful SPHM program.
- List 6 common pitfalls and how to overcome them.
- Describe how to investigate and correct musculoskeletal injuries as a nursing leader.
- Discuss how to successfully prepare for regulatory site visits.

ID 21584: Evaluation of a new VA Mobility Screening and Solutions Tool (VA MSST)

Selected presentation type: Poster

Submission Content as Entered on Form

ATTENTION STUDENTS: All student poster positions have been fulfilled for this event. No additional abstracts will be accepted for students. DHA CIP PROGRAM PARTICIPANTS PLEASE PROCEED WITH NEXT STEPS-

Supply Body of Abstract for this Poster

Objectives: The Veterans Administration (VA) Mobility Screening and Solutions Tool (VA MSST) was developed as a screening tool for use by any healthcare worker in any setting to quickly determine a patient's safe mobility level and provide clinical decision support related to the use of safe patient handling and mobility (SPHM) equipment just prior to any ambulation or transfer activities.

Methods: The VA MSST includes four mobility levels and differentiates between the need for powered and non-powered equipment depending on the patient's independence. Objectives: The Veterans Administration (VA) Mobility Screening and Solutions Tool (VA MSST) was developed to screen a patient's safe mobility level 'in the moment' and provide clinical decision support related to the use of safe patient handling and mobility (SPHM) equipment. The initial draft of the VA MSST was developed by interprofessional subject matter experts who developed the scenarios for interrater reliability and validity testing. It was reviewed by 163 VA staff (mostly physical therapists and occupational therapists) who provided content validity, and additional insight and suggestions. The subsequent VA MSST (current version) was reviewed by over 200 healthcare workers from varied disciplines (including MD, APRN, RN, LPN, CNA, OT, PT, Speech Therapists, Radiology and Ultrasound Technicians, etc.). An instructional video and eighteen scenario videos were embedded in an online survey. The survey aimed to demonstrate the interrater reliability and validity (concurrent and construct) of the current VA MSST. The survey was sent out via email to over 500 VA staff (raters).

Results: Survey respondents (n=230) from multiple healthcare disciplines and settings (inpatient and outpatient) independently reviewed 18 scenarios and screened patient's mobility using the VA MSST. The respondents were diverse in their age and years of experience. The estimated interrater reliability (IRR) for VA MSST was excellent and statistically significant with an estimated Krippendorff's alpha (ICC(C, k)) of 0.998 [95% CI: 0.996 – 0.999]. Eighty-two percent of respondents reported VA MSST instructions were "clear" or "very clear" and "understandable."

Conclusions: The VA MSST is a valid and reliable evidence-based algorithm tool for screening and provides decision support. VA MSST has strong face and content validity, good concurrent and construct validity, and demonstrates excellent interrater reliability across disciplines and settings.

Learning Outcomes

- Describe the purpose of the VA Mobility Screening and Solutions Tool (MSST)
- List methods utilized to collect and report data from VA staff raters.
- State the results of the study that demonstrated validity and reliability of the tool

ID 21585: Virtual Physical Therapy Clinic: Expanding Navy Medicine's Operational Readiness Directly to Forward Deployed Warfighters.

Selected presentation type: Poster

Submission Content as Entered on Form

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Supply Body of Abstract for this Poster

Objective:

The goal of the Virtual Physical Therapy Clinic (VPTC) is to create and sustain a virtual consultative service offering Musculoskeletal (MSK) evaluations, follow-ups, and treatment via synchronous audio/video for service members without access to in-person physical therapy (PT). Virtual PT is a novel operational medicine design leveraging existing Military Health System (MHS) infrastructure to extend Navy Medicine's readiness support across a distributed joint and maritime domain.

Background:

MSK injuries are the leading cause of medical encounters for members of all services and represents two-thirds of all limited duty profiles. Non-combat MSK injuries associated with back, neck, and extremity pain accounted for more than 75% of all medical evacuations from the OIF/OEF Theaters. A deployed physical therapist (PT) is the preferred provider for improved MSK injury outcomes and return to duty. Unfortunately, it is not feasible to station a PT at every location, nor can local networks support most forward deployed sites. Thirty-five medical and surgical specialties have been providing virtual consultation to remote settings in Europe via the Tricare International SOS (ISOS) referral system, however, PT was unavailable.

Description:

A Virtual Physical Therapy Clinic was created to bring MSK treatment directly to warfighters at forward deployed Army and Navy role 1 sites in EUCCOM. Seventy-five physical therapy encounters were completed using DoD/DHA approved video platforms. Physical therapists were able to virtually assess appropriate patients utilizing presenters at originating site locations and discern suitability for virtual PT encounters, provide patient education, and offer treatment. Outcome measures assessed the use of the VPTC compared to referrals outside theater, maintenance of members on station, number of light duty/loss of duty days, or repeat utilization of medical services. This effort also collected subjective feedback from referring providers on utility of the VPTC platform to manage their patients in theater.

Results:

Results showed VPTC supported provider's ability to keep patients on-site while managing MSK injuries. A positive perception was formed from forward deployed providers for use of VPTC vs Host Nation PT, No PT, or redeploying patients to Role II sites for care. Providers were able to maintain or return Soldiers/Sailors to full duty and/or they required fewer subsequent medical visits at the aid station because of their engagement with the VPTC. VPTC usage reduced Profile/Light Duty days and improved Soldiers/Sailors ability to perform daily duties.

Outcome:

This project shows justification for the creation of a Virtual Physical Therapy platform. It facilitated discernment of appropriate patient characteristics, diagnosis, and treatment techniques viable in the virtual environment. It also serves as a use case for untrained originating site presenters (basic medic/corpsman) partnering with physical therapists virtually to support MSK evaluation and treatment of forward deployed service members. Greater Joint Service participation is being sought to ensure this capability endures.

Learning Outcomes

- Define types of musculoskeletal injuries and treatments offered in the virtual environment.
- Articulate how the Virtual Physical Therapy Clinic was conducted using unskilled presenters at originating site.
- How virtual physical therapy can help forward deployed providers manage patients with musculoskeletal injuries to keep them on site and decreasing lost duty days.

ID 21586: VA OAA Centrally Funded Nurse Residency programs

Selected presentation type: Poster

As one of four statutory missions, the Department of Veterans Affairs (VA) Office of Academic Affiliations (OAA) educates and trains health professionals for the VA and nation. The VA has partnered with America's academic institutions for over 75 years to prepare the next generation of clinicians and leaders. Historically, the nursing community utilized an employee-based, transition-to-practice model to support new graduate nurses. However, in 2011 OAA implemented an innovative academic-based, centrally funded Registered Nurse (RN) and Nurse Practitioner (NP) residency model, on par with other well-established health professions education models. The robust OAA nurse residency enables RNs and NPs to shape the future of their nursing career by providing a variety of learning opportunities. The OAA model offers: (1) 100% clinical supervision during the 12-month residency; (2) 100% protected training time where residents are not counted in staffing matrices; (3) an opportunity to strengthen partnerships between VA facilities and academic institutions; (4) a competency-based curriculum emphasizing Veteran-specific healthcare with 80% experiential and 20% didactic activities; (5) profession-specific rotations to support residents in defining their unique career trajectory; and (6) a pathway to developing a practice-ready nursing workforce. The COVID-19 pandemic has exacerbated the staffing crisis within the nursing profession, with the American Nurses Foundation 2022 survey identifying that 52% of nurses are leaving or considering leaving their current position. Furthermore, the 2022 Relias survey found that 29% of nurses are planning to leave the profession entirely. OAA continues to implement new nursing education initiatives to address the ongoing workforce challenges. OAA is projected to fund 116 nurse residency programs nationwide in academic year 2022-2023, including a new pilot Geriatrics and Extended Care NP residency. OAA is committed to ongoing innovations including residency program expansion, flexibility for biannual cohorts to increase the number of training opportunities and partnering with VA's Health Professional Scholarship Program to offer residency positions to awardees. The OAA centrally funded residency model supports the residents in exploring their strengths and interests, transforming the typical on-the-job training model to meet modern priorities. Program outcomes demonstrate increased confidence and competence in clinical practice. Although the OAA nurse residency does not require a VA service obligation, more than 91% of RN and 64% of NP residents choose employment at the VA following their residency program. Therefore, the OAA centrally funded residency model is an effective investment in the future nursing workforce, preparing confident, competent and practice-ready clinicians.

Learning Outcomes

- Describe the uniqueness of the OAA centrally funded nurse residency model.
- Identify how the centrally funded residency model mirrors the standard for health professions education and is beneficial.
- Discuss the impact of the OAA centrally funded residency model on the future nursing workforce.

ID 21587: Crowdsourcing-Based Validation of Proposed Assessment Tool for Tourniquet Application

Selected presentation type: Poster

Technical skill assessment and validated skill assessment instruments are nearly absent within the field of emergency and trauma medicine, including combat medicine and simulation studies. In surgery and other medical fields, a global rating scale (GRS) called the Objective Structured Assessment of Technical Skills (OSATS) is often used as a validated assessment tool. The use of a GRS is most often favored over a checklist, which is a common assessment tool in emergency and trauma medicine, due to its on average higher inter-item and inter-station reliability and ability to capture nuanced elements of expertise. GRS have been shown to be valid when used to assess technical skill by both expert raters and non-expert crowdsourced raters. This study aims to assess the interrater reliability of a newly developed GRS for technical skill assessment of tourniquet application using non-expert crowdsourcing. Tourniquet application was chosen for this assessment as it has multiple potential easily observable errors through video review. The proposed and implemented GRS consists of 6 items, each scored on a 5-point Likert scale yielding a maximum score of 30 points. The GRS was developed from the existing pass/fail checklist skill assessment sheet for tourniquet application and the OSATS. The existing and currently used TCCC checklist consists of 7 pass/fail questions followed by 3 critical failure criteria. First-person video for $n = 36$ trainees attending to two manikin-based combat polytrauma scenarios requiring tourniquet application were recorded using helmet mounted cameras. Four anonymized videos were selected to capture disparate skill levels. Two obvious high performers and two low performers (based on speed and accuracy), in regard to tourniquet application, were selected to represent the wide range of skill. These videos were assessed by 100 crowdsourced non-expert raters via an online survey instrument through the Prolific survey platform. One group of raters ($n = 50$) rated each of 4 trainees performance using the proposed GRS while the other pool of raters ($n = 50$) rated performance using the standard TCCC checklist. To evaluate the utility of the proposed GRS methods in objective performance assessment of tourniquet application, interrater reliability metrics were used to analyze the crowdsourced rating results for both the GRS and the TCCC checklist assessment pools. Both Cronbach's alpha and McDonald's omega were used to analyze interrater reliability. The pool of raters using the proposed GRS had higher Cronbach's alpha and McDonald's omega values (0.808 and 0.645 respectively) compared to the pool of raters using the TCCC checklist (0.661 and 0.48 respectively). These preliminary results support the idea that the creation, optimization, and implementation of a global rating scale (GRS) has the potential to provide a more reliable assessment of skill for tourniquet application than the currently implemented checklist system outlined in TCCC. Further work in this area will include an analysis of gradings provided by medical experts as well as an in-depth assessment on the validity of using crowdworkers to rate skill in emergency trauma medicine.

Learning Outcomes

- Illustrate key differences between global rating scales and checklist style assessment tools.
- Justify the potential use of a global rating scale in emergency and trauma medicine.
- Describe methods used to validate skill assessment tools and interpret results.
- Reference and summarize the use of global ratings scales in other medical fields.

ID 21588: Medication Assisted Treatment for Opioid Use Disorder in the Criminal Justice Setting

Selected presentation type: Poster

In recent years, awareness of opioid use disorder (OUD) has increased in light of an epidemic of opioid overdose in the United States. Access to evidence-based treatment of OUD, including Medication Assisted Treatment (MAT), remains a challenge in some communities. The disparity in access to necessary addiction care is especially significant among one high-risk population – incarcerated patients.

OUD is a pattern of problematic opioid use leading to clinically significant impairment or distress. It is a chronic, relapsing medical condition with substantial personal, economic, and public health consequences. In the United States, it is estimated that over two million individuals meet criteria for OUD. The consequences of OUD are often destructive to affected individuals' physical and mental health, safety, and interpersonal relationships. The opioid use can result in the failure to fulfill important occupational or financial obligations, and this lifestyle destabilization can lead to socially deviant behavior and criminal activity. People with OUD are significantly more likely to be involved in the criminal justice system, and the level of involvement increases with increased opioid use; up to 65% of incarcerated people meet the criteria for a substance use disorder, according to recent estimates, and nearly 25% of those individuals have OUD.

Failure to provide evidence-based treatment for OUD during incarceration can have grave consequences. An estimated 77% of formerly incarcerated individuals with OUD relapse within three months of release, even if they participated in a counseling program while incarcerated. Individuals with justice system involvement are also more likely than the general population to die due to opioid overdose. In fact, opioid overdose is a leading cause of death for formerly incarcerated individuals upon release to the community.

Unfortunately, despite the great need for OUD treatment in correctional facilities, the field of criminal justice has been slow to accept and incorporate MAT programs. The most frequently cited barriers to implementation of robust MAT programs in jails and prisons include misinformation, concerns related to diversion, cost, state regulations, and shortage of MAT providers. Mitigation strategies to address these issues include greater education aimed at prison executives and stakeholders, technical training for clinical and non-clinical correctional workers, and widespread access to recently-expanded federal funding.

While opioid overdose remains at epidemic proportions in communities across the United States, incarcerated patients are especially likely to be impacted by barriers to evidence-based treatment. This presentation reviews current scientific literature to describe the public health implications of OUD among incarcerated patients, frequently-cited barriers to treatment, and proposed solutions to resolving this disparity.

Learning Outcomes

- Describe the public health implications of opioid use disorder (OUD) among incarcerated patients.
- List the frequently-cited barriers to Medication-Assisted Treatment (MAT) in jails and prisons.
- Describe how inequalities in access to MAT for incarcerated individuals can be mitigated.
- Describe the health-related outcomes associated with access to MAT in the criminal justice setting.

ID 21589: Improving TBI Outcomes in the Military Population

Selected presentation type: Poster

More than 339,000 military service members sustained a traumatic brain injury (TBI) between 2000 and third quarter 2015. Approximately 82 percent, were classified as mild traumatic brain injury (mTBI) also known as concussion. Traumatic brain injuries in all forms—blast, concussive, and penetrating—have been an unfortunate sequela of warfare since ancient times. The impact of TBI on service members has come into renewed focus since the outset of U.S. military operations in Iraq and Afghanistan, beginning with Operation Enduring Freedom (OEF) on October 2001 and later including Operation Iraqi Freedom (OIF), Operation New Dawn (OND), and Operation Inherent Resolve (OIR). The Department of Traumatic brain injury at Womack Army Medical Center provides comprehensive treatment for mild to moderate TBI at the Intrepid Spirit Center (ISC). Current clinical guidelines do not provide adequate details for the return to activity process nor do they consider military requirements or operational environments. Individuals may report ongoing symptoms including headache, insomnia, memory and attention deficits, and/or mood swings. The Defense Health Agency (DHA) stated in 2019 that only 18% of acute concussions have follow up within 72 hours at Fort Bragg. Fort Bragg was selected as a pilot site for the DHA Quadruple Aim Performance Process (QPP) initiative to improve treatment of acute mTBI in the United States military population as well as develop guidance for returning soldiers to full duty status. By providing early intervention in acute concussion care according to the Traumatic Brain Injury Center of Excellence (TBICoE) standard of care, reduction in progressive post concussive symptoms may occur. A walk-in acute care concussion clinic was implemented at the ISC in September 2020 and data collection was completed in May 2021. A total of 271 patients were seen for acute concussion management and were administered the Neurobehavioral Symptom Inventory (NSI) scale at 7-, 14-, and 21-day intervals. Education and training in acute concussion management was given to multiple primary care providers across Fort Bragg using TBICoE's Progressive Return to Activity (PRA) guidelines for the active-duty population. A small sample of 22 had completed 3 NSI surveys. Although there was no statistically significant improvement in mean headache or overall NSI scoring, follow up for acute mTBI improved to >70% in August 2021 and development of a DHA Acute Concussion Clinic (ACC) workgroup was developed across military treatment facilities (MTF). Standardization of care, clinical guidelines, and improved treatment outcomes across DHA MTF's are currently underway. The DHA also implemented DHA Procedural Instruction 6490.11 for the assessment and management of mTBI concussion in October 2021.

Learning Outcomes

- Classification and identification of mild traumatic brain injury (mTBI) characteristics in the military population
- Understanding of Traumatic Brain Injury Center of Excellence (TBICoE) progressive return to activity (PRA) guidelines for active duty service members
- Understanding of DHA Quadruple Aim Performance Process (QPP) for improving TBI outcomes
- Understanding of DHA Procedural Instruction 6490.11 for the assessment and management of mTBI

ID 21590: Patient Safety and Quality Improvement: Is Your SPS Department at Risk? Predicting and Mitigating Risks Within Sterile Processing Services

Selected presentation type: Poster

Sterile Processing Services (SPS) are a bedrock for delivering safe and reliable care in healthcare organizations. Clinicians and patients depend on having the right sterilized instruments at the right time and with zero defects or non-conformities. There is a need to identify risks that surround the sterile processing of reusable medical equipment (RME). To achieve levels of consistency and predictability across the Veterans Health Administration (VHA), the VHA Office of Sterile Processing (OSP) partnered with Booz Allen Hamilton to develop and implement a programmatic risk management approach to safeguard patient care related to all SPS operations.

To do this, OSP and Booz Allen Hamilton conducted an environmental scan of SPS best-practices; interviewed VHA leaders and stakeholders; and facilitated panel discussions with industry subject-matter experts (SMEs). The SPS elements identified through this process were organized into six functional areas: organization; leadership, governance, and support; infrastructure; operations; program evaluation; and continuous quality improvement. From this analysis, 22 Key Performance Indicators (KPIs) were identified, weighted, and prioritized as critical for success of SPS operations. The team developed and distributed a comprehensive field survey comprised of the KPIs and other critical program areas to obtain data from all VAMCs. Survey responses were analyzed and input into a predictive risk model that was used to construct a risk score for each VAMC from 0 to 100, with higher scores indicating lower risk. To validate accuracy of the survey results, focused site assessments were subsequently conducted at 24 individual VAMCs where 21 of the 24 scores were within 3 points of the predictive model.

After the 24 assessments were completed, the OSP developed and executed a strategy to assist the VAMC SPS Departments with the highest risks. OSP quantified and prioritized SPS risks and developed targeted action plans for improvement (e.g., process interventions, staff training, SPS-related facility infrastructure enhancements). As a result, the number of the highest risk SPS Departments were significantly reduced.

As a result, this project taught OSP how to understand and evaluate risk within sterile processing across all VA Healthcare Systems. The program office has adopted the RiTMS process and established two assessment tools that are utilized by the VISN Chief Sterile Processing Officer (CSPO), facility Sterile Processing Chief, and Health Systems Specialists (HSS) to monitor and evaluate vulnerabilities and risks. These assessment tools provide insight to the VISN and the Program Office for developing action plans and providing consultative and expert advisement to assist the facilities in their low-risk, high performance journey.

This presentation will use an actual case study to demonstrate how using this approach helped identify risks, while decreasing the likelihood of an untoward event by improving performance and quality within SPS Departments.

Learning Outcomes

- Understand risks associated with SPS Operations
- Understand the need to proactively identify and reduce risks associated with SPS Operations
- Understand strategies required to plan, develop, and implement a predictive risk reduction model

ID 21591: The iCapTag a Novel Scalable Tagless Protein Purification Platform

Selected presentation type: Poster

No commercial product currently exists that can reliably produce unmodified native target proteins (e.g. biopharmaceuticals) through a convenient affinity tag platform approach. Moreover, protein purification requires convenience, reliability, and flexibility. Currently, an established platform in this field is the use of affinity tags, which are easily-purified protein sequences (like “molecular hooks”) that are appended to target proteins at the genetic level. The attached tag provides a simple means to purify the expressed target, and tag methods have become ubiquitous in molecular biology laboratories throughout the world. An important drawback of these methods is the presence of the tag on the purified target, where even a small His-tag can interfere with target characterization or be immunogenic in pharmaceutical applications. Current enzyme-based methods for tag removal are expensive and often unreliable. At the same time, loss of product during purification makes current methods not effective.

In contrast, the *iCapTag* is a disruptive, unique and patented product based on an engineered protein called an intein, which has been modified for commercialization based on comparisons to existing affinity methods and customer feedback. The disruptive advantage of the intein is its ability to provide a self-cleaving tag for simple protein purification, where the tag is automatically removed during the purification process.

Currently, the *iCapTag* platform is tested in research labs and in the future it is intended to be used in a large-scale GMP productions of proteins, fragments of proteins and peptides through partnerships and collaborations.

Most importantly, among early findings, it was established that this type of technology can be used for fragments of monoclonal antibodies, fragments of spike protein COVID-19 and various large and small proteins important for biopharmaceutical market, including ML39 scFv, interferon alpha 2b, filgrastim, and a key fragment of receptor binding domain SARS COVID-19 spike protein.

From the biotech perspective, it is important to note that the ML39 scFv has been used for screening ErbB2 positive tumor cells and for the development of non-viral gene therapies. Based on MALDI-TOF analysis, the purity of ML39 scFv using our methodology was over 99%. The interferon alpha 2b (IFN alpha 2b) is a O-glycosylated antiviral cytokine, a popular antiviral agent used for treating chronic hepatitis B and C, hairy cell leukemia, malignant melanoma, genital warts, follicular lymphoma and other indications was also purified with over 99% purity. A key fragment of receptor binding domain SARS COVID-19 spike protein, evaluated by other companies as a potential vaccine against COVID was expressed in mammalian cells without additional optimization and purified in-house with a purity of 85%. Examples of those purifications will be presented.

This is a first attempt of introducing a commercially available self-removing tag to both research and a large-scale production to the market.

Learning Outcomes

- Apply knowledge gained from the presentation to potentially solve internal issues seen in current protein purification methods
- Analyze and interpret examples of protein purifications using *iCapTag*
- Learn about new protein purification platform (*iCapTag*) for R&D and manufacturing

ID 21592: Ready Reliable Care, the DoD's approach to High Reliability Organizations (HROs)

Selected presentation type: Poster

High reliability is the overarching framework guiding the Military Health System (MHS) every day. Given that achievement of HRO status is aspirational, the Ready Reliable Care (RRC) journey is about Defense Health Agency (DHA) supporting every aspect of the MHS from the military Medical Treatment Facilities (MTFs), Markets, DHA Regions, DHA Headquarters, and Direct Reporting Organizations including DHA Public Health, Medical Logistics (MEDLOG), Research and Development (R&D), contracting, acquisitions, and Medical Education & Training Campus (METC). Operations in HROs are characterized by repeatable processes that are regularly evaluated for change and improvement in collaboration with other affected units. The organization seeks and achieves effectiveness across units through analysis, innovation and the sharing of information and knowledge.

A case study of Enterprise Imaging addressing the RRC Domain of Change Culture of Safety will be reviewed to highlight an example of the HRO principles Preoccupation with Failure and Sensitivity to Operations. This case study will demonstrate how applying HRO principals can take a collection of complex, innovative, cross-disciplinary initiatives and implement them successfully across the enterprise to comprehensively image-enable electronic health records and to integrate all forms of clinical and diagnostic imaging for seamless global availability across the continuum of patient care.

RRC provides a unified lens through which MHS components can learn from the past experiences then build on and mature interoperable HRO capabilities that support warfighters and facilitate a consistent patient experience across the MHS. DHA is embarking on an HRO Baseline Assessment which will identify current maturity state of Military Medical and Dental Treatment Facility (MTFs/DTFs) within the HRO journey. The MHS aims to ensure the system matures by conducting a unified assessment that defines capabilities needed to advance the maturity of the system. This assessment will support the determination of capabilities needed to advance the maturity of the system. Maturity is assessed against the RRC Maturity Model developed by MHS subject matter experts. Existing MHS data sources (DHA, Services) will be aligned with the capability components of the RRC Maturity Model to determine current phase of RRC Maturity.

Learning Outcomes

- Define high reliability organization concepts in direct clinical and indirect clinical care delivery areas.
- Explain HRO maturity and assessing organizational maturity.
- Describe Ready Reliable Care as the DHA HRO framework

ID 21594: Reappraising the Use of Systemic Immunomodulators for Psoriasis and Eczema in the Military

Selected presentation type: Poster

Psoriasis and atopic dermatitis (eczema) are chronic, immune-mediated, skin disorders that are disqualifying for entrance into the military. When poorly controlled, these conditions can cause difficulty wearing body armor and other protective equipment, limiting a service members' ability to train and deploy worldwide. In addition, they can be exacerbated in the military environment upon exposure to heat, stress, and skin injury. Historically, the treatment of eczema or psoriasis that is non-responsive to topical treatments requires systemic medications causing clinically significant immunosuppression. Newer systemic medications - in particular biologic immunomodulators - have evolved to be extremely effective with excellent safety profiles. We review these treatments in the context of Department of Defense (DoD)'s regulations guiding entry and retention of personnel with psoriasis and eczema. A literature search was performed for systemic medications, military service, atopic dermatitis, eczema, and psoriasis, utilizing PubMed, Embase, and Ovid. An internet search was also performed on the DoD's regulations guiding entry and retention of personnel with psoriasis and eczema. In addition, we examined medical requirements for deployment to the United States Central Command (CENTCOM). We found that a history of psoriasis or history of eczema past the age of 12 years are disqualifying for entry into the U.S. military without a waiver. Severe eczema precluding the proper wear of military uniform or equipment, or psoriasis that is uncontrolled or requires systemic immunosuppressant or immunomodulating medications, are currently considered incompatible for continued service. To qualify for a waiver, CENTCOM requires the condition to not significantly increase risk of illness, injury, or infection; and not require ancillary testing. Additionally, medications must not have special handling or storage requirements such as refrigeration. Apremilast is a phosphodiesterase inhibitor and systemic medication for psoriasis that meets these requirements, and may be used off-label to treat eczema. Biologic immunomodulators used to treat refractory eczema or psoriasis are more efficacious despite requirements for refrigeration. Of these, dupilimab, ustekinumab, and rizankizumab stand out due to their effectiveness, safety profile, and long dosing intervals. Systemic treatments have evolved to become more targeted for eczema and psoriasis. We conclude that consideration should be given for approving the use of biologics in the deployed setting, especially for medications with long dosing intervals and exceptional efficacy and safety. This will enable more people who want to join the military to serve, and for those serving with eczema and psoriasis to receive more effective care.

Learning Outcomes

- Identify Department of Defense guidelines on entry and retention of service members with eczema and psoriasis.
- Recognize limitations on deployability imposed by eczema, psoriasis, as well as available treatments for these conditions.
- Evaluate the efficacy, safety, and dosing intervals of newer systemic medications and their potential use in the operational environment.

ID 21887: Implementation of medical-device related pressure injury prevention protocols: Prophylactic foam dressing prone packets for COVID-19 patients in the ICU

Selected presentation type: Poster

Background

Medical device related pressure injuries (MDRPI) occur more quickly following admission to a facility than other types of pressure injuries. 51% of all MDRPIs occur on the head and face, which is especially significant to the COVID-19 patient population due to prone positioning to manage manifestations of adult respiratory distress. However, proning carries with it the increased risk for pressure injury.

Problem (define need for innovation)

Literature suggests that placing a patient in the prone position for 12 hours or longer without appropriate pressure injury prevention intervention puts the patient at risk for pressure injuries. Therefore, creative solutions may be necessary to mitigate the risk for pressure injury in patients that require placement in the prone position.

Methods

This MDRPI prevention protocol provides guidance to caregivers for the application of polyurethane foam multilayer dressings on pressure points of the face, anterior, and posterior body for COVID-19 patients undergoing positioning to support lung function, to include proning.

Interventions

A MDRPI prevention program was implemented using a one-step prophylactic foam dressing packet for proned COVID-19 patients in the ICU.

The packet includes dressings for the bilateral cheeks, bridge of the nose, bilateral shoulders, hips, knees, sacrum, and heels and includes an educational flyer to guide dressing placement and skin prep. Nursing staff were educated to utilize a prone packet for all COVID-19 patients with provider orders to initiate prone positioning.

MDRPI in the intervention period were compared to same period previous year. Fisher Exact Test was used to calculate statistical significance.

Results

Between Aug-Nov 2021, 115 COVID-19 positive ICU patients qualified for the intervention. One patient developed a facial MDRPI (0.8% incidence), compared to Aug-Nov 2020 pre-intervention period, where 12 out of 133 COVID-19 positive ICU patients (9% incidence) developed facial MDRPI, a reduction of 91% ($p < .005$). Data collection is currently being performed to establish a cohort for pressure injury prevention over an extended period, through July 2022.

Implications for Practice

Initiation of one-step prophylactic dressing prone packets for ICU COVID-19 patients increased compliance with prophylactic dressing application and greatly reduced the MDRPI incidence among the COVID-19 patient population. This process can be replicated for PI prevention in any COVID-19 or Respiratory units within hospital systems that prone patients.

Learning Outcomes

- Describe the significance of head and face MDRPI and the resultant impact of Covid-19 on head and face pressure injury risk
- Identify the steps and interdisciplinary collaboration necessary for successful implementation of a comprehensive MDRPI prevention program utilizing a one-step prophylactic foam dressing packet for proned Covid-19 patients
- Analyze the clinical and financial impact of developing a comprehensive MDRPI prevention program

ID 21889: Where we might better serve: Using publicly available data to pinpoint vulnerable populations

Selected presentation type: Poster

The circle of emergency management begins before an emergency strikes. Not only do we need to have plans in place, resources, and trained personnel, we need to be able to anticipate the needs for services. Utilizing publicly available data sources undergraduate student interns were able to identify the vulnerable populations in different jurisdictions across Maryland. This project showed how a hands-on model can be used not only to training students, but to levy relevant information to help identify vulnerable populations in the field. This data can also serve as the baseline when performing after action performance evaluations.

Learning Outcomes

- Identify resources to better plan the response in emergency scenarios.
- Use publicly available resources to identify vulnerable populations.
- Explain the use of real-life scenarios to train personnel the next generation of professionals.

ID 21893: The Surgeon General's Education Teams (SGETs)

Selected presentation type: Poster

In 2018, the Surgeon General's Education Teams (SGETs) were established as a component of the Prevention through Active Community Engagement (PACE). The SGETs design, implement, and evaluate community-based public health education programs focused on critical health priorities.

During the global pandemic, SGET officers created virtual platforms throughout the nation to reach thousands of people in various communities, states and affiliations to continue sharing relevant information about COVID 19 and Vaccine Hesitancy. With 6,000 USPHS Commissioned Corps officers, 18% are members of PACE, and 11% are part of the 15 SGET leadership teams in all of the Department of Health and Human Services (HHS) 10 regions. SGETs officers serve an appointed three-year term by the SG comprised of five (5) officers in leadership roles that deliver evidence-based, public-health-related educational lessons approved by the SG focused on his priorities to local communities nationwide. SGET officers continue to build strong alliances with HHS Regional Health Administrators (RHA) while fostering long-term relationships and engagements with local, state and federal partners.

Learning Outcomes

- Describe the SGET capabilities and responsibilities that includes the team structure, recruitment and training
- Discuss the OSG priorities and how the SGETs responded to communities using virtual learning platforms during the global pandemic
- Describe how SGETs implement trainings for COVID-19, Opioids, Vaping and Naloxone Administration

ID 21907: Comparing civil-military responses to the COVID crisis - observations for the future

Selected presentation type: Poster

The COVID crisis has had significant impacts on the health and wider security of both our nations and the global community. All governments mobilised their national resources in support of their crisis response, including their armed forces. At the same time, it was necessary to continue essential military tasks in order to prevent the health crisis becoming a wider security crisis. This paper summarises our comparison of military activities during the COVID response between selected countries in order to identify lessons for national resilience.

Our typology is structured into 4 high-level groupings: maintaining military capability; protecting the health of the armed forces and beneficiaries of military health systems; generic military assistance to the national health system response; specific military assistance to the national health and social care response. Using this, we reviewed the descriptions of the military contribution to the COVID response that were collated in the analyses listed in the references for the following countries: UK, France, Spain, USA, Sweden, Brazil, Canada, Estonia, Denmark, Slovenia, Australia, Latvia, New Zealand, Nigeria, Zimbabwe, South Africa, and Pakistan.

Our results show some activities were almost universal between countries: impact on military activities, technical advice to the executive, health communication, COVID testing and vaccination for beneficiaries, military liaison and embedded personnel to crisis management, repatriation of citizens, movement of materiel, support to COVID testing, support to vaccination, support to medical evacuation, personnel augmentation to civilian hospitals. There was a noticeable difference between countries for other activities: environmental decontamination, border security, internal security, medical research, out-of-hospital support to communities, use of field hospitals, use of hospital ships, use of temporary medical facilities. These differences may be attributed to: the overall size of the armed forces (USA, Pakistan and Brazil are the largest in this sample), the responsibility for care of non-military beneficiaries within the military health system versus the wider public health systems (e.g. UK, Estonia, Finland, Sweden, Denmark have a public health system for universal healthcare), the presence of military hospitals (e.g. UK, Estonia, Finland, Sweden, Denmark do not have military hospitals), the use of the armed forces for internal security operations and restriction of movement (e.g. France, Denmark, Spain, Brazil, South Africa, Pakistan, Zimbabwe, Sierra Leone, Nigeria).

In conclusion:

- Our typology covered all military activities in support of the national response to the COVID crisis in the countries studied and allowed comparisons between countries to identify common activities and significant differences.
- This analysis identifies key military capabilities that might be further developed as part of a country's mitigation of future threats to health security.

Learning Outcomes

- understand the domains of military activities undertaken during the COVID crisis
- identify differences in military activities undertaken in different countries during the COVID crisis
- consider why these differences have occurred
- identify lessons for civil-military cooperation in future global health crises

ID 21908: Adult Clubfeet in the Military: 30 year Review

Selected presentation type: Poster

Purpose:

To present a review of adult clubfeet in the military over a 30 year period.

Materials:

Over thirty years of have been tracking every service member that has had congenital clubfoot deformity. Each and every patient was evaluated clinically, radiographically and functionally. The series includes 150 military personnel in all phases of their career All surgical cases were recorded for comparison, and all radiographic issues recorded.

Results:

One hundred and fifty cases were identified during my 30 years of service. None of the cases recorded involved a casted clubfoot or a Ponsetti treated clubfoot. All 150 had some form of clubfoot surgery ranging from less than a year to 5 years old. Less than ten soldiers were bilateral. There was no statistical difference between right or left sided clubfeet. We had far more men versus women in the series. Predominant surgeries earlier on in the series were posteromedial releases and the last 20 years have become predominantly Cincinnatti releases. Age clearly corresponded to the procedure. Younger were treated with Cincinnatti and older with posteromedial releases.

The overwhelming trend for the posteromedial release patients was under-correction. The Cincinnatti patients developed a high rate of talonavicular DJD and a handful developed rocker bottom foot due to over-correction or loss of reduction.

Conclusion:

Clubfoot deformities and surgical outcomes have been questionable at best. This series exemplifies how many children, teenagers and adults can overcome their deformities and surgeries, but ALL develop post-operative arthritis. The literature has failed to have a large enough series of athletes let alone military service members. To date, only two individuals have ever completed their military career with congenital clubfeet.

Learning Outcomes

- Military entrance standards should eliminate all clubfeet
- Long-term outcomes for service members with clubfeet are poor
- Clubfeet are prone to developing post-surgical arthritis and chronic pain

ID 21909: Bone Bruises of the Ankle: Six year Review

Selected presentation type: Poster

Purpose:

To present a review of bone bruises sustained post ankle injury over a six year period. Assess the clinical significance and number of surgical cases of such injuries in an athletic population. Ft. Leonard Wood averages well over 1500 ankle sprains a year. All patients who have consistent pain at least 2-6 weeks post injury with weightbearing are referred for ankle MRI's to rule out bone bruise injuries.

Materials:

Using an AGFA DICOM system, 1800 ankle MRI's were reviewed by the author from March 2016 to August 2022 at Ft. Leonard Wood. All bone bruises of the talus and tibia were recorded. Cases were compared with those treated within the Orthopedic and Podiatric Clinics. The cases that underwent surgical intervention were recorded.

Results:

Two hundred and ten cases were identified with bone bruise injuries over a six year period. Primary Care has been instructed to refer all patients with persistent pain for MRI's post ankle injury. The majority of the cases were referred by Primary Care already having their MRI's completed and bone bruise diagnosis. Radiologists routinely made recommendation for all bone bruises to be referred to Podiatry. All cases were referred to and evaluated by our specialty clinics. All the patients were educated on the extent of their injury. Depending on the degree of pain and their training status determined their outcome. Active duty patients were protected from high impact activities for at least 6-8 months. Only persistent cases were re-imaged with MRI for clearance back to running. Majority of trainees with extensive bruising patterns were chaptered out medically. The military can not allow a trainee to sit idle for six months.

Of the active duty injuries, two patients developed osteochondral lesions within two years of the injury who required surgical repair. In both cases, soldiers returned to running far sooner than the recommended 6-8 months and both had repeated ankle injuries prior to surgery. One soldier continued to have chronic ankle pain post ankle injury who underwent arthroscopic debridement finding only synovitis. No cases of avascular necrosis were identified within the six year period.

Conclusion:

Bone bruises can be serious injuries; however, the number of patients if diagnosed and protected early on post injury, almost no patients developed osteochondral defects or avascular necrosis. Patients who sustained repeated injuries were far more likely to develop chronic pain.

Learning Outcomes

- Importance of identifying bone bruises
- Bone bruises require the use of MRI's to properly determine return to duty timing
- Bone bruises if caught early rarely lead to long-term sequelae

ID 21910: Fibular Stress Fractures: Six Year Review

Selected presentation type: Poster

Purpose

To present a series of 51 fibular stress fractures.

Materials and Methods

Using an AGFA DICOM system, over a six year period at Ft. Leonard Wood, Missouri. All fibular fractures were classified by fracture pattern. All stress type of fractures of the fibula were recorded and keyworded.

Results

Fifty-one fibular stress fractures were identified. To date, there is still some controversy in regard to the clinical significance and weightbearing status of the fibula. All 51 cases had similar fracture patterns at the level or above the level of the syndesmosis between 3-5cm. All occurred in active duty personnel. There appeared to be no underlying deformity of the ankle; however, when foot xrays were available, pes planus was the most common foot type.

Conclusion

Fibular stress fractures can occur. They are rare in comparison to other stress related conditions. There may be a biomechanical link to pes planus deformities. It is unclear why the fractures occur at the level of the syndesmosis. More research is necessary; however, fibular stress fractures should ease the debate on the weightbearing status of the fibula.

Learning Outcomes

- Discuss the frequency of fibular stress fractures in Basic Trainees
- Compare the frequency to other foot and ankle stress fractures
- Show the common fracture patterns and locations

ID 21911: Talar Stress Fractures

Selected presentation type: Poster

Purpose

Present thirteen cases with occult stress fractures of the talus neck or body in Army Basic Trainees.

Materials and Methods

Stress fractures of the talus are not common. Every foot, ankle, heel and leg xray, every foot or ankle MRI and CT-SCAN has been reviewed by senior author. Thirteen talar stress fractures have been identified. All involved Basic trainees here at Ft. Leonard Wood.

Results

In thirteen years at Ft. Leonard Wood, only 13 cases of talar stress fracture have been diagnosed. All thirteen were medically discharged from the military. Two of the 13 actually required surgical intervention. We saw both pes planus and pes cavus deformities. Females were predominantly involved being 11 of 13.

Conclusion

Majority were diagnosed via MRI. Many of the trainees were out of shape but were not necessarily overweight. All 13 were seen by the senior author. Compared to hip stress fractures, talar stress fractures are still very rare in number. Like femoral neck stress fractures, talar stress fractures often take 8-12 months to heal and if not treated can and will progress to displacement and often AVN.

Learning Outcomes

- Present a series of talar body stress fractures in Basic Trainees
- Present MRI findings of talar stress fractures
- Discuss the indications for surgical intervention

ID 21912: Navicular Stress Fractures

Selected presentation type: Poster

Purpose

Present sixteen cases with occult stress fractures of the navicular body in Army Basic trainees.

Material and Methods

Stress fractures of the navicular are not common. Every foot, ankle, heel and leg xray, every foot or ankle MRI and CT-SCAN has been reviewed by senior author. Sixteen navicular stress fractures have been identified. All involved Basic trainees here at Ft. Leonard Wood.

Results

In six years at Ft. Leonard Wood, only 16 cases of navicular stress fractures have been diagnosed. All sixteen were medically discharged from the military. Only one of the sixteen required surgical intervention. We saw both pes planus and pes cavus deformities. We saw equal number of stress fractures between men and women.

Conclusions

Majority were diagnosed via MRI. Many of the trainees were out of shape but were not necessarily overweight. Compared to hip stress fractures, navicular stress fractures are still very rare in number. Like femoral neck stress fractures, navicular stress fractures often take 8-12 months to heal and if not treated can and will progress to displacement and often AVN or nonunion.

Learning Outcomes

- Present the radiographic signs of navicular stress fractures
- Discuss the fracture patterns
- Discuss the indications for surgical intervention

ID 21913: Tibial stress fractures

Selected presentation type: Poster

Purpose

Present fifty-five cases with occult stress fractures of the tibia in Army Basic trainees.

Material and Methods

Stress fractures of the tibia are fairly common. Every foot, ankle, heel and leg xray, every foot or ankle MRI and CT-SCAN has been reviewed by senior author. Fifty-five stress fractures have been identified. All involved Basic trainees here at Ft. Leonard Wood. Majority returned to training within 4 months fo diagnosis.

Results

In six years at Ft. Leonard Wood, 55 cases of tibial stress fractures have been diagnosed. We saw both pes planus and pes cavus deformities. We found 26 of 55 were females.

Conclusions

Many cases were diagnosed simply on xray and occult fractures were diagnosed via CT or MRI. Many of the trainees were out of shape but were not necessarily overweight. Compared to hip stress fractures, tibial stress fractures are still much less common in number. Unlike femoral neck stress fractures, tibial stress fractures heal very quickly and rarely go on to any complications. High number of these cases resume training. Only handful of cases will require medical discharge.

Learning Outcomes

- Discuss the commonalities of distal tibial stress fractures
- Illustrate the varying locations for stress reactions of the distal tibia
- Discuss the indications for surgical intervention and/or medical discharge

ID 21927: Navy Nursing at its Finest: Meeting the Challenges of Shipboard Nursing during a Pandemic

Selected presentation type: Poster

STUDY PURPOSE: Gather first-person narratives from shipboard nurses in light of COVID-19.

BACKGROUND: Balancing peacetime and wartime operations while underway during a pandemic is a challenge since executing the major components of disease prevention for a highly infectious respiratory disease (e.g., social distancing, isolation of sick patients, and quarantine of exposed persons) is impractical given the confined spaces and close quarters on ships. Because disease prevention and medical readiness in the military is crucial to ensuring a fit and ready force that can respond to global crises, U.S. Navy nurses are integral to the operational mission, especially those forward deployed at sea.

METHODS: Participants were recruited for virtual interviews using purposive sampling, resulting in a sample size of 30 U.S. Navy nurses who deployed anytime from 2019 to 2021 on aircraft carriers, on amphibious assault ships via fleet surgical teams, on hospital ships, and with expeditionary units. The Minnesota Department of Health Intervention Wheel guided this study because it encompasses three levels of practice (community, systems, and individual/family) and 17 public health interventions. Content analysis – both inductive and deductive – was utilized for data analysis. Quantitative data collected from the demographic questionnaires was organized/analyzed using SPSS software. Qualitative data was managed/examined using MAXQDA software.

FINDINGS: Participants were candid about their most recent deployments at sea, what a typical day looked like, when things worked well, when things didn't work well, innovations that occurred during the deployments, and the competencies necessary for managing infectious disease outbreaks at sea. They overcame unprecedented challenges via teamwork and healthcare collaborations and it is clear that they were key players in multiple mitigation efforts, thus allowing the U.S. Navy to maintain its operational tempo despite the pandemic.

IMPLICATIONS FOR MILITARY NURSING: This study supports future U.S. Navy Nurses' acumen and skill development necessary for the provision of competent care regarding the suppression and transmission of infectious diseases while underway.

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Learning Outcomes

- Examine the experiences of shipboard nursing during the COVID-19 pandemic.
- Discuss how shipboard nurses overcame unprecedented challenges via teamwork and healthcare collaborations.
- Appraise recommendations regarding the suppression and transmission of infectious disease while underway.

ID 21931: Compact Medical Glove Dispenser for Use in Tactical Environments – A 3D-Printed Invention

Selected presentation type: Poster

In austere, mass casualty (MASCAL) environments or chemical, biological, radiological, nuclear, and explosive (CBRNE) events, combat medics will often wear several layers of gloves and remove individual pairs as they move from patient to patient. In this way, medics protect themselves and avoid cross-contamination while preserving critical, life-saving time. However, these medics are presented with the problem of subsequent glove donning once they have run out of their original pre-mission staged glove layers. The added physiologic effects of stress in these combat environments, including diaphoretic hands, loss of fine motor skills, and impaired cognitive processing, play a major role in re-applying more layers of gloves. The Smith-Bayne Tactical Glove Dispenser is a novel 3D-printed invention designed to allow the rapid donning of several layers of gloves in a MASCAL or CBRNE event. This product is a pocket sized, crescent shaped tool that is ergonomic and ambidextrous, created to deliver up to five layers of preloaded gloves in seconds. The dispenser was developed using computer-aided design (CAD) software and made tangible through several trial-and-error iterations of 3D-print-based rapid prototyping. This was in conjunction with feedback from combat medic specialists under United States Army Special Operations Command (USASOC) in deployed settings. The prototype iterations were made with 3D printing using low-cost materials, such as polylactic acid (PLA) or Acrylonitrile Butadiene Styrene (ABS). Then, strong, lightweight materials such as onyx, carbon fiber, or aluminum are used to make the final product viable on the battlefield. With further advancements, this product can also serve as a conduit for quick and easy application of surgical gloves in sterile packaging. In conclusion, the Smith-Bayne Tactical Glove Dispenser is an invention to aid efficiency of downrange medics through streamlining the process of donning multiple layers of medical gloves during MASCAL or CBRNE events.

Learning Outcomes

- Appreciate unique challenges faced by medics in MASCAL and CBRNE events.
- Understand the development of the Smith-Bayne Tactical Glove Dispenser.
- Become familiar with using the Smith-Bayne Tactical Glove Dispenser.
- Recognize how the Smith-Bayne Tactical Glove Dispenser can be used beyond the battlefield.

ID 21932: 5G Augmented Reality-Enabled Telementoring for Surgical and Medical Procedures

Selected presentation type: Poster

Education Program Description: 5G technology offers massive capacity connections and fast speeds that have the potential to transform how healthcare is delivered. JBSA 5G has implemented specific use cases that can be leveraged for telemedicine utilizing Ultra-Reliable Low-Latency Communications (URLLC) and Enhanced Mobile Broadband (eMBB). These emerging technologies offer the potential to extend operational medical expertise forward beyond existing boundaries, enabling other advanced technologies, such as Augmented Reality (AR), Virtual Reality (VR), Mixed Reality (MR) and automated data analytics to enhance support for mobile forces in operational or austere environments.

JBSA is an experimentation site examining the ability of 5G to provide access to high-quality virtual telementoring using AR technology. Defined as 3-D real-time interactive digital content overlaying physical space, AR has the potential to collapse space and time, bringing virtual medical expertise to the point of care, anywhere in the world.

For telementoring, AR combined with physiological data collected from sensors, high-definition video, digital medical images, desired haptic feedback, and electronic health records provides the remote medical healthcare provider with enhanced clinical situational awareness to augment the care delivered on-site. The potential to decrease response time to diagnosis and treatment enabled by this technology may in turn measurably decrease casualty morbidity and mortality.

The development of a 5G AR-enabled telementoring platform requires creation and integration of three domains. First is the development of a robust and secure 5G network that can operate in an environment largely unsupported and independent from commercial networks. Next is the integration of commercial-off-the-shelf physiologic sensors, imaging tools, electronic health records, and high-definition audio/video. Third is development of an AR platform that allows for high bandwidth/low latency communication between mentee and remote mentor across this novel 5G network.

The poster presentation will display relevant use cases that utilize the 5G and AR technology, integrating with existing off-the-shelf medical devices and protocols. It will inform the clinical validity and usefulness of the JBSA experiments, with the goal of the prototype 5G/AR application reaching Technology Readiness Level 8 at the end of development. It will also link beneficial process and improvement outcomes for both in-garrison and operational/remote patient care.

Learning Outcomes

- Understand key goals that 5G solutions must address in telemedicine/ telementoring along with ensuing risks and vulnerabilities
- Understand the challenges in technology and training that affect the implementation of a functional 5G AR solution for telementoring
- Identify gaps where future advances in technology can solve enduring clinical challenges in expanding and enhancing medical care

ID 21933: Exercise Associated Hyponatremia Among Military Service Members; Water NOT Under the Bridge

Selected presentation type: Poster

Exercise associated hyponatremia (EAH) is defined as serum Na⁺ concentration less than 135 mmol/L during or after prolonged physical activity. EAH has been reported during military training including field training exercises, land navigation courses, forced road marches, load bearing rucks, and personal fitness training. Between 2006-2021 there were 1,669 incidences of EAH among United States Military service members. Incidence is highest in the Marine Corps with greater frequency among younger service members, notably recruits, and female service members. Several factors contribute to decreased Na⁺ levels, including event duration, type, temperature, humidity, and location. Fluid consumption strategies are a major contributor to EAH. It is well established that overconsumption of fluid can cause Na⁺ concentration to fall. We aim to provide an overview of EAH including background, incidence, pathophysiology, and management, emphasizing considerations for the military community.

Water and Na⁺ are associated with extracellular fluid (ECF) volume and osmolarity. The primary mechanism for EAH is a dilutional (hypervolemic) hyponatremia resulting from the overconsumption of hypotonic fluid and sustained non-osmotic secretion of arginine vasopressin (AVP). Decreased osmolarity causes water to move into cells resulting in swelling. There is an inverse correlation between Na⁺ concentration and volume of fluid consumed.

“Drink to thirst” or preplanned fluid intake plans are recommended to prevent overhydration. Preplanned fluid intake of 400-800mL per hour of physical activity has been suggested to limit EAH risk among endurance athletes. The military’s fluid replacement guidelines indicate that consumption greater than 1 ½ qt or ~1400mL per hour places service members at significant risk for EAH. Reducing the availability of fluids by having service members limit their maximum fluid intake to 1 qt or ~950ml per hour may also help to prevent EAH. Predictive models such as the Army’s Solder Water Estimation Tool (SWET) may be used by leadership to accurately predict fluid requirements based on temperature, humidity, activity, clothing, and activity duration.

Appropriate management of EAH begins with early recognition. Mild hyponatremia can be benign, as it may present non-specifically or with no symptoms. In contrast, severe hyponatremia can lead to neurological symptoms due to cerebral edema and may result in death in the most serious cases. Service members presenting with severe symptoms should be treated aggressively with hypertonic 3% saline. Treatment with hypotonic fluids should be withheld due to the potential for deleterious effects. Medical personnel should be familiar with EAH recognition and management as severe EAH can mimic other life-threatening causes of exertional collapse where hypotonic fluid resuscitation is warranted. Point-of-care Na⁺ testing may help with early recognition and prompt evacuation to the closest medical facility.

Broad education on overconsumption of fluids as a major contributor to EAH should be made widely available to service members and their supervisors in the interest of combat readiness and force health protection. Service members should consider adopting “drink to thirst” strategies during prolonged physical activity. Military medical personnel can benefit from training that reviews the pathophysiology, symptoms, and appropriate management of EAH.

Learning Outcomes

- Identify the key causes and characteristics of exercise associated hyponatremia.
- Describe the guidelines for fluid replacement during military training exercises.
- Understand the background behind the implementation of fluid replacement guidelines in the military and the impact of the guidelines on exercise associated hyponatremia incidence amongst service members.
- Identify the role of military leadership and medical personnel in preventing EAH among service members.

ID 21934: Ready, Set, Scribe your Way to Happiness!

Selected presentation type: Poster

The usage of electronic health records (EHR) has created additional administrative burdens on providers to perform data entry while trying to engage with the patient during a health care visit. The complex nature of the EHR left providers frustrated and distracted which hindered connectivity, and communication with patients. The utilization of medical scribes in the outpatient clinical setting was a strategy shown to enhance patient and provider interaction, decrease administrative tasks and promote satisfaction among providers and patients.

To this end, an innovative quality improvement pilot project was launched to determine the impact on patient and provider experience in an ambulatory care setting.

Two providers and four corpsmen were selected to participate in this pilot project. The four hospital corpsmen received a two-week training in the fundamentals of the EHR and their role as scribes prior to the start of the project. Two corpsmen were designated for each provider and worked with their provider throughout the six-week project period. The two primary aspects evaluated during the implementation of the scribes were the patient and provider experience. Additional findings of improved clinic efficiency, completion of documentation, and positive qualitative comments from the scribes' experience were also identified as a result of this project.

While the patient experience revealed a slight decrease, it was not significant. Additionally, throughout the project, patients were receptive to scribes and continued to provide positive experience feedback through the Interactive Customer Evaluation, and the Joint Outpatient Experience Surveys. The providers' experience improved with an average of 50% decrease in time spent after hours documenting in the EHR, enhanced engagement with the patient, staff, and ancillary team members, and improved work-life balance. Additional findings of improved clinic efficiencies with saving 13.88 minutes per appointment and completion of notes were identified.

This pilot project did show improvement in the provider experience and did not negatively impact the patient experience. Furthermore, given the positive comments of the hospital corpsmen, this initiative could increase clinical skills, critical decision-making, and ultimately operational readiness.

Learning Outcomes

- Identify the impact of the EHR on the provider and patient interaction.
- Describe the benefits of incorporating scribes into the clinical practice.
- Discuss considerations when utilizing scribes in the clinical setting.

ID 21936: Forecasting Current and Future Medical Readiness: How Knowledge, Skills, and Abilities (KSA) Collaboration and Tools Enhance Readiness

Selected presentation type: Poster

The Naval Medical Force Development Center (NMFDC) coordinates the activities and efforts related to measuring, maintaining, and sustaining medical force readiness across the Navy Medicine enterprise. More specifically, the NMFDC oversees the development of the Naval Medical Readiness Criteria (NMRC), 117 specialty-specific checklists developed in coordination with Specialty Leaders and Enlisted Technical Leaders to identify deployment requirements for approximately 143 Navy occupational codes. The NMRC are living documents that support Navy Medicine's mission of readiness proficiency and help personnel to meet and exceed their expeditionary scopes of practice.

The goal of this presentation poster is three-fold: First, it will depict how the NMFDC integrates disparate Naval medical stakeholders to optimize readiness proficiency and drive high-value performance through the development and revalidation of the NMRC. Second, the poster will exhibit the tools that improve the visibility of readiness proficiency and support data-driven decision-making, including the Naval KSA (NKSA) Proficiency Dashboard, a web-enabled, on-demand tool that shows NMRC completion status at the individual, specialty, Corps, and command levels. Finally, it will illustrate how these efforts align with the problem-solving best practices of the Chief of Naval Operations' "Get Real, Get Better" initiative, which encourages Navy leaders to use a learning mindset, empower personnel, and set clear accountability to achieve exceptional levels of performance.

These tools and priorities will help the NMFDC and Navy Medicine stakeholders not only to enhance current and future readiness assessment, tracking, and reporting, but also to improve the Navy's warfighting advantage and foster a culture of continuous growth, collaboration, and improvement.

Learning Outcomes

- The Naval Medical Force Development Center (NMFDC) priorities and role as an integrator across Navy medicine stakeholders in support of medical force proficiency.
- How the Naval Knowledge, Skills, and Abilities (NKSA) Proficiency Dashboard displays the current status of a "Ready Medical Force" and how it can improve transparency and monitoring of Naval medical personnel readiness performance metrics.
- How Navy medical personnel can take ownership of their own Naval Medical Readiness Criteria (NMRC) to improve data quality, identify resourcing needs, and support more accurate future forecasting of medical readiness.
- How the NMFDC, NMRC, and NKSA Proficiency Dashboard align with the principles of the Chief of Naval Operations' "Get Real, Get Better" Initiative.

ID 22417: Operation Colony Glacier: A Joint Service Mission to Recover, Identify, and Honor the Fallen

Selected presentation type: Poster

On 22 Nov 1952, a United States Air Force C-124 with 52 Service Members on board crashed into Mount Gannett, AK while en route to Elmendorf Air Force Base, AK from McChord Air Force Base, Washington. In June 2012, members of the Alaska National Guard identified the aircraft wreckage and suspected human remains on Colony Glacier. Since 2012, yearly recovery operations have been conducted on Colony Glacier and all suspected human remains are photographed, packaged, and transferred to the Armed Forces Medical Examiners System (AFMES) for triage, sampling, DNA testing, and reassociation, prior to final disposition.

The goal for all recovered portions on Colony Glacier is that they can be reassociated to an individual service member through one of two scientific methods available for this mishap: fingerprinting and DNA identification. Antemortem and postmortem fingerprint comparison, while limited by the type and quality of specimens recovered as well as the lack of full antemortem fingerprint cards for each service member, has led to the successful identification and reassociation of multiple portions. The vast majority of specimens, however, are reassociated via DNA testing.

After arriving at the AFMES, each portion recovered from Colony Glacier is inventoried, photographed, and assessed by a medical examiner for the likelihood of producing a sample that will generate a usable DNA profile. Each portion is then reevaluated for quality and representative samples of each portion are submitted to the Armed Forces DNA Identification Laboratory (AFDIL) for testing. Multiple testing methods are used, including mitochondrial DNA, whole genome sequencing, Y-STR, and autosomal-STR. Unfortunately, no DNA reference cards are available for the service members involved in the incident. As a result, identification is done through the comparison of the generated genetic profiles with family reference samples collected for each service member. To date, 46 of the 52 service members have been identified.

Scientific identification of human remains is an essential component of mass fatality incidents and a core pillar of the AFMES mission. The Colony Glacier mission not only highlights the ability of the AFMES to successfully execute our mission under an extremely unique circumstance, but also illustrates the commitment of the Armed Forces to identify fallen service members and return them to their loved ones.

Learning Outcomes

- Understand the unique background of this joint service endeavor to recover, identify, and honor the fallen.
- Appreciate the complexity and necessity of postmortem scientific identification and re-association in mass casualty incidents.
- Recognize the mission of the Armed Forces Medical Examiner System (AFMES) to “Investigate Death, Identify the Fallen, and Improve Readiness.”

ID 22419: Implementing standardized depression screening in a civilian seafarer occupational health clinic: A quality improvement project

Selected presentation type: Poster

Recent studies have shown that seafarers have higher rates of stress and depression when compared to the general population. Screening for depression is accurate and can provide occupational health providers with a baseline understanding of depression in their seafarers as well as provide opportunities to discuss opportunities to improve mental health on ships and make referrals for mental health interventions. Barriers to depression screening are well documented despite demonstrated benefits. A quality improvement (QI) was used to standardize and improve depression screening in this occupational health clinic that serves civilian seafarers sailing on NOAA vessels as well as NOAA Corps Officers.

This QI project aimed to implement standardized depression screening using the patient health questionnaire 9 (PHQ-9) during at least 60% of seafarer pre-employment fit for duty examination appointments over eight-weeks during which at least two appointments were scheduled. The Plan-Do-Study-Act model with two 4-weeks cycles was used to implement the proposed change. The poster presentation will demonstrate how to improve depression screening in the uniform service occupational health setting and provide tips and tricks on setting up appropriate treatment and follow-up to mariners that screen positive for depression.

Learning Outcomes

- Explain the risks and benefits of depression screening in the occupational health setting
- Describe the plan-do-study-act quality improvement cycle and how to apply it to starting a new clinic initiative.
- Summarize the processes and procedures used to ensure that the clinic has adequate systems in place to ensure accurate diagnosis, effective treatment, and appropriate follow-up after depression screening
- Discuss how depression screening in the occupational health setting contributes to deployment readiness

ID 22420: HHS Coordination Operations and Response Element (HCORE): Synchronizing and Prioritizing Medical Countermeasure Efforts Across the Federal Government to Address Health Security Threats.

Selected presentation type: Poster

On December 31, 2021, the Memorandum of Understanding between HHS and DOD expired, and all efforts were successfully transitioned on January 1, 2022 to the newly established HHS Coordination Operations and Response Element (H-CORE) within HHS and ASPR. Built upon the successful interagency partnership established to combat COVID-19, H-CORE is a permanent, nimble organizing entity to ensure synchronization of medical countermeasure efforts across the federal government. Housed within the Administration for Strategic Preparedness and Response (ASPR), H-CORE brings together government experts to partner with public health and industry stakeholders to fast-track solutions to health security threats. H-CORE works in partnership with other entities across ASPR such as the Biomedical Advanced Research and Development Authority (BARDA) and the Strategic National Stockpile (SNS) as well as other HHS and Interagency partners to deliver COVID-19 countermeasures to the American public while solidifying enhanced capability to respond to future public-health threats. Specifically, H-CORE institutionalizes the interagency coordination surrounding the development, production, and distribution of COVID-19 vaccines and therapeutics within the HHS/ASPR. These activities were previously carried out in partnership with the Department of Defense (DoD) as part of the Countermeasures Acceleration Group (CAG), formerly known as Operation Warp Speed (OWS). These efforts, OWS, CAG, and now H-CORE, included the delivery of over 732 million doses of vaccines, 11 million courses of therapeutics to protect the American people from COVID-19, and the acquisition and distribution of 1 billion at-home COVID test kits. An important lesson learned during the COVID-19 pandemic response has been the need for a permanent, nimble, organizing entity to ensure the synchronization of the medical countermeasure efforts across the federal interagency. H-CORE was created to implement the HHS Secretary's COVID-19 vaccine and therapeutic production and distribution priorities and offer HHS the internal capability to coordinate the logistics of other materiel such as test kits and masks. In the future, H-CORE's capabilities can be refocused on non-pandemic priorities as needed. HHS established H-CORE with the authorities and skills to lead, coordinate, and synchronize federal pandemic preparations and response in order to enhance and accelerate the ability of the United States Government to protect the health and safety of the US population before and during an infectious disease outbreak. HHS leadership set guiding principles and strategy and conducted planning for the development, production, distribution and administration of vaccine and therapeutics. H-CORE provides analysis to support prioritization of requirements and investments for accelerating manufacturing of vaccines, establishing and supporting clinical trial sites, procuring administration supplies (ancillary kits), defining cold chain requirements, planning for cold chain storage, and leading and synchronizing jurisdictional planning for vaccine distribution. Additional responsibilities include senior level tracking and synchronization of various working groups throughout the planning and procurement process, Public Health and Social Services Emergency Fund 141 establishing and operating the Vaccines and Therapeutics Operations Center, and planning at the national level for state distribution coordination. H-CORE serves as senior lead for various working groups, to include federal entities and industry partners to support the full spectrum of pandemic response operations.

Learning Outcomes

- At the end of this session the participant will be able to define what the HHS Coordination Operations and Response Element (HCORE) is
- At the end of this session the participant will be able to communicate what the mission of H-CORE is
- At the end of this session the participant will be able to list the key workstreams of H-CORE

ID 22421: Military Medic and Portable Pulse-Oximeter Respiratory Rate Measurement Comparison to Waveform Capnography: A Prospective, Observational Study

Selected presentation type: Poster

Background: One area that must be addressed to prevent airway complications, the second leading cause of battlefield fatalities, is the importance of casualty assessment skills among military personnel. Tactical combat casualty care (TCCC) guidelines emphasize thorough airway and respiratory evaluation in combat injuries, including proper respiratory rate measurement (RR). Despite the TCCC recommendations, there is little confidence in medics' competence to perform airway skills. There has been no research on military care professionals' prehospital RR accuracy. The purpose of this study was to compare the accuracy of manual RR assessments performed by the medics against waveform capnography and the MightySat Rx finger pulse oximeter that provides continuous plethysmography RR.

Materials and Methods: We conducted a prospective, observational study with Army medics using the manual method, plethysmography, and waveform capnography RR. The manual RR at rest and exertion using a seated exercise bike, RR at 30- and 60-seconds from both the MightySat Rx finger pulse oximeter and Zoll Propaq MD were recorded, followed by surveys.

Results: A total of 40 medics enrolled throughout four months period. Most of the population (85%) were male, with an average age of 24, and between one and five years of military and medical experience (62.5% and 50%), respectively. No significant difference from the mean RR reported by medics at rest (14.05) compared to the waveform capnography (13.98, $p = 0.523$). On the contrary, the mean RR reported by medics (25.62) on exertion was significantly lower than reported waveform capnography rates (29.77, $p < 0.001$). Time to obtain RR by medics was substantially slower compared to the MightySat Rx pulse oximeter both at rest (-7.37 seconds, $p < 0.001$) and at exertion (-6.50 seconds, $p < 0.001$). Differences in RR between the MightySat Rx and waveform capnography were significantly different in models at rest at 30 seconds and post-exertion at 60 seconds.

Conclusion: In models with tachypnea, medic-obtained RR considerably deviated from the gold standard recorded waveform capnography in a controlled context. Existing commercial pulse oximeters with RR plethysmography functions do not differ significantly from waveform capnography and hence should be

Keywords: Respiratory rate, pulse oximeters, plethysmography, military, medic, tactical combat casualty care

Learning Outcomes

- Recognize the importance of proper airway and respiratory evaluation in combat casualties as part of tactical field care.
- Identify the gap between the manual respiratory rate measurement compared to the novel plethysmography respiratory rate.
- Discuss the result finding on the comparison of manual respiratory rate vs. plethysmographic respiratory rate when compared to the gold standard waveform capnography.

ID 22422: Behavior Emergency Response Team: Proactive Violence Prevention Initiative

Selected presentation type: Poster

Introduction: Workplace violence (WPV) is an ongoing problem in the healthcare field. According to the Occupational Safety and Health Administration (2015), from 2011 through 2013, U.S. healthcare workers suffered 15,000-20,000 workplace violence-related incidents resulting in severe injuries and time away from work for treatment.

Background: In a 179-bed urban hospital facility in Maryland catering to the needs of the inner-city population, there has been an increase in aggression and violence towards healthcare workers in acute care settings. The use of combative patient code and security calls has increased significantly within the last year, especially in the 18-bed inpatient medicine unit. Due to this ongoing problem, there is increased verbal and physical assault on staff members, staff burnout and turnover, and poor patient outcomes such as restraint and forced medication usage.

Purpose: This quality improvement project aims to evaluate the effectiveness of implementing a proactive violence prevention initiative called behavioral emergency response team (BERT) at an urban hospital facility in Maryland.

Method: The intervention will be implemented over 15 weeks and piloted on the medical/surgical floor. The first four (4) weeks involve training and education. BERT members will receive training on de-escalation techniques using in-vitro simulations to rehearse real-life situations. The pilot unit staff members will receive education about calling BERT, the activation algorithm, and behavioral emergencies. The management of aggression and violence scale (MAVAS) will be provided to the pilot unit to capture staff perception of aggression pre-and post-intervention. A weekly collection of data such as the amount of BERT and security calls, combative patient codes, and reasons for the calls will be uploaded into REDCap, a HIPAA-compliant, password-protected server. Data spreadsheets, reports, and a run chart will be analyzed using REDCap to track the number of security calls, BERT calls, and staff perception of safety pre-and post-intervention.

Preliminary Results: This is pending as implementation is currently taking place till December 15, 2022.

Preliminary Conclusion: The anticipated outcome of this QI project is reduced utilization of security services, reduced use of restraints, and increased safety perception of staff members in the clinical setting

Learning Outcomes

- Increased knowledge on implementing a behavioral emergency response team (BERT) to manage aggression in an acute care setting.
- Prevention of workplace violence (WPV) incidents
- Reduction of restraints use and security utilization in the hospital setting

ID 22423: Long-Term Patient-Reported Outcomes of Vibegron for Overactive Bladder: Analyses From the EMPOWUR Extension Trial

Selected presentation type: Poster

Overactive bladder (OAB) is a chronic disorder characterized by bothersome urinary symptoms, including urinary urgency, nocturia, frequency, and urge urinary incontinence. OAB may negatively impact quality of life (QoL) if not managed well. Vibegron, a β_3 -adrenergic receptor agonist approved for OAB in adults in the US, significantly improved symptoms of OAB vs placebo in the 12-week, phase 3, randomized, placebo- and active-controlled EMPOWUR trial. Vibegron showed sustained improvements in efficacy in the 40-week EMPOWUR extension. Vibegron also showed significantly greater improvements vs placebo at week 12 in OAB questionnaire (OAB-q) scores and Patient Global Impression (PGI) scores, 2 patient-reported outcome (PRO) tools concerning QoL. Assessing long-term improvement in PROs in addition to symptomatic improvement is important for determining how a treatment can impact QoL. This analysis of the EMPOWUR extension trial investigated the long-term effect of vibegron on QoL. In the EMPOWUR trial, adults with OAB were randomly assigned (5:5:4) to vibegron 75 mg, placebo, or tolterodine 4 mg extended release for 12 weeks. Patients completing EMPOWUR could enter the 40-week extension (NCT03583372) and continue vibegron 75 mg or tolterodine 4 mg extended release or be randomly assigned treatment 1:1 (if previously on placebo). To assess patient-reported QoL, the OAB-q (health-related QoL [HRQL] total [comprising coping, concern, sleep, social interaction] and symptom bother) and PGI items (Severity, Control, Frequency, Leakage, Change) were completed at baseline and weeks 12, 24, and 52. The OAB-q is scored 1–100, with increases indicating improvement for HRQL scores and decreases for symptom bother score. The PGI is scored 1–4 for severity; 1–5 for control, frequency, and leakage; and 1–7 for change, with decreases indicating improvement. Descriptive statistics were used to analyze change from baseline at week 52 in OAB-q HRQL total and subscale scores and PGI subscale scores among patients receiving 52 weeks of active treatment. Overall, 298 patients (n=164, vibegron; n=134, tolterodine) and 300 patients (n=166, vibegron; n=134, tolterodine) had evaluable change from baseline at week 52 OAB-q and PGI scores, respectively. Baseline PRO scores were similar between treatment groups. Improvements in OAB-q scores seen in the 12-week trial were maintained for the 40-week extension for patients on vibegron for 52 weeks. Total HRQL scores improved by a mean (SD) of 24.0 (24.4) points for vibegron vs 20.3 (23.8) for tolterodine; symptom bother scores improved by –29.1 (23.5) vs –25.3 (25.7) points, respectively. Improvements from baseline in the PGI subscale scores from the 12-week trial were also maintained with continuing treatment in the 40-week extension; at week 52, 69.9% of patients receiving vibegron experienced ≥ 1 -category improvement in PGI-Severity; 69.9%, PGI-Control; 74.4%, PGI-Frequency; 74.8%, PGI-Leakage; and 67.6%, PGI-Change. Consistent with long-term improvements in OAB symptoms and a favorable safety and tolerability profile, vibegron for 52 weeks was associated with sustained improvements in OAB-q and PGI scores in the EMPOWUR extension. Results suggest that in addition to symptomatic improvement, treatment with vibegron is associated with patient-perceived improvement in QoL.

Learning Outcomes

- To describe the importance of improving quality of life in patients with overactive bladder (OAB) in addition to providing symptom relief
- To identify how patient-reported outcomes related to quality of life were measured in the EMPOWUR extension clinical trial of vibegron for the treatment of OAB
- To interpret the results of the EMPOWUR extension trial in terms of patient-reported outcomes

ID 22424: Utilizing International Consensus Panel Recommendations and a Clinical Decision Tree to improve Negative Pressure Wound Therapy (NPWT) Outcomes

Selected presentation type: Poster

Background

Numerous Negative Pressure Wound Therapy (NPWT) products have been made commercially available in the last thirty years. These products offer varying indications, including the treatment of acute and chronic wounds and/or the prevention of surgical site complications. Two common categories of NPWT are Traditional Negative Pressure Wound Therapy (tNPWT) and Single-Use Negative Pressure Wound Therapy (sNPWT). Utilizing advanced wound therapies appropriately can improve patient outcomes and decrease health care expenditures.

Problem

Due to the increasing number of available product options, the need arose for expert guidance on appropriate product use. Consensus Panel Recommendations for the Optimization of Traditional and Single-use Negative Pressure Wound Therapy in the Treatment of Acute and Chronic Wounds published ten consensus statements and a clinical decision tree to address how and when to use NPWT and when to transition between tNPWT and sNPWT¹.

Methods

To demonstrate the applicability of the consensus panel recommendations and clinical decision tree, two clinicians in the United States and Canada explored the benefits of implementing these recommendations into their routine wound management practice. The following case presentations illustrate the application of expert guidance through the implementation of the tNPWT and sNPWT products utilized as standard of care within both facilities. The case studies explore the clinical, economic, logistical, and patient experience outcomes of NPWT.

Results

Utilizing traditional NPWT and single-use NPWT according to the consensus panel recommendations and the clinical decision tree can assist in optimizing NPWT delivery to patients and address the logistical and economic efficiencies health systems require.

1. Hurd T, Kirsner RS, Sancho-Insenser JJ, et al. International Consensus Panel Recommendations for the Optimization of Traditional and Single-Use Negative Pressure Wound Therapy in the Treatment of Acute and Chronic Wounds. *Wounds*. 2021;33(suppl 2):S1-s11.

Learning Outcomes

- Describe the consensus statements and the clinical decision tree published in International Consensus Panel Recommendations for the Optimization of Traditional and Single-use Negative
- Apply the clinical decision-making process for when to initiate, change, or discontinue NPWT use in acute and chronic wounds
- Recognize the potential impact utilizing NPWT guidelines can have on routine clinical practice, clinical outcomes, economic outcomes, logistical outcomes, and the patient experience

ID 22431: Finding the Words: A Video and Podcast Project to Find the Best Words to Encourage Help-Seeking

Selected presentation type: Poster

Introduction: Reducing barriers to help-seeking for emotional and psychological stress has been a top priority for clinical providers, policy makers and researchers. Increasing access to quality mental health care is a top White House priority and a key evidence-based strategy in preventing suicide. Though there has been a significant amount of time, attention and resources directed at facilitating help-seeking behaviors, stigma and other barriers continue to impede the acquisition of help by those who are suffering. This issue spans across military and civilian communities, and it is important that progress made in one community is bridged to the other.

Methods: By leveraging a trauma-informed public health framework to suicide prevention using the Haddon Matrix, key help-seeking targets were revealed in the areas of pre-injury: host and socio-environmental. 'Jam Board,' an interactive whiteboard tool from Google, was then utilized in a series of brainstorming sessions with key stakeholders including our internal team, subject matter experts at PsychArmor, and SOM faculty to select several actionable products to increase help-seeking and their optimal modes of dissemination.

Results/Translational Products: A series of five instructional, role-play videos will be developed to: 1) help leaders choose the best words to encourage help-seeking among key groups and units, 2) teach peers to choose the best words to motivate help-seeking in other peers, 3) instruct health providers on how to use the best words and analogies to prompt help-seeking among their patients, 4) Instruct spouses on how to select the best words and approach when encouraging their loved one to seek help, and 5) inform do's and don'ts when speaking to groups/units about help-seeking to reduce stigma. A podcast series featuring expert interviews will also be produced to normalize conversations about suicide and mental health and discuss key research and recommendations in the field of suicide prevention. The video series and podcast are both currently in the development stage. The storyboard and scripting for the first instructional, role-play video featuring a Commander speaking to a junior enlisted member about help-seeking will be complete and ready to be presented on.

Learning Outcomes

- Describe how the selection of words by key messengers greatly influence the probability of someone seeking help.
- Explain the importance of having multiple options for help and how different sources of help have their own separate vernacular.
- Report out on the development of a storyboard to teach people how to encourage help-seeking.

ID 22432: Evaluation Matters! Using a Meta-Evaluation Framework to Monitor the Development of Evidence- Based Suicide Prevention Projects

Selected presentation type: Poster

Introduction: In 2020, Congress directed the Government Accountability Office (GAO) to investigate the effectiveness of DoD suicide prevention programs. The findings from the GAO report indicated that many individual suicide prevention efforts and programs have not been sufficiently evaluated (GAO Report, 2021). The result of insufficient data on the effectiveness of DoD suicide prevention initiatives leads to not knowing which efforts help and which ones are worth investing in.

Background: In 2021, the University Service University (USU), Center for the Study of Traumatic Stress (CSTS) was given funds to develop educational, actionable tools to help the DoD and the nation address the burden of suicide risk. Twelve projects were selected to develop suicide prevention educational products and tools for military and civilian communities. These products range from increasing knowledge and education regarding safe storage of firearms to enhancing the ability and skill of leaders and peers to encourage people around them to seek help when needed.

Methods: To ensure alignment with key prioritized suicide prevention strategies and goals, CSTS scientists worked closely with the 12 project leads to develop an umbrella evaluation framework, which incorporated key program evaluation logic model concepts, such as a guiding theory or set of key principles, inputs, proximal and distal outcomes and ultimate goals to be achieved. In consultation with scientists at CSTS, each of the 12 project leads identified key questions to be answered, selected the appropriate type of evaluation (formative, process, summative, etc.), and accompanying metrics. The umbrella framework provided guidance and structure to ensure that each of the 12 project evaluation approaches aligned with the overall strategy and goals of the larger CSTS Suicide Prevention Program

Results: A project evaluation matrix was created that depicts the type of evaluation, key questions to be answered, and subsequent metrics. In addition, a meta-evaluation framework was created to guide and monitor the 12 projects that comprise the CSTS Suicide Prevention Program.

Implications: The meta-evaluation framework is essential in providing an organized and collective method to monitor and measure the success of an enterprise-level suicide prevention program. The populated results of the meta-evaluation framework will inform key stakeholders and policy makers about which projects best met the overall goals of the programs and what type of projects to continue to invest in for the future.

Learning Outcomes

- Recognize the importance and necessity of evaluating suicide prevention programs from a pragmatic and Real-World perspective.
- Explain how it's critical for organizations/program sponsors to develop an over-arching framework to evaluate the success of individually supported initiatives to determine if enterprise level goals are achieved.
- Interpret how individual, program level logic models can nest within in a larger framework to help organizations monitor their macro level goals.

ID 22433: Recognizing Suicide as a Traumatic Event: Implementing a Novel Public Health Approach to Stem the Tide of Rising Suicide in the Military

Selected presentation type: Poster

Suicide is a leading cause of death in the United States, and suicide deaths continue to rise in the military with a pronounced increase across active and reserve components during the COVID-19 pandemic. The CDC has classified suicide as a public health concern, stating that effective prevention should focus on individual, family, and community factors. There is currently a gap in research regarding frameworks that conceptualize suicide prevention from a holistic, public health approach. None of the currently available theories on suicide conceptualize suicide and prevention strategies in the context of suicide as a complex traumatic event. Suicide is an event that goes beyond the attempt itself; suicide develops over time and is influenced by multiple factors, including those external to the individual. We adopted the Haddon Matrix, a conceptual approach that can be used to identify public health targets of change in the context of primary, secondary, and tertiary prevention strategies, to create a suicide prevention framework that highlights key areas of intervention. We first conducted a systematic literature search focused on factors, conditions, policies, theories and prevention strategies for suicide. An expert panel composed of scientists from the Center for the Study of Traumatic Stress (CSTS), Uniformed Services University School of Medicine was then gathered for discussion. The literature review and expert panel discussions resulted in two Haddon Matrices that conceptualize a public health approach to suicide. The first matrix identifies risk factors that increase the likelihood of a suicide attempt resulting in death. The second matrix describes the 12 in-progress projects at CSTS that employ suicide prevention strategies using a public health approach. This work resulted in the conclusion that, as is the trend in public health, suicide prevention efforts need to shift from prevention solely at the individual level to prevention at the individual, physical-ecological, and social-ecological levels. Public health professionals can use the Haddon Matrix Conceptual Framework to recognize key vulnerabilities that suggest possible intervention points in the community.

Learning Outcomes

- Identify a model of suicide prevention that centers on specific factors that contribute to the behavior of attempting suicide.
- Define suicide as a traumatic event which manifests in social, individual and environmental domains.
- Explain how 'agent' factors are sometimes overlooked in conceptualizing how to prevent suicide.

ID 22435: Validation of an embedded Human Performance Support Group on Air Force Special Warfare (AFSPECWAR) candidate medical and training outcomes over twelve years (FY2009-FY2021)

Selected presentation type: Poster

The Special Warfare Training Wing (SWTW) is responsible for assessing, selecting and training AFSPECWAR career fields including Special Tactics, Guardian Angel (ST/GA), and Tactical Air Control Party (TACP), the most elite human weapons systems in the United States Air Force. Prior to FY2018, high rates of attrition, high rates of musculoskeletal injury (MSKI), and the need for medical surveillance in the AFSPECWAR training pipeline prompted the creation of the Human Performance Support Group (HPSG), to include the Human Performance Squadron (HPS) and Operational Medicine Squadron (OMS). Embedded within the training pipeline and tasked to optimize AFSPECWAR training outcomes, HPSG provides medical and coaching support in the form of a holistic team of operational psychologists, physical therapists, occupational therapists, athletic trainers, dieticians and strength coaches. We will present a thorough evaluation of the impact of the SWTW embedded HPSG on AFSPECWAR medical and training outcomes over twelve-years. We aim to provide a framework for the evaluation and validation of embedded human performance support that is generalizable to multiple United States military venues. We will assess candidates for both ST/GA and TACP career fields over a twelve-year period from FY2009 to FY2021 encompassing both pre- and post-HPSG timeframes. Health care utilization and medical outcomes for AFPECWAR candidates will be compared across timeframes, including the cost, number of encounters, anatomic sites, diagnostic imaging, medications, and severity of MSKI diagnoses. Information will be obtained from both internal injury trackers as well as the Military Health System (MHS) medical data repository. Training outcomes, including the reason for candidate elimination, categorized as due to administrative, performance, medical, or self-initiated reasons will be assessed pre- and post-HPSG implementation. Finally, additional medical outcomes will be explored and compared in a similar manner, to include diagnoses of heat illness, hypoxic events, and mental illness. The purpose of the evaluation is to validate the SWTW embedded HPSG, and to make evidence-based recommendations regarding the future of the program.

Learning Outcomes

- Describe the creation of the AFSPECWAR training pipeline embedded Human Performance Support Group
- Explain a methodological framework for the evaluation of an embedded support group with respect to medical, training, and health care utilization outcomes
- Cite the results of the evaluation of an embedded HPSG in a special warfare training environment
- Discuss the validation of the AFSPECWAR embedded HPSG
- Implement recommendations regarding the generalizability of the evaluation framework to other military settings

ID 22436: Overview of the New DHS Office of Health Security

Selected presentation type: Poster

In July 2022, the U.S. Department of Homeland Security (DHS) established the Office of Health Security (OHS), a new office that serves as the principal medical, workforce health and safety, and public health authority for DHS. Led by DHS's Chief Medical Officer, the Office of Health Security unifies the Department's medical, workforce health and safety, and public health functions under one organization. Since early 2020, the Department managed a wide range of medical and public health responses, including leading Operation Allies Welcome and the Uniting for Ukraine efforts; contributing significantly to the nation's COVID-19 pandemic response; leading "Operation Vaccinate Our Workforce" for DHS employees; managing a significant increase in unaccompanied children arriving at the Southwest Border; and addressing the increased prevalence and impact of natural disasters. This poster will highlight the organizational structure and program functions of the office, as well as provide information on how the office was formed and stood up. Department officials collaborated closely with congressional leaders to create the Office of Health Security along several lines of effort: (1) Optimize the health, wellness, and safety of the DHS workforce; (2) Promote culturally competent and quality medical care of those in DHS's care; (3) Enhance the Department's efforts related to the prevention of, readiness for, response to, and mitigation and recovery from global health threats that pose a risk to the nation; and (4) Promote a unified approach towards domestic health security through enhanced partnerships with federal, state, local, NGOs, private sector and academic partners. This poster will highlight OHS' organizational structure and design that enables coordination, standardization, and accountability across the DHS enterprise while helping enhance its workforce and the nation's preparedness, response, and resilience to the health impacts of terrorism and other disasters.

Learning Outcomes

- Identify the mission and organization of the Office of Health Security
- Reflect the process the office took to become its current organization
- Distinguish future plans and priorities for the office

ID 22437: Innovating Through Adversity: VA's COVID 19 Collection

Selected presentation type: Poster

Not long into the COVID-19 pandemic, the VA History Office (VAHO) knew life at the VA would be forever changed and set out to capture and preserve the Department's story.

This poster will detail how the History Office collected the items that best illustrated VA's response to the pandemic and the process of preserving them at the National VA History Center.

In late 2020 the VA History Office created a SharePoint site where VA employees could submit their COVID-19 items for consideration for inclusion into the VA History Office's COVID 19 collection. Collecting was not limited to objects, but included devices, materials, ephemera, personal accounts, and documents. Nearly 400 items were offered for consideration from employees across the entire VA system.

Potential artifacts were evaluated for inclusion into the collection under the following criteria:

- Was the artifact directly used in VA's COVID-19 response?
- Does the artifact already exist in the collection?
- Was the artifact the first of its kind, the first to be used for COVID response, or the first to be used in a new way?
- Is the artifact tied to a VA success or failure in COVID-19 response?
- Is the artifact a prototype used to test a potential resource?
- Is there a unique backstory or additional information available for this object that provides additional context to its role on COVID-19 response?

Items were either sent electronically or packaged and shipped to the VA History Center in Dayton, Ohio where there were cataloged and preserved by VA History Office Staff.

Many of the artifacts were innovations created by VA staff during the pandemic, some of which are still in use today. Materials like ventilators, training equipment and signs that are still being used and will be sent later.

Correspondence, newsletters, PowerPoint presentations, training documents and memos will give researchers an insider look at how fast information and procedures changed. Videos and photos express outreach and moral support for Veterans and fellow providers. Masks, face shields and 3-D printed swabs represent the early days of supply shortages. Vaccine materials show how the Department vaccinated Veterans as well as the nation. Other materials grant a glimpse into the social changes in facilities.

Personal accounts and nearly 50 oral history interviews provide insights into how employees on the front lines dealt with the pandemic and changes.

These items will not only honor the response and experiences of the VA community but will educate future generations. In addition, the collection can be utilized by VA in the future to respond to emerging pandemics.

In July 2022 a virtual exhibit was produced by the VA History Office using items from the collection.

Learning Outcomes

- Understand VA's response to the COVID 19 pandemic through objects and artifacts
- Learn how history was captured and preserved during the pandemic
- How history honors and promotes VHA's work while also educating the public
- How the collection will prepare VA leadership for the next pandemic

ID 22438: Employing Machine Learning to Identify Injury Risk Factors Among Infantry Soldiers

Selected presentation type: Poster

Injuries among U.S. Army Soldiers result in over 2 million medical encounters annually, thus posing a persistent threat to military medical readiness. Many injuries, particularly those due to overuse, may be preventable. Identifying injury risk factors using novel approaches could identify new factors on which to base interventions. **Purpose:** This investigation aimed to use a machine learning decision tree algorithm to identify injury risk factors among Infantry Soldiers. **Methods:** Enlisted male Soldiers ($n=2,425$; $\text{age}=27\pm 6$ y) from an Army light infantry brigade completed surveys examining potential injury risk factors including demographics (age, sex, military occupational specialty), anthropometrics (height, weight, body mass index (BMI)), injury within the previous 6 and 12 months, and health behaviors (tobacco use, physical training). Physical performance was assessed using field-expedient fitness tests (e.g., functional movement screen (FMS), Army Physical Fitness Test (APFT), agility tests, etc.). The primary injury outcome came from medical records using an injury index comprised of musculoskeletal injuries, both acute and overuse (e.g., sprains, strains, fractures, bone stress injuries, etc.) and non-musculoskeletal injuries (blisters, heat injuries, etc.), collected 6 and 12 months prospectively from the time of survey and fitness testing. International Classification of Diseases Ninth Revision (ICD-9) diagnostic codes were used to identify injuries. Analysis was conducted using a Classification and Regression Trees (CART) algorithm. Based on 10-fold cross-validation, the One Standard Error Rule (1-SE rule) was used to find the optimal number of splits for the trees. The CART analysis was conducted using R 3.6.3, the *rpart* (v4.1.15) package. **Results:** In the 6-month prospective analysis, 44.2% ($n=1,071/2,425$) of male Soldiers experienced an injury. Within this prospective model (Sensitivity=0.643; Specificity=0.694; F1 score value=0.634), the two most predictive factors were previous injuries that occurred either 6 or 12 months prior to the survey. Model parameters indicated one split was optimal (cross-validation error=0.744), and the most important discriminator was an injury occurrence 6 months before the survey. No demographic, physical performance, or health behaviors factors predicted injury at 6 months. In the 12-month prospective analysis, 61.1% ($n=1,481/2,425$) of male Soldiers experienced an injury. Within this prospective model (Sensitivity=0.648; Specificity=0.678; F1 score value=0.699), the most important variables were also previous injuries, either 6 or 12 months prior to the survey. Model parameters indicated two splits were optimal (cross-validation error=0.905), with an injury 6 months before the survey being the most important discriminator of injury 12 months after the survey. For Soldiers not injured previously, an FMS score <14 predicted an injury at 12 months. **Conclusions:** In two different decision tree models, the most important predictor of injury was a previous injury. At 6- and 12-month follow-up in both prospective models, a more recent prior injury (6 vs. 12 months prior) was more predictive of future injury. The only physical performance factor predicting injuries in this cohort was an FMS score <14 among Soldiers who weren't injured previously. No demographic or behavioral factors predicted injury. Further exploration of machine learning and its utility for military injury risk factor prediction is needed.

Learning Outcomes

- Describe injury occurrence in an Active Duty male Soldier cohort from a U.S. Army Infantry Brigade during 6 and 12 months of follow-up
- Understand relevant risk factors (e.g., demographics, physical performance, physical training, and health-related behaviors) that predict injuries in a male Soldier cohort using machine learning decision tree analysis
- Understand differences in machine learning decision tree models related to injury occurrence prediction at 6 and 12 month follow-up

ID 22443: Standardizing a Resident Subspecialty Elective Across the Military Health System

Selected presentation type: Poster

Developing, implementing, and maintaining a relevant curriculum for resident physicians is a time-consuming and complex task. Yet busy clinicians who have no training in curriculum development or educational techniques often are responsible for resident rotation curriculum. Military graduate medical education training programs have the additional goal of training primary care providers to practice in austere and hostile environments, focusing on initial stabilization and evaluation for a wide array of diagnoses. As the training needs become more specialized, ready-made, validated curricula are not readily available. This QI project aims to develop a peer-reviewed Pediatric Endocrinology curriculum for military medical trainees to recognize signs and symptoms of Pediatric Endocrine-related pathology, to manage Pediatric Endocrine emergencies, and to provide initial care to these patients in locations with limited immediate access to a Pediatric Endocrinologist, given the unique locations and circumstances in which military physicians practice. We developed a Needs Assessment to ascertain how current Pediatric Endocrinology resident curricula utilized at Military Treatment Facilities across the US are preparing Pediatric Residents to pass the Pediatric Board Exam and provide clinical care. The results of this Needs Assessment then informed the development of a standardized Pediatric Endocrinology resident curriculum, reviewed and endorsed by military Pediatric Endocrinologists across the country. Once implemented across the Military Health System (MHS), assessment components can then focus on military applicability and medical relevance of the material to ensure the primary goals are met. Development of this curriculum ensures Pediatric Military Residents are well prepared to care for Pediatric Endocrine conditions and lay the framework that other military specialists may use to develop standardized rotation curricula for use throughout the MHS.

Learning Outcomes

- Identify the importance of a standardized subspecialty rotation curriculum for resident physicians, particularly military physicians.
- Recognize the value of a Needs Assessment in identifying the goals and objectives of a residency educational experience.
- Recognize the applicability of this process of curriculum development to other educational experiences for resident physicians.

ID 22444: Early predictors of the need for transfusion in patients with major trauma

Selected presentation type: Poster

Background: Severe haemorrhage is a leading cause of early mortality following major trauma. The aim of the present study was to, first, investigate to what extent prehospital lactate and base excess values in severely injured patients are associated with the need for early transfusions and, second, in case of a detectable relevant association, create a simple and pragmatic prediction model that includes blood gas values supplemented by clinical parameters for the estimation of an early need for blood transfusion.

Objective: To evaluate the extent to which lactate and base excess, which are known to be associated with trauma-induced coagulopathy, are also associated with the need for early transfusion, and whether the inclusion of additional clinical parameters can improve this association.

Design: Prospective, single-centre observational study

Setting: HEMS Christoph 22, which is based in Ulm, Germany, is staffed by a HEMS physician (specialist/consultant in anaesthesia) and a paramedic and two level 1 trauma centres in Germany, August 2015 to February 2018

Patients: 130 adult trauma patients, regardless of injury severity. Patients with coagulation-influencing drugs in long-term therapy and pre-existing coagulation disorders were excluded.

Main outcome measures: Blood samples obtained at the beginning of the prehospital treatment were analysed. Data on blood gas analysis, prehospital treatment, injury severity, in-hospital blood transfusions, and mortality were collected. The primary outcome was the association of lactate, base excess, and other parameters with the need for blood transfusions during resuscitation room treatment. Receiver operating characteristic curves were created, and the area under the curve (AUROC) was calculated.

Results: A total of 21 patients received blood products in the resuscitation room. Both prehospital lactate and base excess were associated with blood transfusion in the resuscitation room (AUROC 0.731 and 0.798, respectively). The optimal calculated cut-off values were 4 mmol l⁻¹ for lactate and -2.5 mmol l⁻¹ for base excess. When circulatory instability and suspected relevant bleeding were included, the association further improved (AUROC 0.871 and 0.866, respectively).

Conclusions: Prehospital lactate and base excess could be used in combination with other clinical parameters as indicators of the need for early blood transfusion. This relationship has yet to be confirmed in the current validation study.

The study is registered with the German Clinical Trials Register in Tübingen, Germany (registration no. DRKS 00009559) and has been approved by the Ethics Committee of the University of Ulm, Germany (No. 346/14, Chairman: Prof. Dr. O. Zolk, April 28th 2015). The study was conducted in accordance with the current version of the Declaration of Helsinki.

Learning Outcomes

- Prehospital lactate and base excess values of patients with major trauma are associated with the need for early transfusion in the resuscitation room.
- The addition of the parameters circulatory instability and suspected relevant bleeding can improve this association.
- Three-parameter models that include lactate or base excess, along with circulatory instability and suspected relevant bleeding, were comparable to validated transfusion prediction scores.

ID 22445: An Interim reporting of Trigger Point Injection for Myofascial Pain Syndrome (T-PIMPS): A 3-Arm, Partially Blinded, Randomized Controlled Trial

Selected presentation type: Poster

Background: Low back pain (LBP), accounts for approximately 2.63 million ED visits in the United States, accounting for \$100 billion in healthcare costs annually. Studies have shown that trigger point injections (TPI) are beneficial. These studies suffer from small sample size, lack of randomization, and lack of follow up. This is the first study to compare standard treatment (ST) to TPI with local anesthetic and TPI with normal saline (NS) for LBP in the emergency department (ED). Our primary objective will be to determine which is the superior treatment of low back pain at 30 minutes by comparing the change in pain. The secondary outcome will be the change in a low back pain on a functional score at 30 minutes. Tertiary outcomes will be repeating both of these measures at 60-72 telephonic follow-up.

Methods: This study is a prospective 3-armed randomized controlled trial conducted in the ED at Madigan Army Medical Center (MAMC). Participants will be selected from patients presenting with: low back pain, who are over the age 17 years, are not pregnant, and have no findings consistent with emergent etiologies such as cauda equina. The three arms are ST, ST plus TPI with 8 mL of 0.5% Bupivacaine, and ST plus TPI with 8 mL NS. ST is single blinded and the two TPI arms are double blinded. Our power calculation yielded 43 subjects per group to detect a difference of 1.5 cm on a 10 cm visual analog scale (VAS). We increased that number to 60 to account for those lost to telephone follow-up at 60-72 hours. Our study total is 180 study participants. Data collected on a VAS will be analyzed via ANOVA. Modified Oswestry Disability Index (MODI) scores have been previously validated as a functional score for evaluating back pain. We will use change in MODI scores as our secondary outcome, which will be analyzed via the Chi-squared test.

Results: To date, we have screened 172 participants and enrolled 76. Six have withdrawn, and three have been lost to follow-up. Our estimated sample size can tolerate a total drop-out rate of 16% and we are currently at 12%. More participants have left the study than reported any side effects. Those consist of soreness, and bleeding controlled by a commercially available self-adhesive bandage.

Conclusion: TPIs are a popular treatment for LBP in the ED. This is the first TPI study to compare ST to TPI with local anesthetic, and TPI with NS for LBP conducted in ED and that includes follow-up. We are hopeful that this study will answer whether or not trigger point injections are benefiting our patients and, if so, which type of TPI is most beneficial. At the moment we have not enrolled enough participants to meaningfully answer this question. However, we are approaching 50% of our enrollment goal, with an appropriate buffer for participants who may drop-out of the study. To date our participants have only experience minor discomfort.

Learning Outcomes

- Explain the current evidence supporting the use of trigger point injections for low back pain.
- Describe the methodology used in our randomized controlled trial.
- Employ the results of our study within the context of their own practice.
- Appraise the value of a non-sedating treatment for low back pain in an operational environment

ID 22446: Histologic Evaluation of Wound-Bed Preparedness Following Microsurfaced Skin Grafts for the Treatment of Deep Burn Wounds: Interim Analysis from a Randomized Controlled Trial

Selected presentation type: Poster

Context: Allogeneic skin grafts play an important role in temporary skin coverage of large skin defects by improving recipient bed quality and vascularity prior to autograft application. We conducted a prospective, randomized controlled trial to investigate the effectiveness of microsurfaced versus control cadaveric split thickness skin grafts in promoting wound-bed preparedness, as assessed histologically, for the treatment of deep burn wounds.

Design: Twenty patients with deep partial or full thickness burns were enrolled. Microsurfacing of grafts was performed by making patterned partial thickness cuts through the dermis utilizing a Markman Surfacing Device. Each patient was treated with both a microsurfaced and control graft at adjacent sites (each spanning at least 4.0 cm²), with randomized, blinded assignment. Grafts were removed at 12 to 19 days following application, and sections were histologically assessed for maximum cell concentration (measured over 1.0 mm²), maximum incorporation depth (1 to 5 scale), maximum total graft thickness, and predominant dermal cell type.

Results: The first 10 completed patients were on average 47 years old (range 19-73), with a slight male predominance (M:F ratio 1.5:1), and a minority had risk factors for poor wound healing, to include current tobacco use (2/10, 20%), type 2 diabetes mellitus (1/10, 10%), hypertension (2/10, 20%), and hyperlipidemia (1/10, 10%). Burn types included flame (7/10) and scald (3/10), and the mean total body surface area burned was 15% (range 9-31%). Histologic examination revealed a greater maximum cell concentration in the microsurfaced skin grafts in comparison with the control grafts (median 3,661 vs. 1,510 cells/mm²; p = 0.004). A predominant cell type of neutrophils was observed more frequently in the microsurfaced grafts (9/10 vs. 1/10 cases; p = 0.001). Similarly, the microsurfaced grafts had a greater maximum thickness (mean 1.5 mm vs. 0.92 mm; p = 0.02). Ninety percent of microsurfaced grafts achieved an incorporation depth score of at least 4 in comparison with 44% of control grafts, though this difference did not achieve statistical significance (median 4 vs. 2; p = 0.44).

Conclusion: Utilization of microsurfaced skin grafts resulted in consistent incorporation and greater cellular infiltration than their control graft counterparts, a finding we attribute to increased surface area at the graft-to-host interface. Taken together, these data suggest the addition of microsurfacing to skin grafts may improve wound bed preparedness for subsequent autograft application. Evaluation in larger populations and correlation with clinical outcomes will be important in further corroborating these findings, however. As a secondary observation, the finding of a predominant cell type of neutrophils occurring more frequently in the microsurfaced grafts may elucidate histologic changes that occur with healing following skin grafting. Neutrophils are known to play important roles in the early phases of wound-healing, both in promotion of angiogenesis and in their bactericidal function. The exact etiology of the factors leading to relatively more neutrophilic inflammation in the microsurfaced grafts is unclear at this point, however.

Learning Outcomes

- Discuss the impact of microsurfacing of allogeneic skin grafts on wound bed preparedness for subsequent autografting.
- Describe histologic measures used for the assessment of wound-bed preparedness for autologous skin grafting.
- Explain the significance of neutrophilic inflammation in wound healing.

ID 22447: Human Papillomavirus Vaccination and Disease Burden within the U.S. Military System

Selected presentation type: Poster

Human papillomavirus (HPV) is associated with six types of cancer. HPV vaccines are safe and effective at preventing HPV related diseases, yet vaccination is not required for military service. Studies suggest that U.S. military service members have higher HPV incidence rates and lower vaccination rates when compared with the national average. The aims of this study were to evaluate the percentage of total active-duty service members who received HPV vaccines and to identify rates of incident HPV-related diagnosis and their adjusted associations with selected factors among new military members. We employed the Medical Assessment and Readiness System (MARS) database, housed at Womack Army Medical Center, which includes records of U.S. active-duty members from 2011-2021. New members, who entered service in 2011-2021, were identified as a subgroup for the incident HPV diagnosis analysis because they entered service in an ostensibly healthy state per pre-service medical screening and could be observed from a common point within a defined environment. HPV vaccinations were defined by Current Procedural Terminology (CPT) codes and HPV-related diagnoses were identified using International Classification of Diseases codes. We leveraged several socioeconomic and military service-related factors with potential for associations with HPV vaccination and disease states. Unadjusted associations between predictors and endpoints were tested using chi square tests for categorical variables and two-sided t-tests for factors arising from continuous values. We employed a multivariable survival model that computed the risk of an incident HPV-related diagnosis among new service members expressed as adjusted hazard ratios (aHRs). A total of 3,268,885 subjects were available in MARS. Of these, 94,365 (3.46%) of 2,629,049 males and 55,303 (10.14%) of 490,168 females received HPV vaccines. The highest rates of vaccination occurred among Black service members (6.03%) or service members who were 24-27 years of age (6.6%). Regression analysis of 1,871,327 new service members demonstrated females were 18 times more likely than males to receive an HPV related diagnosis (aHR 18.86, $p < 0.001$). Age was a risk factor for HPV infection, with members between the ages of 24-27 at highest risk (aHR 1.15, $p < 0.001$). Formerly married service members had an increased hazard to an HPV related diagnosis (aHR 1.30, $p < 0.001$), whereas married members had a reduced hazard (aHR 0.85, $p < 0.001$). Risks of HPV infection varied across the services with Air Force members at highest risk (aHR 1.44, $p < 0.001$) and Navy at lowest risk (reference category). Service members who ever used tobacco products were 37% more likely to receive an HPV related diagnosis ($p < 0.001$). CPT code-based vaccination rates within the MARS database appeared low among active-duty members during the observed military service. Among new service members, women and those ages 24-27 are at highest risk of receiving an HPV related diagnosis. The findings of our work and previous research together suggest that military health providers should use every opportunity to assess the complete medical history including pre-service information and recommend HPV vaccines for prevention of HPV related disease to include, six different types of cancers.

Learning Outcomes

- Discuss the burden of HPV diseases in the military healthcare system.
- Evaluate rates of HPV vaccination within the military healthcare system and rates of vaccination by military service branch.
- Determine risk factors for acquiring HPV-related disease diagnosis after accession to the military.

ID 22448: Upstream Approaches to Optimize Warfighter Health and Performance and Reduce Preventable Threats to Readiness

Selected presentation type: Poster

Warfighter health and performance are critical to the success of Navy Medicine's strategic mission to man, train, and equip Sailors to deploy forward and win. Musculoskeletal injuries, mental illness, and life-style related diseases (e.g., obesity, hypertension, and diabetes) are threats to warfighter readiness and national security.

Recent data from the Navy and Marine Corps Public Health Center EpiData Center showed in 2021, 10,299 Sailors were placed on Limited Duty (LIMDU), and in 2022 (through 31 July), 7,246 Sailors were placed on LIMDU. For both years, mental illness and musculoskeletal injuries were the top two reasons Sailors were placed on LIMDU. In the same years, 3,314 Sailors (2021) and 719 Sailors (01 Jan – 31 July 2022) were referred for medical separation for musculoskeletal injuries (n= 705/185), mental illness (n = 1,470/268), and metabolic conditions (n = 44/6). Between 2007 and 2016, 18.1% of all service members were diagnosed with at least one cardiovascular risk factor. According to the DoD Health of the Force Report, the overall prevalence of obesity in the Navy in 2018 was 22%. These conditions economically burden the military healthcare system, strain resources, and reduce manpower, creating negative impacts to initial military training, operational training, and deployments.

Many of our current measures to promote health and readiness are reactive: treating Sailors after preventable injury, illness, or disease occur. According to the CDC, many chronic and preventable health conditions such as obesity, diabetes, and cardiovascular disease are caused by four factors: poor diet, lack of physical activity, tobacco use and exposure to secondhand smoke, and excessive alcohol use. We can leverage the processes of Human Performance Optimization and Total Force Fitness, as well as Service specific initiatives, to shift the cultural paradigm from recovery to optimal performance. Doing so requires awareness of capabilities and a multi-pronged approach focused on system-level solutions and culture change. This presentation will provide population-based data and evidence from our recent experiences in public health, primary care, and research. We will discuss Navy and DoD initiatives focused on optimizing warfighter health and performance, barriers to implementing and sustaining these initiatives, and recommendations for healthcare professionals and military decision-makers.

Learning Outcomes

- Describe preventable threats to optimizing warfighter health and performance.
- Discuss current Navy and DoD initiatives that optimize warfighter health and performance.
- Identify ways to overcome barriers to implementing and sustaining disease and injury prevention and health promotion-focused initiatives.

ID 22449: Implementation of Navy Medicine’s Comprehensive Trauma Strategy

In response to the National Defense Authorization Act (NDAA) 2017, the Navy identified a need to develop a comprehensive trauma strategy to improve the readiness of Naval Medical Forces, reducing focus on clinical administration activities and emphasizing readiness. The Trauma Strategy Management Office (TSMO) was established to ensure Navy specific initiatives were focused on addressing the unique challenge of delivering trauma care in the maritime environment.

A key objective of the Navy Medicine Trauma Strategy is the pursuit and development of military-civilian and military-military partnerships to ensure the skill sustainment of Navy clinicians through exposure to real patients, team-based training, and advanced medical education. The TSMO developed partnership criteria guidelines, leveraging the decision criteria formed from the American College of Surgeons (ACS) Blue Book, to guide the selection of partnership sites. Decision criteria includes institutional commitment, governance and administration, physical resources, educational components, and evaluation tools, as well as existing relationships and agreements with the Navy.

Using this criteria, our team successfully launched the first strategic military-civilian partnership as a proof-of-concept model at the University of Pennsylvania, integrating eleven clinicians into a world-class trauma system to expose them to critically ill and injured patients. According to caseload data from the first quarter of full-time embedment, the providers are on track to greatly exceed Knowledge, Skills, and Abilities (KSA) scores within the year.

In addition, the TSMO is supporting the Navy’s “fight tonight” model, by actively embedding Expeditionary Resuscitative Surgical System (ERSS) teams into civilian hospital sites, with the goal of having ten ERSS teams online by FY2026. The first ERSS team, composed of ten clinicians, will be fully embedded at Cook County Health, in Chicago, IL, in October 2022. Additional sites continue to be explored by the TSMO and are prioritized by trauma volume, clinical exposure, and opportunities to train as a team.

As part of the Trauma Strategy, our team helped establish the Navy Medicine Operational Trauma Clinical Community (TCC), a multi-disciplinary network of experts established to promote Enterprise-wide collaboration and process improvement to enhance the safety and quality of trauma care and to increase the readiness of the trauma workforce. The scope of the TCC focuses on improving care within the Fleet Marine Forces, En Route Care, Expeditionary Medical Facilities/Expeditionary Medical Units, Hospital Ships, and Austere Resuscitative and Surgical environments. The priorities within each of these communities focuses on ensuring that service members are equipped to save lives downrange, including: clinical skills, whole blood, team training, equipment lists, and manpower.

In collaboration with TSMO, the TCC created the Trauma Advisory Partnership Council (TAPC), which serves as the connection point between the TSMO, TCC, and our military-civilian/ military-military partnership sites. The TAPC provides an open forum to determine capability gaps within partnerships and bridges those gaps using the Subject Matter Experts (SMEs) of the TCC. Both the TSMO and TCC have been integral to defining, implementing, and executing Navy Medicine’s trauma and partnership strategy.

Learning Outcomes

- 1) Understand key objectives of the Navy Medicine Trauma Strategy
- 2) Outline the role of the Trauma Strategy Management Office (TSMO) in implementing the Navy Medicine Trauma Strategy
- 3) Communicate the work completed by the TSMO to establish military-civilian and military-military partnerships

- 4) Demonstrate how the TSMO collaborates with the Navy Medicine Operational Trauma Clinical Community to advance the Navy Medicine Trauma Strategy

ID 22453: COVID-19 Vaccination Errors: Challenges and Opportunities for Improving Support of Immunization Clinics

Background: The COVID-19 pandemic has imposed unprecedented pressure on global health systems, including immunization programs. COVID-19 vaccinations have been a critical part of pandemic response. Vaccine products were developed at an unprecedented pace, and recommendations evolved substantially over less than 2 years, to include more than 10 different products with complex requirements for storage, handling, preparation, and administration. If errors occur in vaccination, patients will not be optimally protected, immunization services will be further strained, and confidence in public health programs may be undermined.

Methods: Reports of COVID-19 vaccination errors were reviewed from VAERS submissions, as well as consults to the DHA Immunization Healthcare clinical team. Errors were classified by type and severity of impact on patients. Root cause analyses were applied to identify opportunities for preventing future vaccination errors.

Results: Although errors in COVID-19 storage and handling were relatively common, when recognized, these events rarely resulted in direct impact on patients. In contrast, errors in screening, timing, preparation, or dosing of vaccination often resulted in recommendations to re-vaccinate patients. Root cause analyses revealed that errors in vaccine product selection were most amenable to prevention, which could be accomplished through clearer product labeling in many cases.

Conclusions: The size, scope, and importance of COVID-19 immunization programs have revealed challenges that increase the risk for vaccine errors. Imposing the full burden for preventing errors on already-strained immunization clinics may be unrealistic, as highlighted by this review. Opportunities for improvement, especially in product labeling, may be important to policymakers and pharmaceutical manufacturers to consider, in order to optimally and equitably protect patients, and maintain confidence in vaccine programs.

Learning Outcomes

- Describe features of the COVID-19 immunization program that increase risk for vaccination errors.
- Understand the impact of vaccination errors related to storage, handling, preparation, and administration of vaccines, including when and how re-vaccination of patients is recommended.
- Apply understanding of root cause analyses to determine opportunities for preventing vaccination errors, in order to better protect patients and maintain confidence in vaccine programs.

ID 22456: Can a Music Festival Improve Warrior Medic Readiness?

Selected presentation type: Poster

Health care delivery at a Military Treatment Facility (MTF) utilizes the same resources and personnel used in combat casualty care. In the Military Health System however, health care delivery generally involves younger, healthier patients who do not require the breadth of complex surgical and critical care needed by the combat wounded. In addition, routine medical practice, both at MTFs and civilian hospitals, often does not correspond to the acuity of care or limited resources available to care for the combat injured in the expeditionary environment. While military-civilian partnerships have been around for decades, they traditionally have focused on embedding select trauma personnel at civilian hospitals, with little benefit for MTF assigned personnel. The National Defense Authorization Act (NDAA) 2017 section 717 sought to address this gap by empowering MTFs to seek trauma center verification and granting authority for MTFs to treat non-beneficiary patients to attain the relevant mix and volume of medical casework required to maintain medical readiness skills. This has allowed our MTF to integrate within the local EMS and trauma systems. As such, in 2022, our MTF serves as a care site for a large international summer-time music festival which took place 2 miles from the MTF and saw nearly 170,000 attendees. We provided care to 30 patients, 4 of which were critically ill from the on-site medical care facility. This level of integration allows the MTF to care for individuals not seen in our day-to-day operations, or even routinely at most civilian hospitals, thus enhancing staff readiness. This presentation aims to inform the audience how a summer-time music festival can increase readiness when the MTF integrates into the local EMS and hospital system.

Learning Outcomes

- Discuss how being part of the community healthcare system improves readiness value
- Demonstrate how NDAA 2017 Sect 717 and its implementation through the DHA Pilot program have improved readiness
- Generate awareness that medical readiness comes in all shapes and sizes, not just formalized training through military-civilian partnerships.

ID 22457: Leveraging Collaboration in Combatting Healthcare Fraud, Waste and Abuse in the MHS

Selected presentation type: Poster

The National Health Care Anti-Fraud Association (NHCAA) estimates that approximately 5-10% of healthcare expenditures are lost to fraud, waste or abuse. This equates to \$2.5 to \$5 billion of the approximately \$50 billion MHS annual expenditures, or the average healthcare costs of 480,000 to 960,000 beneficiaries. As healthcare costs continue to rise, it is imperative that fighting healthcare fraud, waste and abuse is everyone's job. This presentation will share the latest trends in healthcare fraud through case studies and lessons learned from the DHA Program Integrity Division, the centralized coordinating office within DHA to identify, detect and deter healthcare fraud, waste and abuse within the MHS. Whether you are a practitioner or a patient, you will learn tips to be the eyes and ears for combatting fraud, waste and abuse at the point of service.

Learning Outcomes

- Identify areas vulnerable to fraud, waste or abuse
- Understand how healthcare fraud, waste and abuse impacts the MHS
- Acknowledge responsibility and courses of action for reporting suspect activities

ID 22458: Cost-effectiveness of stool-based colorectal cancer screening using reported real-world adherence rates in a Medicare population

Selected presentation type: Poster

Cost-effectiveness of stool-based colorectal cancer screening using reported real-world adherence rates in a Medicare population

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Introduction: Several strategies are guideline-endorsed to screen individuals at average-risk for colorectal cancer. The impact of real-world adherence rates on the cost-effectiveness of specific screening strategies is unclear. The objective of this analysis was to estimate the cost-effectiveness of stool-based screening strategies using test-specific, real-world adherence data.

Methods: The validated Colorectal Cancer and Adenoma Incidence and Mortality Microsimulation Model was used to estimate cost and clinical outcomes for triennial multi-target stool DNA (mt-sDNA), annual fecal immunochemical test (FIT) and annual fecal occult blood test (FOBT) strategies in a simulated cohort of adults age 65 years or older, assumed to be previously unscreened or initiating screening on entry to Medicare. Test sensitivity, specificity, and costs were identical to the model which informed the 2016 United States Preventative Services Task Force. Health state utility values based on United States population norms and disutilities due to colonoscopies (COLs) and complications were incorporated. The model used a lifetime horizon and Medicare payer perspective; costs and outcomes were discounted at 3%. Scenarios included 100% adherence or published real-world adherence rates for stool-based screening and/or follow-up COLs (when indicated). The incremental cost-effectiveness ratio of mt-sDNA versus FIT and FOBT was the primary outcome. A willingness to pay threshold of \$100,000 per quality-adjusted life years was assumed.

Results: When adherence rates of 100% were assumed for stool-based tests and follow-up COLs, mt-sDNA was dominated (i.e. costs more and less effective) by FIT and FOBT; incidence and mortality reduction were highest with FOBT. When published adherence rates for screening were used for stool-based tests only (71.1%, 42.6% and 33.4% for mt-sDNA, FIT, FOBT), mt-sDNA was cost-effective versus FIT (\$62,814/quality-adjusted life year) and FOBT (\$39,171/quality-adjusted life year); incidence and mortality reduction were highest with mt-sDNA. When published adherence rates were used for both stool-based tests (as per Scenario 2) and follow-up COLs (73.0%, 47.0% and 47.0% for mt-sDNA, FIT, FOBT, respectively), mt-sDNA was increasingly cost-effective compared to FIT and FOBT (\$31,725/quality-adjusted life year and \$28,465/quality-adjusted life year, respectively); incidence and mortality reduction remained highest for mt-sDNA.

Conclusion: Published adherence rates for stool-based screening completion and follow-up COLs impact colorectal cancer screening outcomes and cost-effectiveness. Test-specific performance characteristics and adherence rates should be considered when modeling the cost-effectiveness of screening strategies.

Learning Outcomes

- Explain the cost-effectiveness of colorectal cancer screening modalities using real world adherence rates.
- Explain the impact of real world adherence on cost and outcomes related to colorectal cancer screening.
- State the incremental cost-effectiveness ratio (ICER) of guideline recommended colorectal cancer screening modalities.

ID 22459: Cost-effectiveness of outreach strategies for stool-based colorectal cancer screening in a Medicaid population

Selected presentation type: Poster

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Introduction: Outreach, including patient navigation, has been shown to increase the uptake of colorectal cancer (CRC) screening in underserved populations. This analysis evaluates the cost-effectiveness of triennial multi-target stool DNA (mt-sDNA), where each test includes centralized patient navigation support, versus outreach, with or without a mailed annual fecal immunochemical test (FIT), in a simulated Medicaid population.

Methods: A microsimulation model was used to estimate the incremental cost-effectiveness ratio using quality-adjusted life years (QALY), direct costs and clinical outcomes in a cohort of Medicaid beneficiaries aged 50 – 64 over a lifetime time horizon. For annual FIT screening, we modeled two outreach scenarios: a mailed letter encouraging CRC screening completion along with instructions about how to obtain a FIT test (with no actual FIT test provided); and outreach via a mailed letter encouraging CRC screening completion along with a FIT test. The base case model explored scenarios of either 100% adherence or real-world reported adherence (51.3% for mt-sDNA, 21.1% for outreach with FIT and 12.3% for outreach without FIT) with or without real-world adherence for follow-up colonoscopy (66.7% for all). Costs and outcomes were discounted at 3.0%.

Results: When 100% adherence is assumed for both the screening test and follow-up colonoscopy, outreach with or without FIT results in higher incidence reduction and higher mortality reduction compared to mt-sDNA; mt-sDNA also cost more and was less effective compared to outreach with or without FIT at 100% adherence to both screening tests and follow-up colonoscopy. When real-world adherence rates were considered for screening strategies (with 100% adherence for follow-up colonoscopy), mt-sDNA resulted in the greatest

reduction in incidence and mortality from CRC compared to outreach with or without FIT for incidence and mortality; mt-sDNA was also cost-effective versus outreach with and without FIT (\$32,150/QALY and \$22,707/QALY, respectively). mt-sDNA remained cost-effective versus FIT, with or without outreach, under real-world adherence rates for follow-up colonoscopy.

Conclusions: Patient outreach/navigation interventions and associated real-world adherence rates to screening tests should be considered when evaluating the cost effectiveness of CRC screening strategies in underserved populations.

Learning Outcomes

- Describe the cost and outcomes associated with a mailed outreach program for colorectal cancer screening.
- Detail the cost-effectiveness of a mailed outreach program for colorectal cancer screening.
- Describe the impact of real world adherence on cost and outcomes associated with a mailed outreach program for colorectal cancer screening.

ID 22460: Teaching Resilience & Enhanced Cognitive Performance Skills to Military Medical Students during Hyper-realistic™ Trauma Training

Selected presentation type: Poster

Context

Medical personnel who are regularly exposed to emotional trauma are at risk for negative effects of stress, such as impaired physiological mental health, as well as decreased coping ability during stressful tasks. The costs incurred due to stress-related mental health diseases are enormous and research is ongoing to support those who experience traumatic situations.

Objective

To evaluate the effect of coupling hyper-realistic™ trauma training with Performance Experts (PE) coaching on the development of Emotional Resilience and Hardiness in military medical students.

Study Design

Subjects were placed in groups of 5-6 and subjected to mass-casualty scenarios where they were given various care-provider roles. A PE from the Army Resilience Directorate's Ready and Resilient program was integrated into each team. The PE trained their team in five key cognitive performance skills, provided in-the-moment coaching, and held debriefs after each scenario. Subjects completed an anonymous retrospective questionnaire regarding their experience. All statistical analyses were 2-sided; $p < 0.05$ was considered significant. The highest and lowest scoring subscales with 10-point differences were also evaluated.

Setting

A week-long hyper-realistic™ simulation training exercise for military medical students in austere emergency and operating rooms.

Population

Forty-one ($n=41$) osteopathic HPSP military medical students, 24 men (59%), and 17 women (41%).

Intervention

Students were trained in five skills: Tactical Breathing, Self-talk & Mental Cues, Re-interpret Anxiety, What's Important Now, and Grounding to build individual and team emotional and physiological resilience.

Outcome Measures

Students' quantitative and qualitative feedback of the value of PE-taught skills and predictions of future use.

Results

Students placed a subjective value of 8.3/10 on the resilience training. Females ranked a higher subjective value (9.47) compared to males (7.46) ($p=0.01$). When asked about the likelihood that each student would use their preferred skill in future stressful situations, the average score was 9.1/10. In descending rank, the most preferred skills by participants were tactical breathing; W.I.N.; Self-talk; Grounding; and Re-interpret Anxiety.

Conclusions

The use of PE in hyper-realistic™ simulated training gave medical students long-term strategies to employ during stressful events. It also improved their long-term stress management intentions.

Learning Outcomes

- Consider the efficacy of Performance Enhancement skills in medical education training
- Explore the challenges faced by learners in the generalization of performance enhancement techniques
- Understand types of coping strategies used in performance enhancement coaching and how they apply to surgical and medical trauma scenarios.

ID 22461: Imagining the Hospitals of the Future Through Digital Twins: A Case Study in Creating a 2050 Virtual Operating Room (OR)

Selected presentation type: Poster

Hospitals represent one of the most complex facility types to design, build, commission, and operate. The intricate array of facility infrastructure systems that must be precisely configured and managed to ensure a Safe and Reliable Environment of Care requires a paradigm shift in traditional design methods. This is necessary to address dynamic care delivery capability and capacity requirements, ensure multiple stakeholder coordination, and promote timely, cost-effective new facility construction. The emergence of new technologies, including IoT and 5G interfaces, further underscores the imperative to effectively integrate increasing digital interfaces in the design and operation of healthcare facilities.

The advent of Digital Twins—dynamic digital models—have opened the door to advanced planning, design, construction, and maintenance of healthcare facilities. Leveraging Digital Twin facility planning approaches enables greater design collaboration, increases stakeholder collaboration, and optimizes facility and clinical space allocations—all providing enhanced risk management and facility delivery efficiencies. Automation and machine vision drive data acquisition at 10X the speed of traditional methods and AI/ML predictive analytics optimize design, create digital records as a single source of truth of current and future facilities, and mitigate risks to planning and construction project delivery.

Leveraging these technology advancements, the Department of Veterans Affairs OHIL and Booz Allen partnered on a pilot project to develop Digital Twins focused on the planning and design of Future Hybrid Operating Rooms (ORs). These Digital Twins will employ automated generative design and scenario simulations to allow the VA to make improved design decisions – applications that will provide multi-faceted design options for facilities, rooms, and equipment within specific spaces; and simulations such as clinician and patient workflows and equipment integration. The simulation metrics enable a quantitative approach to design optimization, and provide for multiplayer collaboration with VA stakeholders to immerse themselves in the design, enabling virtual walk-throughs of the facility configurations, aiding stakeholder communication and buy-in.

This course will use an actual case study to demonstrate how using this approach can empower healthcare facilities transformation toward a digitally enhanced, collaboration generative design approach.

Learning Outcomes

- Inform how digital twin can add value to OR operational efficiency/scenario planning and design
- Describe how the VHA is developing its innovation capabilities to advance the future of care delivery through facility design
- Understand the interoperability of emerging technology within the OR of the future and how these technologies would interact together at the point of care to deliver improved patient outcomes.

ID 22462: Navy Family Nurse Practitioners as Direct Contributors to Readiness

Selected presentation type: Poster

Navy family nurse practitioners (FNPs) currently have limited established operational roles, but their nursing skills combined with their ability to provide direct care make them a valuable resource for patient care in operational settings and during prolonged casualty care. We use wartime casualty stream estimates to show that most disease and non-battle injuries fall within an FNP's scope of practice. In addition, we show the workload of Navy FNPs practicing in emergency departments are treating a significant portion of musculoskeletal; skin; and ear, nose, and throat conditions—conditions that comprise a large percentage of the casualty stream estimates for disease and non-battle injuries.

Training current FNPs as emergency nurse practitioners (ENPs) would further bolster their critical wartime skillset and capabilities for casualty care and deepen the inventory of available expert emergency medicine clinicians. ENP practice is defined by core competencies: medical screening, medical decision-making, patient management, patient disposition, and professional, legal, and ethical practices. Compared with FNPs, ENPs have added procedural skills for blood therapies, ventilation monitoring, fractures, and ultrasound as well as increased skills in patient stabilization and transport and mass casualty events, all skills required for operational medicine assignments. Comparing wartime casualty stream estimates and the scope of practice for ENPs, we show that 60 percent of casualty care, 98 percent of non-battle injuries, and 100 percent of disease burden fall within the ENPs scope of practice.

Based upon this analysis, we identify opportunities for increased operational roles for FNPs and ENPs within the Navy and Marine Corps.

Learning Outcomes

- Attendee will be able to identify expanded scope of practice for family practice nurse practitioners trained as emergency nurse practitioners.
- Attendee will understand the use of family nurse practitioners on operational platforms.
- Attendee will identify opportunities for the utilization of emergency nurse practitioners in the operational environment.

ID 22463: Safe Early and Continuous Mobility (SECM): The Bridge between Patient and Caregiver Safety and Health across All Federal Healthcare Settings

Selected presentation type: Poster

Preventing de-conditioning and immobility syndrome is strongly connected to Health and Wellbeing, whether in the home and office setting, on the mission field, or in a hospital or care home. The short- and long-term consequences of long-term immobility are extremely costly both in human quality of life and economic burden to the healthcare system, affected patients and the communities where they live. SECM is an evidence-based interdisciplinary approach focused on maximizing safe mobility for all Veterans, whether in military hospital and aiming to restore mission-readiness as soon as possible, recovering from a career-ending injury or seeking care after completing their tour of duty in a VA hospital. SECM has been shown to decrease the cost of care from the complications of immobility. This poster highlights the essential elements of a SECM program, outcomes associated with SECM based on the evidence, and specific strategies health professionals can employ to advance and improve health across all federal systems.

Learning Outcomes

- Understand the connection between patient and caregiver safety and wellbeing through use of assistive technologies to replace manual lifting of people.
- Discuss how SECM helps achieve Federal health and wellness goals for improving health for all Americans and international coalition partners.
- Identify 3 steps they could take to implement the principles of SECM to improve health and wellness for caregivers, patients, and families in their own healthcare setting.

ID 22464: Comprehensive Virtual Health Coaching Program for Gulf War Chronic Multi-Symptom Illness at WRIISC-VA New Jersey Health Care System

Selected presentation type: Poster

The War-Related Illnesses and Injury Study Center at the VA New Jersey Health Care System (WRIISC-VANJ) is one of three national referral centers for Veterans with complex deployment-related chronic multi-symptom illnesses (CMI). Veterans with CMI often have difficult to treat symptoms including fatigue, pain, cognitive issues, gastrointestinal problems, respiratory issues, neurologic symptoms, and sleep difficulties. These chronic health concerns are linked to increased mental health needs, suicide risk, decreased functioning, and poor quality of life.

To serve the needs of these Veterans during a time when access to care became more challenging due to the COVID pandemic, the WRIISC-VANJ, in collaboration with the Wellness Solutions Group – a Service-disabled Veteran organization, developed a virtual comprehensive Health Coaching program. The six-month video-to-home telehealth program included:

- Functional medicine assessment
- Individual and group nutritional coaching
- Targeted nutritional supplementation
- Adaptive exercise coaching with portable exercise equipment sent to the Veteran's home
- Group mindfulness meditation and yoga

Group and individual sessions were delivered virtually through a HIPPA compliant telehealth platform. Each aspect of the program was tailored to the unique needs of each Veteran.

Veterans in the program completed baseline and follow-up assessments of physical and emotional functioning, quality of life, and functional movement abilities. The first cohort of 11 Veterans completed the program with 9 Veterans completing before and after assessments.

The virtual comprehensive Health Coaching program was well received by Veterans with attendance across all offered sessions ranging from 70-100%. At the end of the program, numerous improvements in physical and emotional functioning were reported, along with improvements in energy, hope for the future, and ability to cope with pain. These early successes illustrate an opportunity to provide individualized, innovative solutions for the evaluation and treatment of Veterans with difficult to treat, complex deployment-related chronic multi-symptoms illnesses.

Learning Outcomes

- Describe characteristics of Veterans with complex deployment-related chronic multi-symptom illnesses (CMI).
- Identify barriers Veterans with CMI encounter when attempting to implement lifestyle changes.
- Describe objectives of the virtual comprehensive Health Coaching program.
- Discuss components of the virtual comprehensive Health Coaching program.
- Report preliminary outcomes for the virtual comprehensive Health Coaching program.

ID 22466: “That is the big lesson learned, when things got tough, they turned to us.” – Preserving the history of the Department of Defense response to COVID-19

Selected presentation type: Poster

Background: The current pandemic has proven to be a significant health crisis resulting in the mobilization of Department of Defense assets to respond to a global emergency. Although evidence suggests that Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) was circulating in the United States in December 2019, the first case was not confirmed until January 20, 2020. Due to the rapid spread of the disease and national security implications, the Department of Defense responded to the crisis in several significant ways. These included:

- Force protection of service members;
- Deployment of military health units to assist in hospitals and with vaccine implementation;
- Leveraging DoD research and development committees to partner with the private sector to develop a technological response to the pandemic, along with biomedical research;
- Assisting with the development and management of the vaccines under a joint DoD, Department of Health and Human Services, and private biomedical corporation collaboration, which was announced in May 2021 as Operation Warp Speed.

Results: The National Museum of Health and Medicine, an element of the Defense Health Agency, pivoted to documenting these efforts by collecting documents, artifacts, and interviewing key participants in the Defense Health Agency to create a historical record related to the Military Health System’s response to the pandemic. On 1 June 2020, DHA director Lt. Gen. Ronald Place encouraged all agency components to support the NMHM’s documentation initiative with relevant artifacts and archival materials.

Discussion: The National Museum of Health and Medicine is uniquely positioned to document the Defense Health Agency’s response to the pandemic. NMHM was part of a coordinated effort of federal museums, including the Smithsonian Institution, National Institutes of Health, and Centers for Disease Control and Prevention, to preserve the history of this pandemic. It received the support of DHA’s commander, Lt. Gen. Ronald Place, who issued a request on June 1, 2020 for artifacts and documents related to the collecting efforts of the NMHM. The staff continues to actively develop and build this nationally unique military collection from DoD, U.S. Government, and private sector sources.

Learning Outcomes

- Develop a collection documenting the unique response to a pandemic requiring rethinking the nature, ends, and limits of medical research.
- Recognize the dynamic interrelationship between military medicine and the public health sector.
- Acquire a historically nuanced understanding of the organization of the U.S. military healthcare system and its response to a global emergency.

ID 22467: Safe Patient Handling and Mobility: Good for Patients, Good for Healthcare Workers

Selected presentation type: Poster

Nursing and healthcare personnel historically report some of the highest musculoskeletal injury rates in both the military and civilian sector. (U.S. Bureau of Labor Statistics 2020, Gun 2022, Mullinax 2021) According to Dressner (2018), “in 2016, registered nurses (RN) experienced 8,730 days-away-from-work cases related to musculoskeletal disorders (MSD). These occurred at an incidence rate of 46 cases per 10,000 full-time workers, which is significantly greater than the rate for all occupations (29.4 cases per 10,000 workers).” MSDs accounted for 44.1 percent of all RN days-away-from-work cases. Healthcare patients were the primary source of these MSDs and the back was the most affected body part. (Dressner 2018) Patient handling related MSDs impact not just the workers but also patients through decreased staffing, lower employee morale, more frequent turnover in staff, and loss of expertise through attrition resulting from injury. Additionally, manually handling, repositioning, and moving patients can impact patient skin integrity and can even result in patient injury. The past 20 years have brought many opportunities for safe patient handling and mobility (SPHM) growth and the U.S. Army Public Health Center Ergonomics branch has worked in collaboration with the Veterans Administration, DoD partners, and other governmental agencies to develop, expand, and sustain SPHM in military healthcare settings.

Learning Outcomes

- Describe historical and current guidelines and legislation
- Summarize elements of a SPHM program
- Recognize challenges, successes, and recommendations for continuing the implementation of SPHM programs and collaboration among stakeholders

ID 22469: Using Geospatial Analytics to Support VHA's Care Close to Me Initiative

Selected presentation type: Poster

Background:

Veterans Health Administration (VHA) recognizes the essential role of accessible antineoplastic infusion services in providing holistic and coordinated care for Veterans. Infusion treatments offered solely at Veterans Affairs Medical Centers (VAMCs) in metropolitan areas are often inaccessible to Veterans living outside of these cities. Considering these obstacles, Veterans often seek care outside of VA services and with private community clinics located closer to home. In addition to increased costs, Veterans seeking cancer treatment outside of VA may experience a lack of care continuity and have difficulty navigating multiple health care systems.

Action:

The VHA's National Oncology Program (NOP) has developed *Close to Me* novel infusion care models that can alleviate Veteran travel time and expand opportunities to receive care with VA. Some options include

- Expanding VHA Community Based Outpatient Clinics (CBOCs) into infusion sites with traveling Registered Nurse support
- Using VHA mobile infusion vehicles, and
- Offering home administration of treatments (infusions and injections) at the patient home, administered either by an RN or by patients themselves.

The VHA Office of Integrated Veteran Care (IVC), Integrated Informatics and Analytics (IIA) has partnered with NOP teleoncology program office to develop "Oncology Geospatial Dashboard", a clinical informatics application to provide geospatial analytics functionalities that support the implementation of *Close to Me* Program nation-wide.

Results:

This poster presentation will showcase the visual, intuitive application that maps home locations patients, VAMCs, VA CBOCs, and non-VA community providers. Users will explore the visual map that displays the volume and density of infusion patients along with the available VA and non-VA options for care. Discussion will focus on how this data is used to strategically identify where there is the greatest need to improve access to VA infusion treatments that can be addressed using the three options listed above. The strategic selection of locations using this tool can help breaking down the barriers preventing Veterans access to oncology infusion care in the VA, improving Veterans satisfaction, while optimizing the use of VA resources. Presenters will share how the IVC/IIA team worked closely with subject matter experts and developed the "Oncology Geospatial Dashboard" in a rapid development iterative process. Presenters will also show how to use the tool to perform detailed analysis for decisions on where to expand CBOCs to support infusion treatments and where to deploy mobile infusion vehicles. In addition, the tool is still under active development and additional features such as forecasting of potential time and cost saved by the selection of certain CBOC and mobile unit locations.

This poster presentation will champion the use of data and business insights to provide trusted, timely, equitable, and high-quality care with exceptional outcomes and experience.

Learning Outcomes

- Summarize the value of visual and intuitive tools that inform decision making, strategic planning, and allocation of resources
- Explain how analytics and healthcare informatics can be used to drive improvements in access to healthcare
- Provide an example to demonstrate the use of agile methodology to develop clinical informatics application in close collaboration with clinician subject matter experts

ID 22470: The Effect of the HITECH Act on Adoption of Electronic Health Records in US Hospitals

Selected presentation type: Poster

The Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009 represented a major step in realizing widespread adoption of electronic health records (EHR), with the federal government offering over \$20 billion USD in financial incentives for eligible health care professionals and hospitals to adopt EHR technology. Although EHR adoption has steadily increased across both public and private sectors since passage of HITECH, it is unclear if adoption would have had similar effect without the incentives in place.

Learning Outcomes

- Following this presentation, the participant will be able to explain the HITECH Act legislation and its role in EHR adoption.
- Following this presentation, the participant will be able to identify four adopter characteristics that may influence EHR adoption.
- Following this presentation, the participant will be able to explain the effect of HIT policy on innovation diffusion.

ID 22471: Outbreak: Conducting Monkeypox Surveillance in United States Army Soldiers and Beneficiaries

Selected presentation type: Poster

Introduction: Since May 2022, monkeypox cases have been confirmed in countries where the disease has not historically been reported, according to the World Health Organization (WHO). As of 14 September 2022, the Centers for Disease Control and Prevention (CDC) has reported 59,606 cases of monkeypox globally, with 22,774 cases occurring in the United States. Globally, 19 deaths have been reported, 1 of which occurred in the United States. The U.S. Army Public Health Center (APHC) began monkeypox surveillance efforts in May 2022 to track cases of monkeypox in U.S. Army Soldiers and beneficiaries.

Methods: Using the monkeypox case definition provided by the CDC, established reporters at each medical treatment facility (MTF) report monkeypox cases to the Army Disease Reporting System internet (ADRSi) as suspected, probable, or confirmed under the reportable medical event “monkeypox.” Prior to 5 August 2022, such cases were reported under the medical event “any other unusual condition not listed.” APHC tracks monkeypox cases among Army beneficiaries seen at any MTF, as well as cases among non-Army beneficiaries seen at Army MTFs. Cases included in this analysis were reported to ADRSi between 3 June 2022 and 14 September 2022.

Results: As of 14 September 2022, APHC was tracking 69 monkeypox cases through ADRSi: 13 confirmed, 38 probable, and 18 suspect. The majority of cases were male (97.1%) and on active-duty status (59.4%). Of the 14 beneficiaries reported to ADRSi, 64.3% were spouses, and 35.7% were other dependents. There have been six hospitalizations and zero deaths among ADRSi-reported cases. The source of the exposure was recorded for 20 cases; in 95% of these, sexual or intimate contact was listed as the source of the exposure.

Conclusions: APHC continues to monitor monkeypox case reporting through ADRSi. The Center also collaborates with other military health entities, such as the Armed Forces Health Surveillance Division, to provide Army and Department of Defense leadership with updated case numbers, information on hospitalizations, and responses to other requests for information promptly.

Learning Outcomes

- Describe the Army Public Health Center's monkeypox surveillance process.
- Compare data elements collected from the monkeypox-specific and non-disease-specific reportable medical events in the Army Disease Reporting System internet.
- Summarize demographics and sources of exposure among monkeypox cases in United States Army soldiers and beneficiaries.

ID 22475: COVID-19 Surveillance in the U.S. Army Beneficiary Population

Selected presentation type: Poster

During the initial months of the COVID-19 pandemic, epidemiologists at the U.S. Army Public Health Center (APHC) leveraged multiple surveillance systems and information streams to ensure accurate tracking of COVID-19 among the U.S. Army beneficiary population. The reportable medical event system and laboratory databases already in use for the surveillance of infectious diseases were expanded to include COVID-19. In February 2020, the Department of Defense (DoD) established a case definition for reporting COVID-19 cases to the Disease Reporting System internet (DRSi), the reportable medical event system of record for the DoD since 2010. APHC also received daily feeds of all SARS-CoV-2 laboratory results for tests performed within the Military Health System. APHC epidemiologists continue to rely on a combination of laboratory test results and medical event reports submitted to Army DRSi (ADRSi) as the standard for providing Army Senior Leaders with information on the magnitude and severity of the COVID-19 pandemic.

Between 10 February 2020 and 9 September 2022, almost 3 million SARS-CoV-2 (n=2,986,229) laboratory tests were performed on U.S. Army beneficiaries, with an average daily percent positive rate of 10% (daily percent positive range: 0–56%). During the same time frame, U.S. Army medical treatment facilities (MTFs) reported a total of 323,209 cases of COVID-19 to ADRSi. This number included reports of cases among Active Duty (AD), Guard, and Reserve Service members, dependents, retirees, civilians, and contractors. ADRSi case reports provided epidemiologists with additional case characteristics, including symptom status, vaccine status, hospitalization, and death. Sixty-one percent of reported cases were symptomatic, and fewer than 2% of COVID-19 cases were reported as hospitalized. After 1 January 2021, when several versions of the COVID-19 vaccine became widely available, 38% of COVID-19 cases were reported to be unvaccinated, and 11% of cases were missing vaccination information at the time of their infection.

U.S. Army AD Soldiers accounted for 56% of cases reported to ADRSi (n=180,915). Among the AD population, the proportion of COVID-19 cases was highest among Soldiers identifying as Black or African American, Native Hawaiian/Pacific Islander, American Indian/Alaskan Native, and Hispanic or Latino compared to Soldiers identifying as Non-Hispanic White. COVID-19 occurred most frequently among Soldiers younger than 25 years old. Younger Soldiers are more likely to be in communal living and training environments where social distancing is more challenging.

As the global COVID-19 pandemic persists and SARS-CoV-2 variants of concern continue to emerge, the U.S. Army Public Health Center continues to maintain timely and accurate COVID-19 surveillance to both inform higher-level decision-making and protect the health of the force.

Disclaimer: The views expressed in this document are those of the author(s) and do not necessarily reflect the official policy of the Department of Defense, Department of the Army, U.S. Army Medical Department, or the U.S. Government.

Learning Outcomes

- Understand and discuss methods used by the U.S. Army for disease surveillance.
- Understand and discuss the specific methods leveraged for the surveillance of COVID-19 in the U.S. Army population.
- Understand and discuss demographic characteristics of COVID-19 cases in the U.S. Army population.

ID 22476: The Impact of Paxlovid Emergency Use Authorization Modification on Paxlovid Prescribing by Pharmacists in the U.S

Selected presentation type: Poster

PAXLOVID is an anti-viral comprised of Nirmatrelvir, a SARS-CoV-2 main protease inhibitor co-packaged with ritonavir, an HIV-1 protease inhibitor and CYP3A inhibitor. On Dec 22,2021, the Food and Drug Administration (FDA) issued an EUA for the emergency use of Paxlovid for the mild to moderate symptoms of COVID-19 in adults and pediatric patients to prevent the risk of disease progression, hospitalization, and death.

The FDA recognized the important role pharmacists have played in combatting the pandemic. The FDA believed authorizing state- licensed pharmacists to prescribe Paxlovid could expand access to timely treatment for some patients who are eligible to receive this drug for the treatment of COVID-19.

In July 2022, (FDA) modified the Emergency Use Authorization (EUA) of Nirmatrelvir with ritonavir (Paxlovid™) to allow state-licensed pharmacists to independently prescribe Paxlovid to patients with COVID-19 under certain conditions.

This analysis will show the impact of the EUA modification on access to Paxlovid across the country by analyzing the prescribing and dispensing patterns before and after the EUA modification. The analysis will be conducted using drug distribution and utilization data sources to determine how many Paxlovid tablets were distributed to and dispensed from the U.S. outpatient retail pharmacies across various states. The dispensed prescription data will be stratified by the prescriber specialty, including pharmacists, to examine the impact of the EUA modification? on the drug utilization patterns.

Learning Outcomes

- Following this poster presentation, participants will be informed about the projected total number of Paxlovid prescriptions dispensed through U.S. outpatient retail pharmacies from January 2022 to December 2022
- The impact of independent pharmacists prescribing on the utilization of Paxlovid.
- Participants will also learn of the states with the highest per capita pharmacist prescribing of Paxlovid

ID 22479: Enabling Army Readiness: Improving Medical and Dental Pre-/Post-Mobilization Support

Selected presentation type: Poster

To succeed in a multi-domain environment, the Army must be able to project military power. This relies on its ability to mobilize forces quickly and deploy them around the globe. Mobilization Force Generation Installations (MFGI) serve a critical role in preparing Soldiers for military operations so they arrive wherever they are needed trained and ready to execute their mission on behalf of the nation. The installations provide pre-/post-mobilization readiness support and rapid deployment preparation for Reserve Soldiers, the Army Expeditionary Civilian Workforce, and individual Soldiers deploying for Combatant Command operations. To meet their mission, the MFGIs must have appropriate facilities and infrastructure to support medical and dental readiness, training, equipment issue, and administrative actions.

The U.S. Army Health Facility Planning Agency (HFPA) delivers the Army Surgeon General's multi-disciplinary health facility planning capability to enable Army readiness. The agency supports Strategic and Operational Commanders in joint, interagency, intergovernmental, and multinational environments across the full spectrum of military operations to address systemic and project-specific health care delivery and infrastructure issues.

Illustrating HFPA's important support role for mobilization operations, in 2021-22 the agency conducted facility assessments of the MFGIs at Fort Bliss, Fort Knox, and Camp Atterbury. HFPA evaluated current operations and identified opportunities for no-/low-cost improvements and upgrades to optimize space utilization, increase the throughput of Soldiers and Civilians, and streamline the healthcare elements of the Soldier Readiness Program (SRP). Today, HFPA continues to provide health facility planning support to MFGIs in myriad ways, including space planning, facilities and infrastructure gap analyses, scope of work development, equipment planning, information technology planning, and cost estimating.

Learning Outcomes

- Gain insight about how the U.S. Army Health Facility Planning Agency supports Army readiness and military operations.
- Learn about the range of medical and dental processing activities that take place at MFGI sites to provide mission-ready Soldiers and Civilians to the Combatant Commanders.
- Understand health facility planning best practices supporting military readiness.

ID 22480: Military couple strengths and post-deployment perspectives

Selected presentation type: Poster

Introduction: The post-deployment period creates a uniquely challenging set of circumstances within military couple and family relationships. Research on military couples with high relationship satisfaction identified open communication, conflict management, and shared responsibilities as common themes in their relationships (Wick & Goff, 2014). In addition, online communication through social media has been found useful for service members and their spouses in increasing relationship connectedness (Rea et al., 2015). Based on the literature, opportunities or positive outcomes of deployment may include increased feelings of closeness and value within the relationship (Knobloch & Theiss, 2012). Challenges or negative outcomes of deployment have also been reported, including: difficulty reconnecting, poor communication, and changes in autonomy (Knobloch & Theiss, 2012). Other negative experiences of military life, that might impact family well-being, include lack of organizational support and separation of service members from their spouses and children (Runge et al., 2014). This research examined individuals' strengths in married military couples for perceived family effectiveness and well-being post-deployment. Because military couples are an essential subsystem of a military family, there are implications of post-deployment changes/stressors on family well-being, readiness, and demand for support services.

Methods: Service members and spouses from the Army, Navy, Air Force, and Marines participated in the study (n = 88) at a military installation. Senior military officers who were deployed from Operation Iraqi Freedom/Operation Enduring Freedom and their spouses completed open-ended survey questions. These questions asked about family strengths and resources, as well as the negative and positive outcomes of their deployment. A qualitative interpretive phenomenological approach was taken to identify the lived experience of the participants in the post-deployment period. Two raters coded the survey responses by identifying recurrent themes in the submitted responses.

Results: The following themes were identified as strengths for family well-being from respondents: overall communication; family flexibility/adaptability; and family cohesion. Service members and spouses identified greater appreciation for family, financial benefits, and improved closeness as positive outcomes from the deployment. The negative outcomes following deployment for service members and spouses included: service members missing family events; separation during deployment; and difficulty with re-integration.

Discussion: These qualitative findings pertaining to strengths building (e.g., communication, family flexibility, and cohesion) may offer insights to military leaders, family readiness centers, and behavioral health clinics. This information can be useful in strengthening senior leader military families and, in particular, their couple sub-system during the end of the deployment cycle. The research findings can also provide support and resources for senior service members during military operations. Future research needs to expand beyond senior leaders, explore further well-being outcomes, and provide interventions to mitigate future negative outcomes.

Learning Outcomes

- list negative post-deployment outcomes
- list family strengths that contribute to well-being
- recognize implications of research on military couples

ID 22483: Assessing Learning Needs and Clinical Competency of US Air Force Family Medicine Residents in Lifestyle and Performance Medicine: Curriculum Review

Selected presentation type: Poster

Service members and their families have endured significant stressors over the past 20 years in support of the nation's engagement in the wars in Iraq, Afghanistan, and other contingency operations (Rossiter & Ling, 2022). The U.S. military has been focused primarily on these conflicts while fighting an internal struggle against the health risks of its service members. The health risks in the U.S. military endanger service members' lives and hinder the military's strength in dealing with a highly prevalent threat to the health and overall readiness of the fighting force and, in turn, the nation's security (Chukwura et al., 2019). The maladaptive behaviors of U.S. military service members are more prevalent than their civilian counterparts and have resulted in increased rates of illness, disease, and injury and have cost the Department of Defense \$3 billion annually in medical spending (Monti et al., 2021). To establish, maintain, and sustain the strongest, healthiest, and most lethal warfighters in the world, the Department of Defense must deliver the best prevention, intervention, and treatment while optimizing the performance of the U.S. military. Integrative medicine and other practices are essential to target maladaptive behaviors of military service members in a healthcare setting to reduce the prevalence of morbidity and cost in the military. Lifestyle and Performance Medicine is an integrative medicine practice that uses therapeutic lifestyle behavior change to address the root causes of chronic diseases (Bharati, 2022). In addition, Lifestyle and Performance Medicine captures the Defense Health Agency's Mission Statement, which is to lead the Military Health System's integration of readiness and health, delivering the Quadruple Aim: Increase Readiness, Better Health, Better Care, Lower Cost (Health.mil). Research has demonstrated that despite the Family Physicians' perceived importance and practice of Lifestyle & Performance Medicine principles, there is a substantial gap in the reported comfort with and practice of certain lifestyle domains that are critical to target areas of challenge for U.S. military service members, such as Sleep and Relationships (Bharati, 2022). This Quality Improvement and Program Evaluation will examine the gaps in knowledge and practices of Lifestyle Medicine principles amongst our U.S. Air Force Family Medicine Residents on-site at David Grand Medical Center, Family Medicine Residency Clinic, Travis Air Force Base California. Through pre-post surveys, there exists opportunity to assess the gaps between perception and practice of Lifestyle Medicine Competencies and the six domains of Lifestyle and Performance Medicine (Better Sleep, Stress Management, Social Connectedness, Healthy Plant-Predominant Nutrition, Use of Harmful Substances, and Physical Activity). The data collected from the surveys will provide faculty with the data needed to ensure the curricula and experiential learning expands residents' knowledge of Lifestyle and Performance Medicine principles and practices. The Lifestyle and Performance principles and practices are essential to the knowledge base of the U.S. Air Force's future Air Force Family Medicine leaders. The military's Family Medicine Residencies must continually produce operationally ready physicians in evidence-based care to enhance our warfighters' health, wellness, readiness, and performance.

Learning Outcomes

- Describe the impacts that service member's maladaptive behavior choices have on individual health, warfighter lethality, and health care spending.
- List the six major domains of focus in the practice of Lifestyle and Performance Medicine
- Recognize how Lifestyle and Performance Medicine aligns with the DHA Quadruple Aim

ID 22485: Duty To Honor Veterans End-Of-Life Wishes: VA Case Studies in Successful Clinical Change Management

Selected presentation type: Poster

Although few, there are instances in which Veteran's end-of-life decisions have not been upheld. Specifically, Veterans who wanted Cardiopulmonary Resuscitation (CPR) were not administered CPR, and Veterans who did not want CPR were administered CPR. None of these cases, as documented in Office of Internal Governance (OIG) reports [\[i\]](#)[\[ii\]](#)[\[iii\]](#), involved malicious intent. While the use of "Do-Not-Resuscitate" (DNR) on patient ID wristbands was documented as a contributing factor, the underlying systemic issues of vague policy, poor communications, and lack of accountability caused these catastrophes to happen.

In addition to guidance from the VA National Center for Patient Safety (2017, 2019), the National Center for Ethics in Healthcare revised the VHA Handbook 1004(3)3 *LIFE-SUSTAINING TREATMENT DECISIONS: ELICITING, DOCUMENTING AND HONORING PATIENTS' VALUES, GOALS AND PREFERENCES* [\[iv\]](#) on 09/27/2022 prohibiting facilities from using DNR on the wristband by March 2023. While this mandate is welcome news, VA systems are complex and complicated and setting a 6-month deadline without specific guidance may create additional risk. Removing DNR from the wristband is not merely a matter of three letters disappearing off a wristband. This initiative is a significant change management initiative.

70% of change management initiatives fail [\[v\]](#). This poster provides two change management success stories from 1A VA facilities (Northwest and South Central) related to honoring Veteran's Life Sustaining Treatment decisions. In addition to using change management skills, knowledge, and expertise cultivated at a Fortune 50 company, the author led the initiatives using foundational VA values Integrity, Commitment, Advocacy, Respect and Excellence (ICARE), and Reliability Organization principles. Each case study provides best practices in project management, stakeholder engagement, and maintaining sustained success. Lessons learned from this poster apply to any change in a health care system, regardless of size.

[\[i\]](#) Deficiencies in Life-Sustaining Treatment Processes at the Michael E. DeBakey VA Medical Center in Houston, Texas [21-02903-214](#)

[\[ii\]](#) Delay in Emergency Airway Management and Concerns about Support for Nurses VA Northern California Health Care System [15-00533-440](#)

[\[iii\]](#) Patient Death Following Failure to Attempt Resuscitation, VA Ann Arbor Healthcare System [17-01208-07](#)

[\[iv\]](#) *VHA Handbook 1004.3(3) LIFE-SUSTAINING TREATMENT DECISIONS: ELICITING, DOCUMENTING AND HONORING PATIENTS' VALUES, GOALS AND PREFERENCES.*

[\[v\]](#) Jones-Schenk J. 70% Failure Rate: An Imperative for Better Change Management. *J Contin Educ Nurs.* 2019 Apr 1;50(4):148-149. doi: 10.3928/00220124-20190319-03. PMID: 30942888.

Learning Outcomes

- Understand Life Sustaining Treatments Decisions
- Know the moral and legal implications for eliciting, documenting and honoring Veteran's Life Sustaining Treatment Decisions
- Understand why 70% of change management initiatives fail
- Recognize how poor communication, policy and process lead to devastating outcomes
- Fundamental principles of successful change management
- Distinguish stakeholders impact and influence
- Understand how to establish and monitor success metrics
- Incorporate accountability for sustained success

ID 22486: Establish a Standardized Process to Monitor Data Quality, Capture and Maintain Metadata Using VHA Revenue Operations Data Domain as a Pilot

Selected presentation type: Poster

The Veterans Health Administration (VHA) provides access to timely, high-quality, cost-efficient, and well-coordinated community care for Veterans and VA beneficiaries based on certain conditions and eligibility requirements. The Under Secretary of the Veterans Health Administration, directs a health care system with an annual budget of approximately \$68 billion, overseeing the delivery of care to more than 9 million enrolled Veterans. The VHA Office of Integrated Veteran Care (IVC) is the national office in charge of community care delivery.

Charged by VA to manage data as a strategic asset, the IVC Data Governance Council (DGC) established a Data Governance (DG) Program with prioritized focus on data quality and data integrity.. Data and metadata are strategic assets that must be managed effectively. In the VA, data management processes are designed to capture information about an enterprise's data and provide common, agreed-upon terms, definitions, formats, and relationships based on how information is stored and used in individual systems and business lines.

The IVC Data Governance Program piloted a metadata focused initiative as an example of how effective data management can be instrumented across VA. The IVC pilot documented a standardized process for RO metadata ingestion into the VA Enterprise Data Catalog (EDC) using Community Care Revenue Operations (RO) data. Collection and recovery business functions are performed by Revenue Operations (RO) staff assigned to seven regional consolidated patient account centers (CPACs) across the country. Complete, accurate, valid, and timely health care claim and payment data is required by RO staff to deliver consistent, efficient, and accountable revenue services across all regions. Access to standardized information that describes revenue and payment data makes finding and working data easier.

In alignment with the VA Data Strategy and compliance with the VA Data Governance Council's (DGC) requirement that all VA data elements be classified, recorded, properly defined, and published in the EDC, IVC's pilot showcased data management best practices for executing VA requirements through prioritizing business architecture and data quality activities to document a repeatable and tool flexible process for metadata ingestion into the VA EDC.

- **Business Architecture:** Analyzed RO business processes, data flows and developed corresponding data maps to build a conceptual model that describes critical information across systems and business lines. Business Architecture documentation helps staff assess and communicate environmental impact (system, regulatory, etc.) and coordinate business process and data architecture updates.
- **Data Quality:** Conducted current state data quality reviews and coordination of daily automated data quality checks and visualization of data quality results through Palantir dashboards. Automated data quality information supports executive leadership decision making and decreases labor intensive manual "point in time" data quality activities.
- **Metadata Ingestion:** Leveraged existing processes, frameworks, and data initiatives to coordinate metadata entry into the EDC. Metadata ingestion means community care metadata is available to VA enterprise data users.

IVC Pilot benefits exceed VA DGC alignment and compliance with requirements. Pilot efforts support enhanced data lifecycle management, improved data quality, robust governance and stewardship of metadata, and improved enterprise capabilities.

Learning Outcomes

- Learn about how to perform business process mapping
- Understand the importance of data governance and metadata maintenance
- Learn about the current status of the development of the VA Enterprise Data Catalog

ID 22487: Introduction and Implementation of the VA Safe Patient Handling and Mobility Program to a DOD medical center

Selected presentation type: Poster

Abstract

Background: The Veterans Health Administration (VHA) is the largest health care system in the USA, providing care to over 9 million veterans at 1,242 health care facilities through 171 medical centers in the United States Territories and employs over 98,111 nurses nationwide. Prior to the Veterans Health Care Safe Patient Handling and Mobility Program initiation in AY 2008, 120,000 VA staff lifting/repositioning injuries were documented. As of AY 2018, the VA staff lifting, and repositioning injuries have decreased to 51,000 incidents. Upon inquiry, the DOD medical center inpatient units had very few resources for safe patient lifting and mobility. Proper use of the Safe Patient Handling and Mobility program has consistently demonstrated a decrease in staff and patient injuries and will allow the military nursing staff to stay “Fit To Fight”. The current lack of proper lifting and mobility resources has a high potential for both staff and patient injuries due to improper techniques. The essence of this culture change is that Safe Patient handling equipment and supplies to be considered Personal Protective Equipment (PPE).

Methods: The author met with the Nursing leadership at the DOD medical facility and granted permission for demonstrations of two types of disposable air mattresses for lateral transfers and lifting in the emergency department and four medical-surgical nursing units. The author also met with the senior leadership through a Safe patient Handling and Mobility Program brief during the DOD medical center’s Productivity Improvement Committee meeting. The author is currently an active member of the DOD Medical Center/VA Pacific Islands Health Care System Joint Nurse Work Group attending monthly meeting introducing new equipment and advocating for the program.

Results: The demonstrations were well attended by front-line nursing staff and unit nurse managers. The front-line staff provided many positive comments on the air mattress system that allowed the staff members to more easily perform lateral transfers, retrieving a fallen patient off the floor, and use with the over-head ceiling lifts. There was positive feedback from the senior leadership and their willingness to permit additional equipment demonstrations. The inpatient senior leader requested equipment information and quotes for future purchase.

Conclusion: Continual communication from VA SPHM facilitator with DOD medical center senior leaders to include assistance and recommendation of SPHM equipment purchases and performing initial equipment training for staff.

Learning Outcomes

- Determine the Return on Investment of SPHM equipment purchase and decreased staff/patient injuries costs.
- List common pitfalls for SPHM Program implementation and how to overcome them.
- Identify and engage the key nursing leadership at this facility.

ID 22488: Return to Work/Play Clinical Practice Guidelines for Common Diagnoses of Injury in the Army: A Literature Review

Selected presentation type: Poster

Military medical providers – specifically General Medicine and Family Medicine – have an abundance of responsibility for Soldiers and their dependents. Outside of their regular job duties of diagnosing and treating patients, they are also required to evaluate a Soldier's deployment eligibility based on their current and past medical history provided by the electronic profile (eProfile). Soldiers may become ineligible for deployment due to an injury or illness that could be treated in less time if they were treated by an experienced specialist. More specifically, musculoskeletal injuries (MSKI) are one of the primary causes of Soldier's inability to be medically ready, comprising over 80% of such causes¹⁻². The majority of eProfiles are written by providers who are not specialized in MSKI and therefore may result in Soldiers being out of the fight longer than necessary

We conducted a literature review regarding return to work/play guidelines for common injury diagnoses in order to see what CPGs could be used by military providers with limited clinical experience. Using clinical practice guidelines from organizations with musculoskeletal experience (I.e., American Physical Therapy Association and American Orthopaedic Association) will set the medical standard to assist providers with limited clinical experience in deciding length of profiles. By properly using CPGs providers could decrease the time Soldiers are on profile by assigning the appropriate shorter time and get them back into the fight sooner.

An abstract containing all of the M and S ICD-10 diagnoses for FY 2018 Active-Duty Soldiers treated one-on-one at a Military Treatment Facility was used as a proxy for the most common diagnoses of MSKI for search terms. There were 109 search terms used based on these diagnoses. Using those terms a search for publically-available return to work or play clinical practice guidelines was performed using Google and PubMed. Due to the limited number of guidelines from the initial search, a library search of the National Library of Medicine of the terms was performed in order to find more guidelines.

Of the 109 search terms, only 10 were found to have CPGs regarding return to work or play associated with them. The following 10 CPGs were found: recovery from foraminotomy, ankle sprains, posterior cruciate ligament sprain, bucket handle tear of the lateral meniscus, low back pain, Achilles tendinitis, anterior tibial syndrome, palmar fascial fibromatosis, recovery from hallux valgus surgery, recovery from rhabdomyolysis.

To our knowledge, this is the first time a review of the publically available clinical practice guidelines has been conducted for a common set of injury diagnoses. The paucity of data available demonstrates the difficulty providers have in determining length of profiles in an evidence-based way.

1. U.S. Army Public Health Center internal analysis, Defense Medical Surveillance System database, completed 2018.
2. Hauschild V, Hauret K, Richardson M, Jones B, Lee T: A Taxonomy of Injuries for Public Health Monitoring and Reporting (Public Health Information Paper No. 12-01-0717), 2017. Available at <http://www.dtic.mil/dtic/tr/fulltext/u2/1039481.pdf> ; accessed September 5, 2018.

Learning Outcomes

- Be able to identify the most common cause of Soldiers not being medically ready.
- Identify diagnoses that were found to have clinical practice guidelines for return to work/play.
- Learn the average length of profile for a cohort of patients enrolled in one Interdisciplinary Pain Management Center.

ID 22489: Intermediate Care Technicians (ICT): The Return on Federal Investments of Medics

Selected presentation type: Poster

ABSTRACTIntroduction:Over the last 200 years, the “medic” has demonstrated its value at the point of injury care. Unfortunately, when medics leave military service with their medical skills, they have limited direct employment options available to them without added educational requirements. Fortunately, the Veterans Health Administration’s (VHA) innovation of the Intermediate Care Technician (ICT) Program has a solution for that problem. This article will look at the Veterans Affairs’ creation of the ICT Program, investigate its origins, evaluate where it is today through the lens of the WHO Task-Shifting Model for healthcare system implementation, and address the ICT Programs’ potential for tomorrow.**Materials and Methods:**A descriptive, non-experimental research method design was used to collect and analyze the ICT Program’s quantitative and qualitative data.**Results:**Through a decade of quality clinical care, Authority of Veteran Affairs Professionals to Practice Health Care Rule, and comparative evaluation of the WHO Task-Shifting Criteria, the ICT Program will bring incredible clinical value to VHA.**Conclusion:**The VHA ICT Program demonstrates to the U.S. Healthcare System a validated and reliable program to address healthcare worker shortages, reduce healthcare costs, increase access to care, and manage increasing demand for healthcare.

Learning Outcomes

- Transaction Assistance Programs for Medics
- Healthcare System a validated and reliable program to address healthcare worker shortages.
- Healthcare System a validated and reliable program to address reduce healthcare costs.
- Healthcare System a validated and reliable program to address increase access to care.
- Healthcare System a validated and reliable program to address manage increasing demand for healthcare.

ID 22490: Psychological Resiliency in the Surface Forces: Approaches to Decreasing Suicide-Related Behaviors

Selected presentation type: Poster

In recent years, the armed services have emphasized the importance of psychological resilience to servicemembers' well-being and overall readiness, especially as they have observed increases in suicide-related behaviors (SRBs). SRBs include suicides, suicide attempts, and suicidal ideations and ultimately reflect a decline in sailors' overall mental health (MH). SRBs directly affect readiness for the Navy's Surface Forces (SURFOR) because they can lead to administrative separations and transfers off ships. They also affect unit morale and unit cohesion, amplifying their effect on unit-level readiness and mission effectiveness. In this study, we conduct a preliminary evaluation of the Navy's Expanded-Operational Stress Control (E-OSC) and embedded mental health (EMH) programs' impact on SRBs, overall MH, and readiness across the SURFOR enlisted population.

The primary objective of the E-OSC program is to prevent and treat occupational stress by educating sailors on primary stress signals and establishing specific roles for Command Resilience Teams. Our evaluation of the E-OSC program uses a difference-in-differences approach to compare the prevalence of SRBs and adjustment disorder diagnoses across a treatment ship and a control ship.

The EMH program aims to bring MH clinicians closer to servicemembers, both to identify MH challenges as early as possible and to build relationships and rapport between servicemembers and clinicians. Our EMH evaluation is a pre- and post-implementation comparison of several outcomes—mental health diagnoses, SRBs, administrative separations, mental health transfers off ships, and early returns from sea duty.

Learning Outcomes

- Attendee will understand the limitations of program evaluation based on imperfect data collected outside of an experimental design.
- Attendee will observe the impact of the E-OSC program on SRBs and adjustment disorder diagnoses.
- Attendee will observe the impact of the EMH program on mental health and readiness outcomes.

ID 22492: APAOC's Efforts in Promoting Youth Mental Health in Asian American, Native Hawaiian, and Pacific Islander (AANHPI) Populations

Through the COVID19 pandemic, there has been a significant increase in mental health disorders in youth compared to any other age group, including depression, anxiety, and suicidal ideation. In 2020, out of 1,560,288 people who took a screen and accessed resources through the Mental Health America Online Screening Program, over half of 11-17-year-olds reported having thoughts of suicide or self-harm more than half or nearly every day in a span of two weeks. Suicide is the leading cause of death in youth among AANHPI in U.S. To tackle this public health crisis, the Surgeon General (SG) issued his 2021 Advisory on *Protecting Youth Mental Health*. Given the complexity and urgency of the situation, particularly in minorities, healthcare collaboration is imperative. The Asian Pacific American Officers Committee (APAOC) has taken steps to build “the village” of federal, community, and advocacy resources for our youth. This presentation will provide best practices for the treatment and prevention of mental health challenges as described in the SG’s Advisory, successful partnerships, APAOC’s efforts to raise awareness of the cultural, social, and other barriers unique to minority populations, and ways to build upon these efforts.

APAOC established the Healthy Mind Initiative (HMI) in 2018 to raise awareness on youth mental health issues, reduce stigma, and encourage parents and youth among AANHPI communities to seek help when needed. Supporting one of the SG’s top priorities and “*Protecting Youth Mental Health*” Advisory, APAOC coordinated with federal efforts to better support AANHPI youth and other minority groups. HMI worked with federal and local organizations, including Substance Abuse and Mental Health Services Administration (SAMHSA), Office of Behavioral Health Equity, Asian American Health Initiative of the Montgomery County Health and Human Services, Maryland, National Institute on Minority Health and Health Disparities (NIMHD), Federal Asian Pacific American Council, and AANHPI community organizations. HMI published presentations and articles that reached eight USPHS Categories and AANHPI communities in seven HHS agencies: National Institutes of Health, Centers for Disease Control and Prevention, Food and Drug Administration, Health Resources and Services Administration, Agency for Healthcare Research and Quality, Indian Health Service, SAMHSA, and local Commissioned Officers Association chapters. Over 2,000 individuals in AANHPI communities nationwide benefited from these collective efforts.

Education and outreach are the cornerstones of APAOC’s community engagement activities. APAOC has collaborated with OSG’s Prevention through Active Community Engagement (PACE) to develop a new mental health lesson plan, educating parents and caregivers on how to improve the well-being of their youth, which was approved by the OSG on September 22, 2022. This accomplishment enables the nationwide mobilization of PHS officers through PACE to address SG’s priority on youth mental health. APAOC community-level efforts and healthcare collaborations have continued to expand. HMI partnerships established two National Essay Contests in 2019 and 2022, addressing the stigma surrounding mental health and social barriers that adolescents may encounter.

APAOC’s efforts and partnerships on a local, state, and national level have successfully led to building a village to help and protect our youth’s mental health.

Learning Outcomes

- Describe the impact of health disparities on mental health disorders in Asian American and Native Hawaiian/Pacific Islander (AANHPI) youth.
- Learn from examples of successful partnerships and APAOC’s efforts to raise awareness of the cultural, social, and other barriers unique to minority populations.
- Provide best practices for the treatment and prevention of mental health challenges as described in the SG’s Advisory on *Protecting Youth Mental Health*.
- Identify opportunities for collaborations with public health partners to further the Surgeon General’s efforts to protect youth mental health.

ID 22493: Examining factors influencing provider caseloads and its effect on access to care in military behavioral health clinics

Selected presentation type: Poster

The proportion of the Department of Defense (DoD) operating budget dedicated to healthcare continues to increase and is currently estimated at more than \$55.8 billion annually (Congressional Research Service, April 2022). Behavioral health care comprises a large portion of these expenses with mental health disorders identified as the second most common diagnostic category for medical encounters within the DoD, the most frequent cause of hospitalizations, and the cause of the most hospital inpatient days (Medical Surveillance Monthly Report, June 2022). Despite substantial investment in DoD behavioral health services, military behavioral health clinics struggle to meet the demand for access to care (Department of Defense, 2020). A key factor in the ability of a clinic to meet demand for care is thought to be the size of provider caseloads, however, little existing research has directly examined factors that impact caseload size or the impact of high caseloads on access to care (e.g., number of intake appointments).

Using data from the Military Health System Data Repository (MDR) for years 2007 to 2015, we analyzed medical encounters of active-duty service members from military mental health clinics to examine the effects of clinic characteristics on provider caseloads and the effects of provider caseloads on access to care. We hypothesized that more long-term psychotherapy cases and higher ratio of service members in the catchment area to clinic providers would be associated with larger provider caseloads, whereas a clinic's utilization of group therapy services would be associated with smaller provider caseloads. We also hypothesized that the number of intakes providers conducted would decrease with higher caseloads.

Results from our analyses supported our hypotheses. Using data from over 14,000 clinic-months, we found significant positive effects of long-term therapy cases and the ratio of beneficiary population on provider caseloads ($b = .84, p < .001$; $b = .26, p < .001$), and a significant negative effect of clinic utilization of group therapy services on provider caseloads ($b = -.23, p = .013$). Provider caseload size also had a significant negative effect on the number of intakes conducted ($b = -0.39, p < .001$).

Given the challenge and cost of providing mental health treatment to active-duty service members in need, it is paramount to gain a better understanding of the relationships between clinic-level characteristics, provider caseloads, and access to care in military mental health clinics. Our findings can help inform clinic leaders on what factors have the greatest relationship with provider caseloads and access to care variables. Implications for future research will be discussed.

Learning Outcomes

- Understand the relationship between clinic level variables and caseload size
- Understand the impact of caseload size on access to care (e.g., number of intakes)
- Discuss the implications these factors have for management of access to care in DoD mental health clinics

ID 22494: VA Chief Resident in Quality in Safety (CRQS) Program: Meeting the Educational Challenges in High Reliability Today and Tomorrow

Selected presentation type: Poster

Submission Content as Entered on Form

Background

As one of four statutory missions, the Department of Veterans Affairs (VA) educates and trains health professionals to enhance the quality of and timely access to care provided to Veterans within the Veterans Health Administration (VHA) health care system. Overseen by the Office of Academic Affiliations (OAA), these training programs make the VA the largest provider of health professions education and training and second largest funder of graduate medical education in the United States.

Although quality and patient safety training is now part of Accreditation Council for Graduate Medical Education's (ACGME) Common Program Requirements, most medical residency programs lack comprehensive training that adequately prepares residents to successfully participate in patient safety and quality improvement activities. These safety and quality activities represent a significant opportunity to foster interprofessional healthcare collaboration. The Chief Resident in Quality and Patient Safety (CRQS) Program has been developed to address this gap with the vision to "be the leading health professions education (HPE) program in quality and patient safety" and the mission "to foster quality care through the education of healthcare professions trainees in leadership, safety culture and continuous process improvement." The program has grown to become the largest quality and safety HPE training program in the nation with approximately 100 positions across eight medical specialties at more than 60 VAMCs.

Methods

To achieve the mission and vision of the program, the National Center for Patient Safety (NCPS) develops and delivers a national CRQS curriculum, assigns faculty, monitors trainee development and provides an annual CRQS Program evaluation. The curriculum was developed through a review of 27 quality and safety programs and 11 High Reliability Organization (HRO) implementation frameworks and incorporation of stakeholder feedback. Successful graduation requires completion of a HRO capstone project, participation in national didactic lectures, attending a face-to-face week-long training colloquium, regional den meetings, Lean yellow belt certification, and achievement of six entrustable professional activities (EPAs). EPAs align to program milestones and ensure learner collaboration with a range of health care professionals at the medical center which include developing a strategy to advance HRO maturity, designing a system-based improvement, anticipating and preventing error within clinical systems through human factors engineering, leading an interprofessional team in a quality improvement patient safety project, conducting a root cause analysis, and instructing healthcare learners and professionals in HRO principles. The HRO capstone project is a longitudinal project that demonstrates application of key ideas highlighting process analysis, interprofessional collaboration, measurement, data analytics and display and results in a national poster presentation.

Results

803 residents have graduated from the CRQS Program to date, resulting in 803 major VA health care improvements, 395 publications, 260 conference presentations, 157 conference posters and 38 major awards. The CRQS Program provides residents with the tools to become transformative leaders across VA and the Nation.

Conclusions

The innovative national curriculum and significant alumni contributions to health care quality and academic medicine has positioned the CRQS Program as the leading HPE training program in the nation in quality and patient safety.

Learning Outcomes

- Recall the history, mission and vision of the VA Chief Resident in Quality and Safety (CRQS) Program
- Discuss the curriculum of the VA CRQS Program, including the milestones and Entrustable Professional Activities (EPAs)
- Recognize positive outcomes related to the VA CRQS Program

ID 22496: Randomized Controlled Trial of Prazosin for Prophylaxis of Posttraumatic Headaches in Active Duty Service Members and Veterans

Selected presentation type: Poster

Description of presentation: This poster will present results of a pilot study evaluating the safety and efficacy of the medication prazosin for treating posttraumatic headaches (PTH) in active-duty Service Members and Veterans. PTH is a very common and frequently treatment-resistant sequela of mild traumatic brain injury (mTBI) that for some patients can cause substantial disability, distress, and lost work time. The paucity of randomized controlled trial (RCT) data addressing PTH prophylaxis continues to necessitate an empiric approach based on the predominant headache type an individual patient's PTHs most closely resemble. Favorable results from a prior open-label study of prazosin in Veterans with mTBI, PTSD, and sleep disturbance as well as the incidental observation of decreased headache frequency and severity in an RCT of prazosin for combat-related PTSD provided the impetus for the RCT reported here. The study population was comprised of 48 active-duty Service Members and Veterans recruited from the Madigan Intrepid Spirit Center and VA Puget Sound. Study inclusion required headache onset or worsening within 90 days of mTBI and moderate to severe headaches on at least 8 days averaged over 4 weeks, confirmed during a pre-treatment baseline phase. Enrolled participants were randomized 2:1 to prazosin or placebo. Study drug was titrated over 5–7 weeks to a maximum dose of 5 mg morning and 20 mg evening, or as tolerated. Each participant kept a daily headache log and remained on the achieved study drug dose for 12 weeks. Intent-to-Treat multi-level data analysis of randomized study participants (prazosin N=32; placebo N=16) demonstrated greater reduction over time in 4-week frequency of headache days (primary outcome measure) in the prazosin compared to placebo group. At the end of 12-weeks of treatment, compared to the placebo group, the prazosin group had a mean (\pm standard error) 4-week headache day reduction of 5.2 ± 1.8 (p 0.0053). Secondary outcome measures including (1) percent participants with at least a 50% decrease in headache frequency and (2) headache-related disability, as measured using the Headache Impact Test-6 score also significantly favored the prazosin over placebo group ($p \leq 0.020$ for both). For the final month of treatment, $70 \pm 8\%$ of the prazosin group had a $\geq 50\%$ decrease in frequency of headache days compared to $29 \pm 12\%$ for the placebo group. HIT-6 scores decreased significantly in the prazosin compared to placebo group, with a mean 12-week score difference of 6.6 ± 2.2 , bringing the prazosin group from the “severe impact” range at baseline to the “some impact” range, with no categorical shift from “severe impact” in the placebo group. Prazosin was generally well-tolerated and study retention through 12 weeks of treatment was high for both the prazosin and placebo groups (94% and 88%, respectively). Most PTHs in the study population had migraine features. Effect sizes for prazosin in this pilot study were at least as large as seen in studies of approved migraine prophylactic treatments. Larger studies of prazosin prophylaxis for PTH are needed to confirm the present results and to identify potential “personalized medicine” predictors of individual responsiveness to prazosin for PTH.

Learning Outcomes

- Appreciate the impact of posttraumatic headaches and the imperative for finding effective treatments.
- Understand the importance of randomized controlled trials for substantiating evidence-based
- Be informed of the potential role of prazosin in treating active-duty Service Members and military Veterans.

ID 22497: Medical Standards Analytics and Research (MSAR): Harnessing Decades of Analytical Experience to Propel Expansion and Innovation

Selected presentation type: Poster

The Medical Standards Analytics and Research (MSAR) program at the Walter Reed Army Institute of Research provides vital data analytics capabilities and reporting to inform DoD enterprise-wide medical accession and retention standards and disability policy for the Assistant Secretary of Defense for Health Affairs (ASD(HA)).

MISSION: Execute descriptive, predictive, and prescriptive analytics using epidemiological methods to assess the impact of pre-existing medical conditions, occupational exposures, diseases and injuries on military service. Integrate relevant operational, clinical, and economic considerations into evidence-based DoD policy decisions aimed at optimizing selection, retention and medical readiness of Service members.

VISION: Deliver real-time tailored evidence-based analytical research to inform DoD policy decisions, deliver actionable solutions, and measurably enhance medical readiness and resilience of the military service members.

BACKGROUND: In 1995, at the request of ASD(HA), the Surgeon General of the Army established WRAIR Accession Medical Standards Analysis & Research Activity (AMSARA) program to provide the DoD with enterprise-wide evidenced-based evaluations of accession medical standards. In 2009, ASD(HA) expanded AMSARA's mission to include studies of the Disability Evaluation System, establishing the Disability Evaluation System Analysis and Research (DESAR). In 2020, these programs were further expanded, resulting in the formation of the MSAR program.

CAPABILITIES: MSAR is composed of military and civilian DoD physicians, epidemiologists, statisticians, and data analysts ranging from master's to doctorate level with decades of experience in military health and readiness. It develops metrics for data visualization, historic perspective, temporal trends, cause-effect associations, correlations, and analytical insights for future predictions offered to the leadership and communicated across the DoD. It maintains analytical capabilities that can be rapidly employed in response to inquiries from the Military, DoD, and Congress.

IMPACT: Knowledge Products include annual reports, research studies, dashboards, presentations, and other materials to inform policy decisions regarding accessions, retention, deployments, and disability for the entire DoD enterprise:

1. Publicly available AMSARA and DESAR annual reports help guide DoD policy recommendations to enhance readiness, resilience, and health protection.
2. Quarterly presentations facilitate evidence-based decision-making for the Accessions and Retention Medical Standards Working Group (ARMSWG), Disability Advisory Council, and Medical Personnel Executive Steering Committee.
3. Metrics provided to the ARMSWG have been critical in the revision of DoDI 6130.03 Medical Standards for Military Service. V1: Appointment, Enlistment or Induction and V2: Retention.
4. Analytical support was instrumental for responses to Congressional requests on the FY21 NDAA House Report on mental health history, the FY21 NDAA HASC report on disqualifications due to psychiatric illness, and role of sleep apnea waivers on military accessions.
5. Two studies executed in collaboration with the Psychological Health Center of Excellence generated literature review and estimated the military transgender policy impact on accession, retention and adverse attrition.

Learning Outcomes

- Recognize the necessity of evidence-based DoD policy decisions aimed at optimizing selection, retention and medical readiness of the Service members
- Discuss interdependence of accession and retention medical standards at the DOD population level
- Explain how to derive meaningful analytical insights for optimal DoD medical readiness policy recommendations

ID 22498: Utilization of Mentorship to Foster Mental Health Balance in Public Health Service Officers

Selected presentation type: Poster

Officers are often impacted by various unavoidable stressful situations that often result in the need for the advice of a seasoned officer to navigate through their situation. Dinner with a Captain (DWC) is an initiative that allows small groups of officers to meet and interact with a senior officer (O-6 or higher) in an informal dinner setting to network and obtain career guidance. Initially, DWC participation had been limited to in-person involvement but was later expanded to include virtual dinners. Based on attendees' surveys, the virtual dinners' quality is comparable to in-person dinners. While already amid significant leadership changes, the COVID-19 pandemic raised unique challenges for PHS officers that resulted in new and many strenuous obligations. These obligations contributed to a reduction in morale and officer engagement. Strengthening the satisfaction and engagement of PHS officers through adequate mental health resources is one of the top priorities of the Office of the Surgeon General and Health and Human Service agencies. DWC has impacted over 1200 officers and received overwhelmingly positive survey responses from participants and several Chief Professional Officers. The Captains hosting the dinners reported that they also learned from these experiences and enjoyed reconnecting with junior officers. The junior officers expressed an appreciation for the opportunity to have direct access to senior leadership willing to address current and future topics contributing to the advancement of the health and safety of our nation. After attending DWC activities from the first three quarters of 2022, junior officers were motivated and uplifted and as a result, 47% planned to lead or engage in an outreach program, and 51% were inspired to seek or expand collateral duties at their agency or via a PHS initiatives. The findings demonstrate that DWC virtual and in-person educational mentorship sessions were provided to ensure development and promote officer engagement stationed across the United States. DWC mentorship program fosters a mental health balance by offering officers opportunities to interact with both senior and junior officers. This connection combats feelings of isolation and creates higher levels of engagement. Programmatic plans include identifying barriers that prevent officers from engaging in outreach programs and seeking collateral opportunities.

Learning Outcomes

- Recognize how fostering relationships with senior officers can support balancing mental health.
- Describe how mentorship between senior and junior officers can inspire interest in collateral duties at an agency level or with PHS initiatives.
- Identify how mentorship can positively influence junior officers to lead or engage in outreach programs.

ID 22500: Provider Differences in Costs and Quality of Primary Care Services Provided to Patients with Mild Traumatic Brain Injury in Military Treatment Facilities

Selected presentation type: Poster

The shortage of primary care physicians (PCPs) in the US is a longstanding problem, which has been found to be associated with long-term adverse health outcomes. The literature on whether expanding the use of nurse practitioners (APRNs) and physician assistants (PAs) in the provision of healthcare services, particularly in primary care settings, is a cost-effective way to address the PCP shortage issue is inconclusive. Given the extent to which the Military Health System (MHS) uses APRNs and PAs in the provision of healthcare services in military treatment facilities (MTFs), this situation provides us with a unique opportunity to empirically test this hypothesis while addressing two important challenges common in the use of observational data: patient selection and provider case mix. Considered as the “signature” injury of Operation Enduring Freedom/Operation Iraqi Freedom (OEF/OIF) and Operation New Dawn (OND) wars, studies have found traumatic brain injury (TBI) incidence rates of up to 23% in Active-Duty Service Members (ADSMs) who participated in these wars. Hence, findings from this study will inform better allocation of resources to improve health outcomes for patients diagnosed with mTBI as well as military readiness. This study used data from the 2016-2020 Military Data Repository (MDR), which has administrative claims data on about 9.5 million beneficiaries in the MHS on: 1) 4,553 PCPs matched with 11,788 patients diagnosed with mTBI; 2) 1,714 APRNs matched with 6,217 patients with mTBI; and 3) 3,743 PAs matched with 10,841 patients. To account for provider case mix, the sample was stratified into 4 categories depending on “complexity, amount of time, risk of medical complications, or mortality” associated with the “evaluation and management” encounter. We used mixed effects Generalized Linear Models (GLMs) with log link and gamma distribution to estimate costs and mixed effects logistic regression models to estimate four quality of care metrics based on the current guidelines for treating mTBI (percentage receiving a health risk assessment during the visit, percentage hospitalized within 6 months after the index visit; percentage receiving a brain MRI; and percentage receiving a neuro-psychological test during the visit). The key independent variable was provider specialty (PCP was the reference group, APRN, PA) and we controlled for provider’s sex, race/ethnicity, marital status, military, civilian or contractor status, and assigned treatment facility branch of service as well as patient’s age, sex, race/ethnicity, marital status, military pay grade or rank, deployment status, branch of service, Neurobehavioral Symptoms Inventory (NSI), comorbidity and time effects. Multivariate models show that the costs of primary care services provided by PAs to patients diagnosed with mTBI are lower compared to PCPs ($p < 0.001$) and APRNs provide the most cost-effective care when providing neuropsychological care ($p < 0.01$). This implies that there could be potential cost savings when healthcare systems substitute APRNs or PAs to address issues of PCP shortages without a negative impact on the quality of care provided to patients.

Learning Outcomes

- Learn about the problem of primary care physicians (PCPs) workforce shortage in the US, its adverse long-term outcomes and potential cost saving solutions to address this problem
- Learn about the significance of mild traumatic brain injury (mTBI) in the military and how the use physician assistants (PAs) might be a cost saving solution to treat these patients in primary care settings
- Learn about the opportunity offered by the Military Data Repository (MDR) to conduct rigorous research in health economics and health services research to provide credible information to key stakeholders in the Military Health System (MHS)
- Learn about potential solutions to address issues of sample selection and provider case mix in the use of observational data
- Learn about the implementation of patient attribution method in administrative claims data

- Analyze data from the 2016-2020 Military Data Repository (MDR) to estimate costs and mixed effects logistic regression models to estimate 4 quality of care metrics based on current guidelines for treating mTBI
- Assess findings from this study to inform better allocation of resources to improve health outcomes for patients diagnosed with mTBI as well as military readiness.
- Consider whether there could be potential cost savings when healthcare systems substitute APRNs or PAs to address issues of PCP shortage without a negative impact on the quality of care provided to patients with mTBI

ID 22501: Capturing Quality Data for Battlefield Readiness Analysis in the Military Health System with Specialty-Trained Coding Teams

Selected presentation type: Poster

Current procedural terminology (CPT) codes generate relative value units (RVUs) that measure individual productivity and facility work. CPT codes serve the military purpose of determining provider skill and combat readiness. This study analyzed CPT coding in two critical wartime surgical subspecialties over two fiscal years (FYs): one FY before and after embedding a specialty-trained coder, auditor, and specialty-specific surgeon champion trained in coding.

Data was collected from the MHS Data Mart Direct Care Comprehensive Ambulatory/Professional Encounter Record (CAPER) claims records for Vascular (VS) and Neurosurgery (NS) at Brooke Army Medical Center for pre-intervention FY2017 and post-intervention FY2019 to determine procedural CPT code frequency per encounter and RVUs per FY. Each encounter's CPT code frequency was captured and grouped as low (1-3), medium (4-6), or high (7-10). The primary objective was to determine if specialty-trained coding teams captured procedural CPT codes more accurately. The secondary objective was to analyze changes in work RVUs to identify each service's unique threshold metrics for future implementation of specialty-trained coding teams. Descriptive statistics were used for continuous measures and categorical variables. A negative binomial regression was performed to determine if a specialty-trained coding team impacts the number of procedures coded per encounter with department subspecialty included as a covariate. A Wilcoxon rank-sum test was performed to compare RVUs in the pre-and post-intervention periods for each department.

Analysis demonstrated a post-intervention increase in medium (7.5% to 15.3%, $p < 0.001$) and high (1.2% to 6.1%, $p < 0.001$) CPT code frequency. There was a 23% decrease in the proportion of encounters with low CPT code frequency (91.3% to 78.5%, $p < 0.001$). Negative binomial regression demonstrated that the intervention was a statistically significant predictor of the number of procedures coded ($b_{FY19} = 0.124$, $se = 0.008$, $p < .001$). A Wilcoxon rank-sum test demonstrated a statistically significant increase in median provider aggregated work RVUs in the post-intervention period after the specialty-trained coding team was embedded (FY2017=1.92 FY2019=4.36, $Z = -20.33$, $p < 0.001$). Line plot of each FY's percentage of encounters with 1-10 CPT codes cross at 3 CPT codes (NS=10.2%, VS=10.6%), leading to the conclusion that services with 3 CPT codes captured in 10% of procedures and 4 CPT codes in 4% of procedures (NS=4.8%, VS=4.2%) would benefit from this intervention. Increase in CPT code frequency of 3 or more was also statistically significant (NS= 24.9% to 27.7%, $p = 0.032$; VS= 16.8% to 36.2%, $p < 0.001$), with the overall change of 19.3% to 30.3% ($p < 0.001$) across both services.

Specialty-trained coding teams increase CPT code capture and RVUs per FY. Accurate coding is the foundation for battlefield readiness and productivity analyses that provide leadership decision support for future investments optimizing battlefield capabilities. As military metrics move toward CPT code-based assessments of skills and battlefield readiness, the importance of accurate coding is even greater. Our analysis demonstrates that establishing a specialty-trained coding team enhances procedure coding. We identified three thresholds for targeting expansion: current service baseline at 10% of procedures with 3 CPTs/procedure, 4% with 4CPTs/procedure, or 19% with 3 or more CPTs/procedure.

Learning Outcomes

- Describe the importance of accurate CPT code capture for battlefield readiness analysis
- Discuss the utility of adding a specialty-trained coding team to increase the number of CPT codes per encounter to more accurately reflecting procedural work.
- Predict how a specialty-trained coding team can increase the number of RVUs generated per fiscal year
- Restate the thresholds identified to target additional services and specialties that would benefit from this specialized, underutilized resource.

ID 22502: Department of Veterans Affairs Clinical Role Innovation for Transitioning Military: Intermediate Care Technician

Selected presentation type: Poster

Launched as a pilot in 2012 and transitioned to an established National Program in 2014, The Department of Veterans Affairs (VA), has created an innovated healthcare role, Intermediate Care Technician (ICT). The premise of the ICT Pilot Program was to hire 45 transitioning military allied health professionals who had graduated from intensive specialized military medical training programs and served as combat medics, medical technicians, and corpsman into positions within 15 VA Emergency Departments (ED). This new role utilized the skills of former medics and corpsmen to provide Veteran-centered care. A 2014 pilot after action report prepared by the Office of Nursing Services surveyed ED staff who reported that the ICTs demonstrated good clinical skills, were professional and self-motivated, increased the productivity of the licensed staff, improved department throughput, and were easily accepted by Veteran patients who shared service-related experiences. The 2022 Healthcare Analysis and Information Group (HAIG) Veterans Health Administration ED and Urgent Care (UC) Survey provided benchmark information showing 42% (59/139) of facilities (81% urban tertiary care centers (48/59)) reported utilizing ICTs in their ED or UC. The most common ED clinic roles were minor procedure provider extenders, COVID-19 responders, and Fast Track flow technicians. Survey responders ranking in order of importance felt that the benefits of having ICTs are increased patient throughput, increased workplace satisfaction among the staff, and allowing ED licensed staff to work at their highest level of scope. The current National ICT Program is designed to (1) allow ICTs to function in a health care role commensurate with their military education, training, and experience without the need for a license or additional credential; (2) enhance quality of care and patient satisfaction among Veterans in multiple clinical settings and; (3) enable a path for ICTs to attain licensed professional roles through advanced education and clinical opportunities for long-term VA employment. Based on the successful implementation in the ED, over the last five years ICT clinical roles were expanded into multiple clinical areas. In 2020, permanent national program oversight was established under the VA Clinical Services, Office of Primary Care. As of September 30th, 2022, there are over 500 ICTs in over 80 VA Medical Centers, providing care in over 20 different operational areas, including Critical Care, Specialty Clinics, and Surgical Service, with an additional 250 new positions approved in 2020. Primary Care, a newer ICT focus area shows significant growth with over 65 new locations in the past year.

Learning Outcomes

- Define the innovative VA role of Intermediate Care Technician.
- Discuss VA Intermediate Care Technicians and their impact within Emergency Departments.
- Understand and describe the feasibility of this unique role within a civilian healthcare system.

ID 22515: Public Health Nurses - Force Multipliers, an in-depth look at how Public Health Nurses impact our fleet

Selected presentation type: Poster

As the COVID-19 pandemic raged on into the Omicron wave in my host nation of the Kingdom of Spain and COVID-19 boosters became available, it became apparent that my nursing specialty, Public Health were pulling a heavy weight with our small but mighty community. With only 20 active component service members, we serviced stop-gaps in all capacities from Alternate Public Health Emergency Officers to Epidemiologists to Cold Chain Logisticians. As I was working temperature sensitive medical product logistics for mobile strike groups, my peers were advising and implementing COVID-19 processes that kept the Navy's accession and training operations going, mobilizing partners to increase vaccine acceptance and more. So when I was asked the question one day—what do Public Health Nurses (PHNs) do? I smiled and, oversimplifying, said “Everything.”

This poster will deliver the following objectives:

- Define fundamental roles of military public health nurses (PHNs) in the dynamic forward deployed setting.
- Discuss how Force Health Protection was applied in mitigating COVID-19 and optimizing Fleet Operations from the PHN scope of practice.
- Identify barriers and mission impacting limitations that can be overcome through the PHN scope of practice.

Navy Public Health (1940) Nurses provide the fleet with a population focus and a unique set of foundational responsibilities as outlined by their 10 essential public health services: 1. Monitor health status to identify and address force health challenges 2. Diagnose and investigate health problems and health hazards within our organization 3. Inform, educate, and empower populations about health issues 4. Mobilize community partnerships and action to identify and solve health problems 5. Develop policies and plans that support individual and force health efforts 6. Enforce laws and regulations that protect health and ensure safety 7. Link people to needed personal health services and assure the provision of healthcare when otherwise unavailable 8. Assure competent public and personal force health workforce 9. Evaluate effectiveness, accessibility, and quality of personal and population-based health services 10. Research for new insights and innovative solutions to health problems Through their 10 essential public health services, PHNs assisted 147 tenant commands in Fifth Fleet, 138 commands in Sixth Fleet, and 52 units under Naval Service Training Command, mitigate COVID-19 to keep the Navy going. This allowed NMRTC Great Lakes to continue accessions when other branches limited their training. The Iberian Peninsula initiated the Navy in vaccine acceptance during the COVID-19 vaccine rollout, with Sixth Fleet noting that their operations continued almost unimpeded during the pandemic. This success demonstrated how Navy PHNs overcome barriers for manning and operational limitations by filling essential roles as APHEOs, Population Health Experts propelling vaccine acceptance, policymakers that help commands meet higher echelon requirements, and frontline nurses who are effective clinicians.

Learning Outcomes

- Define fundamental roles of military public health nurses (PHNs) in the dynamic forward deployed setting.
- Discuss how Force Health Protection was applied in mitigating COVID-19 and optimizing Fleet Operations from the PHN scope of practice
- Identify barriers and mission impacting limitations that can be overcome through the PHN scope of practice.

ID 22517: Promoting Female Force Readiness through Advancement of Operational Provider Proficiencies

Selected presentation type: Poster

This presentation will spotlight the Operational Provider Training Development (OPTD) Working Group (WG), established by the Female Force Readiness Navy Medicine Operational Clinical Community (FFR NMOCC) and Navy Bureau of Medicine and Surgery (BUMED) Office of Women's Health (OWH). This WG was launched in April 2021 to create curriculum to advance and standardize Navy Medicine operational providers' competency in women's health. The OPTD WG is a cross-collaborative effort with representation from 30 Naval operational and medical leaders, including General Medical Officers (GMOs), Flight Surgeons, Battalion Surgeons, Independent Duty Corpsmen (IDCs), and more. This effort was launched as a result of findings from the 2020 Women's Health Readiness Assessment, an ethnographic research study which engaged Navy and Marine Corps providers and operational leadership to identify the barriers to providing women's healthcare in the operational setting and maintaining medical readiness of the female force. Readiness Assessment findings demonstrated a lack of consistent training and exposure to female patients impacting operational providers' ability to maintain female medical readiness. For example, 20% of GMOs and 22% of IDCs reported they were not adequately trained or resourced to treat the most common women's health issues they encounter. Further, 22% of IDCs reported having no specific women's health training in preparation for deployment.

Underprepared operational providers create risk to force readiness when they are not properly trained to treat women's health issues that directly threaten service member deployability. Codifying the requirement to be able to provide basic women's healthcare as a requirement is a crucial step to ensuring operational providers are ready to support the expanding female force. In response to this challenge and requests from operational providers and leaders, the OWH identified five women's health proficiencies that are essential for operational providers. To create the curriculum and training materials needed to equip operational providers in gaining knowledge and skill in the five women's health proficiencies, the OWH and the FFR NMOCC established the OPTD WG. In July 2022, the OWH finalized the development of the Operational Provider Training and presented these materials at the Armed Forces Operational Medicine Symposium (AFOMS) to pilot the training curriculum with IDCs. Ultimately, this effort will ensure that operational providers are equipped with the medical capabilities required to maintain and promote female force readiness across the Navy and Marine Corps, increasing deployability and strengthening the total force.

Learning Outcomes

- Understand how underprepared operational providers create risk to force readiness across the Naval enterprise.
- Understand how the five critical women's health proficiencies promote and maintain women's health in all environments.
- Understand how addressing women's health disparities within the Navy and Marine Corps will advance force readiness.

ID 22520: Utilizing Virtual Reality to Assess Pediatric Combat Casualty Care

Selected presentation type: Poster

Introduction

Civilian casualties are a hallmark of modern warfare. United Nations (UN) casualty reports cite civilian casualties peaking in Afghanistan during 2016 with 7,925 wounded (2592 children) and 3527 killed (926 children). The UN has confirmed 972 children have been killed or injured after the invasion of Ukraine, an average of over 5 children per day.

Despite the increasing numbers of pediatric casualties over the last 10 years, evidence suggests that non-pediatric providers feel pre-deployment training is insufficient and does not provide the necessary skills or confidence to resuscitate critically injured pediatric patients. Poly-trauma injury patterns suffered by children in combat environments do not replicate the patterns seen in non-military civilian traumas, and often includes a combination of traumatic brain injuries (TBI), penetrating injuries and burns. Severe TBI, defined as a Glasgow Coma Scale ≤ 8 , has been shown to be an independent risk factor for mortality.

It is critical that future development of pre-deployment training focuses on the unique injury patterns sustained during military operations to provide clinicians with the necessary skills and competencies to care for critically injured pediatric patients. Therefore, we propose a novel Virtual Reality (VR) curriculum of simulated pediatric casualties with injury patterns adapted from the Department of Defense Trauma Registry.

Study Design:

This is a descriptive analysis of a pediatric poly-trauma VR curriculum developed for providers of all skill levels expected to care for pediatric combat casualties in a deployed military medical treatment facilities. The cases include a 9-year-old female who sustained multiple severe injuries after a blast injury, a 5-year-old male with a penetrating thoracoabdominal injury, and a 3-year-old female with catastrophic burns.

Participants will be given an orientation to VR that requires successful completion of an unrelated patient case. After completion, participants will be randomly assigned to one of the three poly-trauma scenarios. The first case, for example, will progress through a severe TBI. If participants fail to recognize the decline in neurologic function, the patient will slowly progress to cerebral herniation. Study metrics include time to completion of the primary survey, time to recognition of life threatening injuries, (through verbalization and outcome directed interventions), and adherence to clinical practice guidelines. Findings will be stratified based their level of training, exposure to pediatrics/pediatric trauma, history of pre-deployment trainings, and prior deployment.

Next Steps

This descriptive analysis will serve as a preliminary evaluation of the pre-deployment readiness of military medical providers to care for pediatric combat casualties with severe poly-trauma. Secondly, these results will assess the clinician's ability to provide evidence-based, guideline-adherent care.

Learning Outcomes

- Report the incidence of pediatric combat casualties
- Identify that most providers are uncomfortable with pediatric KSA's
- Recognize the need for improved pediatric pre-deployment trauma training

ID 22524: Health of Recent U.S. Military Recruits and Evaluation of Pre-accession Medical Disqualifications as Predictors of Early Discharge

Selected presentation type: Poster

To ensure a fit, healthy force, each military recruit is medically evaluated under DoDI 6130.03 Volume 1, which lists disqualifying accession medical standards. Leveraging longitudinal data from pre-enlistment application to end of service, this study describes the health of the recent enlisted recruit pool, based on medical disqualifications (DQ) from the MEPS physical exams, and assesses the impact of pre-accession medical characteristics on readiness, including a service member's ability to complete their first enlistment term. Of the 1.4 million recruits medically screened at a MEPS between FY 2016-2020, 13-15% were considered to be medically disqualified. The most common reasons for medical DQ were related to eyes/vision (25%), musculoskeletal (25%), and psychiatric disorders (20%). From an accession standpoint, only 8% of all enlisted service members entered service with history of a medical DQ and approved medical waiver. Approximately 12% of both medically disqualified service members and those medically qualified at MEPS (MQ) had an early separation (within 3 years of service). Over 80% of early separations were due to adverse attrition, which typically occurred in the first year (70%). Early disability and EPTS discharges were rare outcomes, each occurring in less than 2% of recruits. The overall likelihood of adverse attrition or disability discharge did not significantly differ between MQ and DQ service members; conversely, DQ service members were 7% more likely to be EPTS discharged than MQ service members. When assessing specific disqualification categories, based on the DoDI 6130.03 Volume 1, the likelihood of early discharge also did not significantly differ between the two groups for most DQ categories. However, there were a few notable exceptions for each discharge type. Service members medically disqualified under the eyes, vision, or rheumatologic categories were 8-50% more likely to adversely attrite than their MQ counterparts. Likelihood of disability discharge was 24-64% higher among those disqualified for an extremity-related DQ category; however, concordance between DQ and reason for disability was low (<2%). EPTS discharge was 21-30% more likely to occur among those medically DQ'ed for spine or lower extremities than MQ service members. Yet, there was little concordance between DQ and reason for EPTS discharge (<2%). The most common reasons for EPTS discharge were psychiatric disorders (40-60%) and musculoskeletal conditions (15-45%), which were typically not disclosed at MEPS. This assessment provides critical information for policymakers tasked with optimizing recruitment and resilience by predicting those who may be medically separated early in service. Results may be used to inform DOD accession policy decisions, which allow for the selection of the candidates most likely to be successful Warfighters, and in turn, increasing military readiness by reducing early discharge.

Learning Outcomes

- Explain the health of the current military recruit pool, based on MEPS physical examination results
- Assess early separation rates by pre-accession medical qualification status and disqualification category
- Evaluate pre-accession medical disqualifications as predictors for medical readiness

ID 22527: Prevention of Falls in Elderly

Selected presentation type: Poster

Falls involve accidental movement toward the floor with or without loss of consciousness or injury. Falls are the leading cause of fatal and nonfatal injuries among persons age >65 yrs of age. Fear of Falls can lead to reduced activity, reduced fitness and increase risk for falls. Sequele of Falls: Associated with decline in functional status and Nursing Home placement. Annual incidence of falls in community-dwelling patients older than 65 is around 28-35 % and reaches 40 % older than 75 yrs of age.

Will discuss about Risk for Falls, Screening and Assessment, Intervention. AGS 2010 guidelines, USPTF 2018-recommendations.

Summary: Prevention of Falls: Community -based and home-based exercise programs focused on balance and strength training are effective in reducing the risk of falls among older adults

For persons at high risk for falls(e.g.,2 or more falls in the past year), assessing standard set of risk factors for falls and intervening to address modifiable risk factors reduces the likelihood of subsequent falls.

References : USPTF: Falls Prevention in Older Adults, J Am Geriatric society, CDC.Gov, NEJM 2020, Public Health England(2017)

Learning Outcomes

- Risk for falls
- Screening and Assessment
- Intervention

ID 22528: Epidemiology of Disability Evaluation and Discharge among Service Members Evaluated between Fiscal Years 2017-2021

Selected presentation type: Poster

Occupational illness and injury have a significant impact on the retention the personnel in both the civilian and military work force. This study assesses the overall epidemiology of service-connected disability discharge in United States Department of Defense. The primary aim of this study is to evaluate trends observed in the demographic, service, and medical characteristics of the over 132,000 service members evaluated by the service-specific Physical Evaluation Boards between fiscal years 2017 and 2021. Leveraging pre-accession, deployment, and healthcare data, this study describes the health of the disability population, evaluating the concordance between reason for disability and pre-accession and recent medical characteristics. The overall rate of disability evaluation varied by service, ranging from 8 per 1,000 service members in the Air Force to 16 per 1,000 service members in the Army, with a slight downward trend over the study period for the Army, Marine Corps, and Air Force. Rates of disability were higher among active duty, enlisted, and female service members when compared to the total force. Across the services, the most common disabling conditions were found to be musculoskeletal (ranging from 35-64%), psychiatric (25-44%), or neurological (16-24%) in nature. Notably, an upward trend was seen among Sailors and Airmen being evaluated for a psychiatric disability. The most common conditions within the musculoskeletal category were the same for all services and included dorsopathies (e.g., vertebral fracture, sacroiliac injury, lumbosacral strain, and degenerative arthritis) and the limitation of motion of joints while post-traumatic stress disorder and mood disorders lead the common conditions within the psychiatric category. Paralysis was found to be the most common condition within the neurological category among Soldiers, Marines, and Airmen with migraines being the most common condition seen among Sailors. The majority of the common conditions (4 out of 5) were the same, regardless of the service member having been deployed or having a combat determination. The population of disability discharged service members had similar proportion of history of pre-accession medical disqualification and medical waiver as the general military population (7-8%). However, very little concordance was noted between pre-accession medical disqualifications/waiver and reason for disability (<2%). When assessing hospitalizations within one year of disability evaluation, 80% of primary diagnoses were psychiatric disorders, including mood and anxiety disorders. Some concordance was observed between reason for hospitalization and reason for disability with the highest observed among those disability discharged for a psychiatric-related condition (8-22%). These analyses provide impactful descriptions of the current disability population to policymakers and medical providers tasked with evaluating and retaining service members, highlighting conditions and characteristics that are commonly associated with disability discharge. Results of this study could be used to inform DOD retention and disability policy decisions to improve the readiness and lethality of Warfighters and uphold a highly retainable force.

Learning Outcomes

- Describe the rates of disability discharge and analyze trends
- Understand the epidemiology of disability discharge from service
- Evaluate the relationship between pre-accession and recent medical characteristics and disability discharge

ID 22530: Military Working Dogs: Sentinels for Deployment-related Health Implications in Service Members and Veterans

Selected presentation type: Poster

Military exposure concerns have become increasingly important in recent years, as evidenced by the recent passing of the "Sergeant First Class Heath Robinson Honoring Our Promise to Address Comprehensive Toxics Act of 2022". Military working dogs (MWDs) are deployed to and work in the same environments as Service members and, therefore, are exposed to the same hazards. To better understand the potential consequences of military-related exposures on health, VA's Health Outcomes Military Exposures (HOME) is partnering with the Force Health Protection's Veterinary Services (VS) to create a consolidated database of MWD records detailing demographic (e.g., breed, sex, permanent duty location), deployment (e.g., location, dates) and health-related information (e.g., medical diagnoses, pathology findings) for each dog that died while owned by the military. This searchable database can be queried to investigate the health implications of certain deployments and duties in MWDs. As a proof-of-concept, HOME and VS have begun examining these data to determine the occurrence of system-level adverse health outcomes. Future work will compare the health of dogs that deployed to the regions of the recent conflicts to those that did not deploy and/or that deployed to areas with different potential exposure profiles. Going forward, this database may be used to study MWDs for sentinel health information on military personnel in past and future deployments.

Learning Outcomes

- Identify the types of information available in the Military Working Dog Database.
- Identify common health outcomes observed in military working dogs.
- Understand how studying the health of military working dogs can lead to identifying potential outcomes in Service members and Veterans.

ID 22532: Can New Enlistees with an Adjustment Disorder Recover from Musculoskeletal Injuries During Basic Training?

Selected presentation type: Poster

Basic Combat Training constitutes the first exposure to military life for most enlistees, and is the first time away from the home environment for many. Adjusting to this new life situation is one of the major challenges facing enlistees. Not surprisingly, Adjustment Disorders constitute one of the most common categories of mental health issues affecting new recruits. Past research has suggested that enlistees with a history of Adjustment Disorders are at elevated risk of early separation from service. This analysis examines whether recruits struggling with adjustment issues have more difficulty overcoming the physical and motivational hurdles frequently encountered during the course of Basic Combat Training (BCT) compared to enlistees without adjustment issues. In particular, we examine the rate at which enlistees with an identified Adjustment Disorder are able to remain in service after experiencing a musculoskeletal injury. We compare attrition in this group to that among soldiers who experience a musculoskeletal injury during BCT, but who do not have indication of an Adjustment Disorder. We identified Army enlistees in FY 2015-2020 who had a clinical encounter for an Adjustment Disorder during Basic Combat Training (BCT), and subsequently acquired a musculoskeletal injury. Attrition among these service members was dramatically higher than among injured soldiers without indication of Adjustment Disorder. The difference in attrition rates was apparent almost immediately after the initial time of injury, and increased over the next few months. The vast majority of soldiers with Adjustment Disorder and subsequent injury were separated from service within 3 months after the first clinical encounter for injury. This work suggests that additional support may be needed for enlistees with adjustment issues before they face additional hurdles. Future steps in this research may include expansion of study to include other service branches, examination of those who remained in service to see if any common links can be identified, and examination of issues identified in pre-accession examination.

Learning Outcomes

- Understand frequency of clinical visits for Adjustment Disorder during Army BCT
- Quantify rate of attrition from service among soldiers with an Adjustment Disorder who acquire a musculoskeletal injury

ID 22533: Effect of combat and mission related repetitive blast and blunt force TBI on cerebral vasomotor reactivity and response to integrative medicine therapies

Selected presentation type: Poster

Effect of combat and mission related repetitive blast and blunt force TBI on cerebral autonomic injury and response to integrative medicine therapies

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Objective: Traumatic Brain Injury (TBI) and operational stressors are known to cause disturbances of cerebral autonomic function. Exposure, type, and severity of TBI remains poorly understood with regards to extent to which total exposure of external forces cause cerebral autonomic dysfunction and the extent of recovery following directed treatment modalities. Integrative medicine therapies including creative arts, such as art and music therapy, and mindfulness and yoga therapy have been postulated to improve or balance sympathetic and parasympathetic disturbance. The goal of this study is measure the severity of autonomic disturbance as a function of total TBI event exposure in service members with combat and mission training events. We also endeavor to assess the impact of TBI exposure on rate of recovery during a 4 week interdisciplinary intensive outpatient program that utilizes integrative medicine techniques to restore autonomic dysfunction.

Methods: Active duty service members (n=46) with combat and mission related TBI and enrolled in the intensive four-week outpatient treatment program (IOP) at the National Intrepid Center of Excellence (NICoE) in Bethesda, Maryland were invited to consent to an IRB approved protocol to identify biomarkers of brain injury and measure response to putative integrative medicine therapies. Concussive and sub-concussive exposures of TBI were categorized as total, pre-military, military (blast) and (blunt) events with each event characterized as no sequelae, Alteration of Consciousness (AOC), Loss of Consciousness (LOC), and, post-traumatic amnesia (PTA). For the primary analysis total events and LOC were compare to cerebral autonomic function. Cerebral vasomotor reactivity (CVR), a validated indicator of cerebral autonomic function, was measured by transcranial Doppler (TCD) breadth holding index (BHI) procedure on admission and at discharge.

Results: Spearman's rank order correlation demonstrated an association between BHI and TBI exposure events for all categories, p value= 0.04. Military blast exposure had the greatest correlation with abnormality in CVR (p <0.005) Pair T-test showed that treatment with integrative medicine techniques resulted in significant improvement of CVR during the 4 week prog. Analysis of Covariance (ANCOVA) revealed that total event exposure was related to severity of BHI, p=0.004, with no correlation seen with LOC, p=0.868. One-way Analysis of Variance (ANOVA) showed that the highest 2 quartiles of event exposure showed reduced response to therapy compared to the lower 2 quartiles of exposure.

Conclusion: This research supports that TCD can be used as an autonomic biomarker of cumulative brain injury and as a metric to measure response to interventions. Findings support that autonomic dysfunction, measured by disrupted BHI, are associated with blunt and blast force exposure. Further, recording of LOC alone may be insufficient to quantify brain injury from combat blast and blunt forces mission exposure. Improvement of BHI was associated with engagement in mind-body techniques though exposure to increased number of blast and blunt force head trauma may require longer durations or earlier treatment.

Learning Outcomes

- Recognize the effects of repetitive mTBI on cerebral autonomic function and correlation with recovery

- Understand the effects of integrative medicine techniques including creative arts and mind body techniques on autonomic nervous system recovery
- Understand the value of transcranial Doppler as a tool for diagnosis and measure of recovery in traumatic brain injury and PTSD.

ID 22534: Collaboration With Federal, State, Local Law Enforcement and Private Medical Providers to Ensure Appropriate Care for Immigration Detainees.

Selected presentation type: Poster

The purpose of this poster is to demonstrate the collaborative work Field Medical Coordinators (FMC) perform with federal/state/local law enforcement and a myriad of private and public health systems to ensure quality medical care delivery to individuals in ICE custody at any of approximately 120 intergovernmental service agreement (IGSA) detention facilities across the country. ICE Health Service Corps (IHSC) is the only entity within ICE responsible for providing direct medical care for individuals in ICE custody. The mission of IHSC is to provide the safe delivery of high-quality medical care with the vision of being the best health care delivery system in correctional care. FMCs serve as the medical Subject Matter Expert (SME) for each of the 24 regional ICE field offices across the country in areas of environmental health, infectious disease, risk management and a host of other areas. Through collaboration with ICE, federal/state/local law enforcement, state/local health departments, and others, FMCs coordinate placement and transfer of noncitizens to the most appropriate facility to care for their individual medical and mental health needs. This includes arranging air or ground medical transport through IHSCs Resource Management Unit for noncitizens traveling across the country or back to their country of citizenship. FMCs work with the Global Tuberculosis Institute, Civil Rights groups, and foreign consulates, to ensure continuity of treatment for tuberculosis and other infectious diseases for detainees returning to their country of origin. FMCs provide medical consultation services to ICE staff regarding the health care of individuals in custody and those who may enter ICE custody. For instance, individuals released from the BOP, state prison or county jail who have an immigration detainer, the FMC will review the medical summaries and provide recommendations to ICE regarding whether to retain custody, identify appropriate housing and placement. FMCs determine where a detainee's medical needs can best be met and provide information to the Field Office Director that allows them to make an informed decision regarding custody. FMCs adjudicate all requests for outside medical care, ensure credentialing for community providers and initiate letters of understanding for enrollment and reimbursement for those community providers. FMCs monitor significant medical events such as hospital admissions, suicide watches or attempts, or hunger strikes. For instance, if a non-citizen is admitted to a local hospital, the FMC will provide daily reports to ICE and IHSC senior leadership until the non-citizen is discharged. FMCs routinely conduct quality of care reviews and inspections of their assigned detention centers and assist them to comply with ICE National Detention Standards. FMCs also frequently investigate medical grievances and complaints received from ICE staff, attorneys, Civil Rights groups, foreign consulates, or Congress. This process consists of performing a medical record review and documenting findings relevant to the complaint and then reporting those findings to IHSC senior leadership for review and dissemination. Through these efforts, FMCs have increased health care compliance within IGSA's and reduced the liability of the federal government by ensuring the provision of appropriate medical care.

Learning Outcomes

- State how IHSC ensures appropriate medical care reaches detained persons in non-IHSC facilities
- Identify how IHSC coordinate movement of detainees with special medical or mental health needs to facilities that can care for their specific needs
- Identify how FMCs ensure IHSC has a robust provider network of offsite providers to care for the detained immigration population

ID 22545: Safe Patient Handling and Mobility Programs: A joint integration between VHA and DHA as one system

Selected presentation type: Poster

Background:

The Captain James A. Lovell Federal Health Care Center (FHCC) is a first-of-its-kind partnership between the U. S. Department of Veterans Affairs and the Department of Defense (DoD), integrating all medical care into a federal health care facility with a single combined VA and Navy mission. Lovell FHCC is located in North Chicago, Illinois, and was established on Oct. 1, 2010, when the former North Chicago VA Medical Center (VAMC) and the former Naval Health Clinic Great Lakes (NHCGL) merged their resources and services. Lovell FHCC cares for active-duty military, their family members, military retirees, and veterans, with a combined patient population of nearly 75,000. Lovell FHCC has four main branch medical clinics on our East Campus, comprised of USS Osborne, USS Tranquility, USS Red Rover, and Fisher Clinic. These clinics support military members and recruits on Naval Station Great Lakes and Recruit Training Command. Through these clinics, we support the medical needs of 40,000 Navy recruits who are preparing for military service, as well as the medical needs of all local tenant commands.

Methods: The SPHM program led by the Facility Coordinator and peer leaders who manage the program across all spectrums of care to reduce staff and patient injuries by utilizing appropriate lifting and positioning technology. Combination services required some adaptation to accommodate and meet the needs of active duty military, trainees, as well as retired veterans. Extensive staff training and measurement of program outcomes are reported annually to determine program effectiveness. We will present the steps needed for a full integration of services across all patient care areas, some common challenges experienced to provide care for a very diverse population and the benefits of continuity of care. We will provide an overview of how the SPHM program elements can be achieved this diverse population and the outcomes we will be measuring over time.

Results: Shared VHA and DoD staff are able to work successfully with SPHM programs in an effort to fully integrate services. Inpatient care has met SPHM Directive requirements with continued room for growth. However; an expansion of SPHM services is needed to fully integrate the program in the outpatient campuses. Examples of technology needed in the outpatient areas revealed the need for Stryker powered stretchers and powered exam tables with the ability to raise and lower surfaces as well, falls rescue devices. There was positive feedback from the senior leadership about this integration with further expansion to be completed.

Conclusions and recommendations: The work started with program integration continues between both agencies as “ONE” given the diversity and health care needs of the populations served. This model provides an excellent ability for SPHM services to be provided from the “cradle to the grave” as one united organization by supporting the continuity of care across the life span. Recommendations include Integration of EHR that may provide valuable measurable outcomes over time and expansion of services throughout the entire outpatient service areas as a pilot site that can be replicated in other settings.

Learning Outcomes

- Describe how the SPHM program has direct impact on patient care outcomes for our unique population.
- List common safety interventions that are needed across the spectrum of care.
- Identify gaps in the program that will require more interventions over time across this diverse population.
- List 4 benefits of a combined agency and partnership that can be achieved over time.

ID 22546: Identifying Acute Respiratory Infections in Forward Deployed Troops

Selected presentation type: Poster

Background: The emergence of SARS-CoV2 in 2019 led to the implementation of significant public health measures to control transmission and prevent severe disease. Infection control measures such as universal mask wearing and social distancing combined with widespread access to diagnostic testing not only impacted the spread of SARS-CoV2 infections but those of other respiratory infections. Reported influenza cases and human metapneumovirus infections dropped to record lows. However, as the incidence rates of SARS-CoV2 infection declined and public health measures were lifted a concurrent rise in reported circulatory respiratory viruses were seen. Many overseas military exercises with partnered nations, that had stopped during the pandemic, were re-initiated. Limited data is available on the impact these changing public health measures have had on the respiratory infections impacting our forward deployed troops.

Methods: Prometheus 2.0 is an IRB-approved prospective, longitudinal study seeking to identify early biomarkers of contagiousness in acute respiratory infection (ARI) as part of Garuda Shield 2021 (GS 2021) and Garuda Shield 2022 (GS 2022), a military exercise in Indonesia. We collected blood and nasal swabs in viral transport media (VTM) with samples collected at Day 0, 3, 7, 14 and 28 (conducted back in Hawaii). Additionally, a Flu-Pro questionnaire was completed at each time point to collect demographic information, SARS-CoV2 vaccination date, and the development of any symptoms suggestive of infection. VTM from nasal swabs were tested on the Cepheid molecular platform to detect SARS-CoV2 infection. VTM from individuals testing positive for SARS-CoV2 infection and those reporting symptoms on the Flu-Pro questionnaire but testing negative for SARS-CoV2 infection were run on a Biofire to identify the presence of co-infection or other respiratory pathogens. Serum from study subjects were also tested for the presence of circulating SARS-CoV2 antibodies.

Results: Fifty-eight subjects enrolled in Garuda Shield 2021 and 74 subjects enrolled in Garuda Shield 2022. The majority of study subjects were healthy males (>90%) and all were vaccinated against COVID-19 at least 14 days prior to departure for the exercise. All subjects had received their annual influenza and travel related vaccinations. Compliance rates for study visits was approximately 95% with 100% of subjects agreeing to nasal swabs and blood draws. Preliminary results indicate the presence of other circulating respiratory pathogens such as rhinovirus, enterovirus, other human coronaviruses (HKU1), and the presence of co-infections in individuals who tested positive for SARS-CoV2 infection. SARS-CoV2 spike protein IgG levels were found to decrease consistent with naturally decreasing titers over time following vaccination. Few study subjects developed severe or prolonged symptoms, reflecting the healthy population being studied and the protection offered by universal vaccination despite waning antibody titers. Several cases of influenza A were identified as part of clinical testing.

Conclusion: Overseas military exercises provide an excellent opportunity to conduct surveillance testing to identify pathogens impacting military operations. Early identification of ARI allows for rapid isolation and quarantine to minimize transmission, especially in austere environments where access to care is limited. This study demonstrated complex clinical studies and testing can be performed in the field.

Learning Outcomes

- Identify emerging respiratory pathogens in a forward deployed study population as COVID restrictions are removed.
- Demonstrate the synergistic relationship between clinical research and operational medicine in advancing force health protected and mission readiness.
- Identify challenges of conducting field studies in austere environments.

ID 22547: Assessing Emerging Healthcare Technology Utilizing a Clinical Technology Assessment Model (CTAM)

Selected presentation type: Poster

In Fiscal Year 2022, the Emerging Healthcare Technology Integration (EHTI) team at the Veteran's Health Administration (VHA) National Simulation Center (SimLEARN) was tasked to complete development and operationalize a new model for applying clinical simulation for assessing emerging clinical technology for VHA. This model is called Clinical Technology Assessment Model (CTAM). A literature search for the use of clinical simulation for assessing healthcare technology prior to integration into care delivery settings did not reveal much guidance. Hence, we leveraged expertise across VHA to help inform the nature and scope of this model. Subject matter experts (SMEs) from healthcare simulation, patient safety, biomedical science, human factors engineering and clinician educators were brought together to develop this model. Using our experience in assessing two different virtual reality based devices for physical and cognitive rehabilitation as our pilot emerging technology, we were able to operationalize CTAM into a viable model that now informs how EHTI works in assessing future technologies.

CTAM has simulation participants and observers assess the technology-of-interest (TOI) with three objectives in mind: 1- determining perceived usefulness and technology ease of use from end customers; 2- gathering human centered design feedback for product enhancement; and 3- conduct proactive risk assessments (PRA) for patient safety and workflow issues. Through this experience, EHTI also has leveraged CTAM for a request for proposal (RFP) for establishing a virtual network platform which aims to connect national SimLEARN activities to its remote sites across VHA. An output of CTAM is a capabilities checklist for a given TOI which one can use as the initial standards towards an RFP, thereby promoting informed purchase for technology investments for the healthcare system. The benefits of using CTAM to downstream evaluate technology is beneficial for the VHA where there is a sweeping interest in emerging technologies and widespread need for standardized operating procedures, informed acquisition decisions, and implementation guidance related to emerging and frontier technologies.

One of the biggest challenges we continue to face in applying CTAM is the high reliance on clinical subject matter experts and the healthcare system valuing their involvement in such activities enough to provide protected time to take part as simulation participants and observers. Another challenge we faced was having an advanced audio-visual network within SimLEARN and across VHA that can allow us to leverage input from various sites across the enterprise to limit biased input from a single user or single location per travel availability. As we look towards the next fiscal year, our recommendation and aim with future CTAM projects is to collaborate with industry and VHA champions earlier in the process of innovation (i.e. with initial prototype availability) so that CTAM can assess for patient safety to prevent, lead to re-development with additional human-centered design feedback from end users, and increase the likelihood of successful implementation into the workflow with decreased work burden on end users in adopting the new technology.

Learning Outcomes

- Discuss the role of clinical simulation in emerging healthcare technology integration
- Identify the key elements of CTAM
- Recognize the strengths and weakness in implementing CTAM

ID 22551: Role of the Medical Liaison Officer for the Federal Law Enforcement Training Centers

Selected presentation type: Poster

The Federal Law Enforcement Training Centers (FLETC) delivers basic and advanced training to federal law enforcement officers from 119 federal agencies. FLETC additionally makes available, and delivers training to state, local, tribal, territorial, and international law enforcement officers on such topics as Human Trafficking Awareness Training, Use of Force, Active shooter, and Leadership, to name a few. The Medical Liaison Officer (MLO) serves as an advisor and liaison to the health, safety, and well-being of the FLETC. The MLO provides expert guidance and advice on traditional staff occupational health issues. However, the MLO's primary focus is in providing medical oversight to FLETC student health, and factors that may negatively impact their health. This oversight occurs in a multitude of ways, includes training curriculum review, evaluating environmental impacts on that training, offering mitigation strategies in the event of an identified risk, all with an eye towards injury/illness prevention. The MLO works in partnership with the FLETC Health Unit and students' agency medical personnel, ensuring coordination and common understanding. The MLO's impact reaches beyond FLETC, as the MLO represents FLETC equities at DHS meetings on medical and public health matters, including pandemic emerging infectious diseases, which proved critical during the COVID-19 pandemic.

Learning Outcomes

- Following the presentation, the viewers will have a better understanding of the role of the MLO and FLETC.
- MLO role in reviewing the CDC/SaferFed COVID recommendations and applying them to the staff and student population so that the training mission may continue
- MLO as the SME for Reasonable Accommodation program, Public Access Defibrillation (PAD) program, and to provide annual assessment, prescription and quality assurance over the Automated External Defibrillator (AED) Program
- Interfacing with the DHS Office of Health Security
- Providing medical oversight to the Athletic Training program and staff.
- Performing training risk assessment on current and proposed curriculum with the aim of risk identification as well as mitigation or elimination strategies

ID 22554: The Army Public Health Performance Improvement and Accreditation Program: Improving Collaboration and Practice to Achieve High-Reliability in Public Health

Selected presentation type: Poster

Over the last decade, the Military Health System (MHS) emphasized becoming a high-reliability organization, and a 2014 Secretary of Defense report showed that organizations in the MHS prioritized and successfully achieved external accreditation and certifications. Nearly all MHS accreditations and certifications are focused on direct patient care, laboratories, and advanced healthcare professional education. The COVID-19 pandemic highlighted the often invisible yet vital role that military public health departments play in Force health protection and overall Force readiness as well as the critical need for close collaboration between healthcare and public health professionals. Through its Public Health Performance Improvement and Accreditation program, the Army is working to drive high reliability and effective public health practice in its installation departments of public health (DPH) worldwide. Two Army installation DPHs are currently designated as accredited by an external, nationally-recognized accrediting body; three more are in process. Using nationally-recognized public health performance standards, the program aims to ensure that Army installation DPHs embark on a meaningful and systematic performance improvement path to ultimately achieve accreditation designation. Initial evaluation results elucidated key lessons learned about program execution and revealed the importance of meaningful and regular collaboration among military treatment facilities, their installation departments of public health, and their off- and on-post partners in the pursuit of public health improvement and accreditation. This submission aims to illustrate how (1) the program fills a vital gap in driving high reliability and external accreditation in military public health, (2) this work relates to healthcare and public health professionals' shared goals of Force health protection and readiness, and (3) the program is evolving to address initial program evaluation findings and changes in the public health performance improvement field as a whole.

Learning Outcomes

- Discuss how public health performance improvement and accreditation is a method by which military public health can achieve high reliability, embody evidence-based practice, and demonstrate a commitment to innovation and quality improvement.
- Name at least three areas of work in which the pursuit of public health performance improvement and accreditation requires consistent and documented collaboration among military treatment facilities, installation departments of public health, and off- and on-post partners.
- Describe at least two of the initial lessons learned and program evaluation findings from the Army's installation department of public health performance improvement and accreditation program.

ID 22557: Healthy Body, Healthy Brain - A Whole Health Program

Selected presentation type: Poster

In an effort to support Veteran health and wellness, the Washington DC VAMC Neuropsychology Clinic and Integrative Health and Wellness Program have teamed up to pilot the Healthy Body, Healthy Brain group. This virtual, outpatient program offers psychoeducation to Veteran's regarding the connection between cognition, brain health, and wellness. Practical lifestyle interventions and resources are provided to help Veterans optimize their cognitive and day-to-day functioning. This Veteran-centered program is founded upon Whole Health principles and topics include healthy aging, exercise, pain management, sleep, mentally stimulating activities, nutrition, stress, and social connection. Participant feedback was anonymously collected and aggregated over the past 6 months with a specific interest in Veteran satisfaction, cognitive self-efficacy, and future directions for the program. Three months after piloting the program, Veteran feedback was reviewed and suggested changes were implemented. Specifically, information regarding substance use, cerebrovascular risks, and cognitive compensatory strategies was added to the program based on Veteran feedback. Additional outcome data evaluating the utility and efficacy of this program will follow.

Learning Outcomes

- Increase clinician awareness of the relationship between Whole Health principles and cognition among Veterans.
- Recognize Veteran-specific needs with regard to cognitive health.
- Support Veterans in promoting brain health and optimizing their cognitive functioning by identifying available tools, resources, and programming.

ID 22562: Preceptor Program: A Blended Course

Selected presentation type: Poster

Preceptor role development is an important, yet often overlooked, responsibility for the Education Department, as they have a direct impact on unit stability, orientation success, retention, and recruitment. We provide care to over 80,000 patients and have more than 63 academic affiliations, creating a strong need for formally trained preceptors. Orientation is a critical time for role development and beginning impressions of the work area, so it is important to make preceptor development a priority, despite the facility-wide staffing challenges due to the COVID-19 pandemic.

A gap analysis was conducted to determine staff needs, which included environmental scanning, discussions, and anonymous assessments/polls which indicated a desire and need for preceptor education. The planning process included meetings with the executive team, the NPD Council, and the chairs of the unit-based councils facility-wide.

A two-day blended course was developed using a combination of asynchronous/synchronous class portions. The asynchronous portion used predeveloped learning modules to complete independently, while the synchronous session had breakout rooms, roleplay, polling questions, and teaching strategies/tools to use with the new employee. This targeted various learning styles while increasing networking for preceptors.

A pre- and post-class self-assessment tool was developed using a 5-point Likert scale to measure program effectiveness ($p > .0007$). The preceptor program was determined to have statistical significance, demonstrating increased preceptor knowledge and effectiveness. This healthcare system was able to implement a successful preceptor program despite the various COVID surges to promote preceptor ability and assist in the retention of students and new staff.

Learning Outcomes

- Identify the role of the preceptor for the orientee based on Benner's Novice to Expert Model.
- Apply knowledge of different learning styles to adjust teaching methods to the orientee's preferred learning style.
- Evaluate performance of the orientee using formative and summative methods.
- Identify the different tiers associated with the TSAM model of orientation.
- Identify a minimum of two verification methods to verify and sign off on competency.

ID 22632: Impact of Adherence to Operative Standards and Stage-Specific Guideline-Recommended Therapy in Non-Metastatic Pancreatic Adenocarcinoma

Selected presentation type: Poster

Impact of Adherence to Operative Standards and Stage-Specific Guideline-Recommended Therapy in Non-Metastatic Pancreatic Adenocarcinoma

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ABSTRACT:

Achieving optimal outcomes in pancreatic adenocarcinoma requires a combination of both curative-intent resection to oncologic standards and multi-modality therapy in the neoadjuvant or adjuvant setting. This investigation sought to examine factors associated with standard-adherent surgery (SAS) and guideline-recommended therapy (GRT) and to determine if compliance correlates with patient survival. From the 2004-2017 National Cancer Database, 21,304 patients underwent resection for non-metastatic pancreatic adenocarcinoma. SAS was defined as formal pancreatic resection with negative margins and ≥ 15 lymph nodes examined. Stage-specific GRT was defined by current National Comprehensive Cancer Network guidelines. Multivariable models were used to determine predictors of adherence to SAS and GRT as well as prognostic impact on overall survival. Overall, SAS was achieved in 39% and GRT in 65% of patients, but only 30% received both SAS and GRT. Yearly rates of SAS (OR 1.11; CI 1.10-1.12; $P < 0.001$) and GRT (OR 1.11; CI 1.10-1.12; $p < 0.001$) both increased significantly. Increasing age, minority race, uninsured status and greater co-morbidities were associated with a decreased likelihood of receiving both SAS and GRT (all $p < 0.05$). Conversely, female gender, Stage II disease and care at an academic center were associated with increased likelihood of receiving both SAS and GRT (all $p < 0.05$). SAS (HR 0.79; CI 0.76-0.81; $p < 0.001$) and GRT (HR 0.67; CI 0.65-0.69; $p < 0.001$) were each independently associated with a survival advantage. Receipt of both SAS and GRT was associated with significant improvement in median OS compared to receiving neither (2.2 years vs. 1.1 years; $p < 0.001$) and was independently associated with a 44% decreased risk of death (HR 0.56; CI 0.54-0.59; $p < 0.001$). Despite survival benefits associated with adherence to operative standards and receipt of guideline-recommended therapy, compliance remains poor. Future efforts must be directed toward improved education and implementation efforts around both operative standards and therapy guidelines.

Learning Outcomes

- Demonstrate understanding of trends in compliance with standard-adherent surgery and guideline-recommended therapy.
- Discuss the importance of compliance with operative standards in surgery for pancreatic cancer.

- Discuss the importance of compliance with guideline-directed therapies for pancreatic cancer.
- Articulate the implications of non-adherence to both SAS and GRT on survival of pancreatic cancer patients.

ID 22637: Developing An In Vitro Model Of Post-Extraction Bleeding And Evaluating The Feasibility Of Xstat For Dental Hemorrhage Control

Selected presentation type: Poster

Bleeding after a dental extraction is a common complication that is easily controlled in most cases, but can potentially become a life-threatening situation. The current standard of care for tooth extraction relies on messy and often ineffective hemorrhage control gels or applying pressure with gauze. XSTAT is a Food and Drug Administration (FDA) approved device that treats non-compressible injuries by placing a collection of sponges within the injury. This same design can be scaled down to treat a hemorrhaging extraction socket in a much quicker and cleaner way. In order to simulate post extraction bleeding, an arterial blood flow circuit was generated using an infusion withdrawal pump and polyethylene (PE) tubing along with VATA simulated blood. XSTAT sponges were trimmed in diameter to dimensions appropriate to fit the extraction socket. Following extraction, the socket was measured and a specific size of XSTAT sponges were inserted into the extraction site and remained for 5 minutes. The contralateral side received the control gauze treatment for 5 minutes. Post treatment blood loss, pretreatment and post-treatment weight difference, ability of the treatment to overcome gravity, the length in cm that the liquid traveled between the XSTAT vs GAUZE, and post treatment tissue damage were all recorded. The XSTAT group had a median difference in weight of 291.7mg(160.4mg-884.3mg) and the gauze group had a median difference in weight of 2130.7mg(2005.05mg-2432.6mg) which was found to be statistically significant ($p < .0001$). In the XSTAT group, 17 out of 18 (94.4%) of treated teeth defied gravity. In the gauze group, 11 out of 18 (61.1%) of treated teeth defied gravity. The Fisher's Exact Test found this difference to be statistically significant ($p = .0408$). Length in cm that the liquid traveled for XSTAT vs GAUZE were compared using a t-test. The gauze group traveled an average length of 2.79 ± 1.26 cm and the XSTAT group traveled an average length of 15.66 ± 10.56 cm. This difference was found to be significantly different between the 2 treatments ($p = 0.0001$). In this in-vitro model, XSTAT was shown to be a predictable alternative for controlling post extraction bleeding.

Learning Outcomes

- Identify the complications of post dental extraction bleeding.
- Explain the purpose of XSTAT and its feasibility for dental hemorrhage control.
- Discuss the ability to use this product in a deployed setting.

ID 22638: Utility of the Neonatal Early-Onset Sepsis Calculator in a Low Risk Population

Selected presentation type: Poster

Introduction: Recent efforts have been made to better target infants at risk for early onset sepsis (EOS) using multivariate risk assessment via the Neonatal Early-Onset Sepsis Calculator. Infants born via cesarean section (C/S) with rupture of membranes (ROM) at time of delivery lack many traditional risk factors associated with EOS. However, these patients are at increased risk for respiratory symptoms, which can trigger sepsis evaluation and treatment when using any of the 3 currently recommended approaches to infant risk assessment. We hypothesize that the Neonatal Early-Onset Sepsis Calculator will often lead to sepsis evaluation and empiric treatment in this presumably low-risk population.

Methods: Retrospective chart review of late preterm ($\geq 35 + 0/7 - 36 6/7$) and term (≥ 37) infants born via C/S with ROM < 10 minutes at Brooke Army Medical Center (BAMC) between January 1, 2012-August 29, 2019. Inclusion: born via C/S with ROM < 10 minutes. Exclusion: born to mothers diagnosed with chorioamnionitis, transferred prior to 4 days of life, congenital anomalies.

Results: We identified 1,187 infants who met inclusion and exclusion criteria. An early blood culture was drawn on 234 (19.7%) infants and 170 (14.3%) received antibiotics when using categorical risk assessment. Respiratory distress was the most common indication for sepsis work-up and occurred in 173 (14.6%) of patients. After applying the calculator to the 234 infants who underwent sepsis evaluation, clinical recommendation was to strongly consider starting empiric antibiotics on 151 (64.5%), to obtain an early blood culture on 2 (.01%) and no culture or antibiotics on 81 (34.6%). There were no cases of culture proven EOS.

Discussion: Calculator use would have eliminated antibiotic exposure in 48 infants, most of whom underwent evaluation due to hypoglycemia. Conversely, the calculator recommended strong consideration for antibiotics in 27 infants who did not receive antibiotics, mainly due to respiratory status deemed clinical illness.

Conclusion: This population is low risk for development of EOS, but nearly 20% underwent a sepsis work-up and 15% received antibiotics. If the calculator had been used in these infants only 13% would have undergone a sepsis work up. While this 7% reduction is significant, room for improvement remains as there were no cases of blood culture proven sepsis in this population.

Learning Outcomes

- Recognize that infants born via cesarean section with rupture of membranes at time of delivery are at low risk for the development of early onset sepsis
- Explain the difference between multivariate risk assessment and categorical risk assessment in the identification and management of those at risk for early onset sepsis
- Recognize that Neonatal Early-Onset Sepsis Calculator use may offer a more targeted approach for the use of antibiotics and need for blood culture screening in this low risk population

ID 22639: The Manufacturing of a Superior Sagittal Sinus Injury Simulator for the Education of Military Neurosurgeons

Selected presentation type: Poster

The Manufacturing of a Superior Sagittal Sinus Injury Simulator for the Education of Military Neurosurgeons

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Abstract

Introduction:

Injury to the Superior Sagittal Sinus often is a life threatening condition after blunt or penetrating traumatic head injury. When deployed abroad, military neurosurgeons need to be prepared to deal with these injuries although their management is not necessarily part of their daily clinical routine. To overcome limitations in the education of the management of injuries to the superior sagittal sinus we aimed to fabricate a simulator that is capable of being trepanned, to simulate active bleeding and to facilitate the application of different surgical management strategies to repair the superior sagittal sinus injury.

Material and Methods:

CT data of a patient with vertex epidural hematoma due to injury of the superior sagittal sinus were converted to an .STL file. Using fused filament fabrication a 3D printed model of the skull, superior sagittal sinus and hematoma was produced. The 3D printed skull was afterwards used as a mold to produce multiple copies using vacuum forming. To simulate not only the internal and external laminae of the bone but also the spongy bone, the cavity was filled with polyurethane foam. The dura was fabricated from polypropylene fleece immersed in liquid rubber. For simulation of the superior sagittal sinus a triangular silicone profile was placed between two layers of the artificial dura. A hose squeeze pump was used to simulate blow flow through the sinus. The brain tissue was simulated using gelatin.

Results:

The applied fabrication techniques facilitated the manufacturing of a life size simulator with accurate localization of the bleeding cavity. Drill- and milling simulations proved a realistic haptic feeling during craniotomy of the models. The hose squeeze pump allowed a continuous blood flow through the artificial vessel. The user was able to apply patch repair techniques and dura tenting sutures to manage the bleeding. Due to the silicone profile the superior sagittal sinus wasn't as fragile as is it in real life scenarios and the artificial blood failed to simulate coagulation which both impaired the training experience.

Conclusion:

We successfully produced a simulator for the management of an injury to the superior sagittal sinus using different fabrication techniques on the basis of a 3D printed mold. Further studies are now needed to evaluate the simulator in a neurosurgical training course.

Learning Outcomes

- The learner will be able to describe the manufacturing of 3D printed simulators
- The listener will be able to discuss the benefits of simulation based surgical training
- The reader will be able to identify the need of simulation based training to prepare military surgeons for missions abroad

ID 22647: Wastewater Based Epidemiology Surveillance At The United States Air Force Academy

Selected presentation type: Poster

Accurate and efficient population level surveillance of infectious diseases and other public health considerations poses challenges in both military and civilian populations. Military populations are unique in that they often live in semi-closed settings where mission risk and readiness levels must be continuously assessed and managed by military leaders.

Wastewater-based epidemiology (WWBE) addresses many challenges of population-level health surveillance and may offer enhanced capability and utility in military settings. Specifically, WWBE is non-invasive, accurate, and anonymous, regardless of clinical reporting or symptomology. WWBE is also highly efficient, saving precious time, fiscal, and sampling resources allocated to testing. Finally, the specificity and precision of WWBE is enhanced in semi-closed settings such as military installations. Though WWBE has recently gained interest due to the SARS-CoV2 pandemic, it has been successfully used for many decades to surveil numerous items of public health interest including recent polio outbreaks, stress hormone levels, illicit substance use, orthopox/monkeypox, and SARS-CoV2.

The United States Air Force Academy (USAFA) is situated just North of Colorado Springs, CO. USAFA has a population of approximately 16,000 individuals including a resident population, staff members, contractors, and employees, many of whom commute from the local community. All effluent wastewater from USAFA is routed to a single, on-base wastewater treatment facility (WWTF). As a pilot test for early detection and monitoring capabilities of SARS-CoV2 infection levels, twice weekly samples were collected from the WWTF and tested for presence and quantity of SARS-CoV2 RNA using RT-PCR. Raw SARS-CoV-2 RNA titers were normalized vs. RNA titers of pepper mild mottle virus (PMMoV), a virus which has been shown to strongly correlate to levels of human fecal material in wastewater, resulting in an effective virus concentration that can be used to report general levels of SARS-CoV2 in the wastewater.

Throughout the ongoing COVID-19 pandemic, SARS-CoV2 has been detected in the wastewater and has served as an early sentinel system, often with peaks in wastewater SARS-CoV2 preceding outbreaks identified via local clinical and county individual testing data. Following successful pilot testing, USAFA WWBE investigatory efforts are expanding to include surveillance of sexually transmitted infections, norovirus, orthopox/monkey pox, and methodological refinement. Additional infectious disease and physiological markers are also under consideration for future study. Going forward, the ultimate aim is to develop and normalize WWBE based protocols and capabilities to give commanders and public health leaders timely, decision quality information that can aid in assessing key indicators of operational risk and readiness. While there are refinements and decisions that must be made regarding methods, optimal surveillance markers, and how to integrate derived data into decision making processes, the overall high maturity level of WWBE makes this capability an ideal target for rapid integration into domestic and expeditionary military operations.

Learning Outcomes

- understand the basic concept of WWBE
- recall common surveillance targets of WWBE
- understand the ongoing WWBE research at the United States Air Force Academy
- summarize the possible uses of WWBE in civilian and military populations

ID 22649: Surveillance of Military Healthcare Staff Outcomes during the Pandemic

Selected presentation type: Poster

The global pandemic placed an unprecedented strain to the United States (U.S.) health care system including military treatment facilities (MTFs). MTFs activated a rigorous response plan, affecting military healthcare staff related outcomes. An initial survey, conducted in the wake of the pandemic from March 2020 – April 2020, demonstrated moderate to high levels of burnout and job dissatisfaction among direct care healthcare staff (n=342). The purpose of this follow on project was to measure and compare burnout, job satisfaction, practice environment, and staff-reported quality of care (QOC) in nurses, physicians, and healthcare administrators during early and late pandemic response time periods. Staff-reported COVID-19 preparedness was measured during the late pandemic response period. Furthermore, the Army nursing data were analyzed by nursing specialty, or area of concentration (AOC) to assess outcomes within these specialty groups. The second survey link was emailed to all healthcare staff at one large joint MTF, one large Army MTF, one small Air Force Ambulatory Surgical Clinic, and one large Naval Hospital from October 2021 to April 2022. The results demonstrated high self-reported burnout overall as measured by the emotional exhaustion subscale (32.4, n=1351). Burnout among physicians, physician's assistants, surgeons, nurse practitioners, and medical assistants remained high but stable from 2020 to 2022. Burnout increased significantly in nursing staff and nurse managers. The outpatient nursing practice environment score decreased from 3.34 and 2.94 ($p = 0.0082$), or a 0.40 decrease from 2020 to 2022. Approximately two years into the pandemic, just over half of those surveyed in 2022 reported being well prepared to care for Covid-19 patients (n=1,263, 55%). The Army nursing data from 2022 demonstrated the highest levels of emotional exhaustion among Family Nurse Practitioners (n=21, 41 [34.6, 47.4]) and Emergency Room Nurses (n=39, 38.9 [33.1, 44.6]). There was also a statistically significant increase in job dissatisfaction ($p < .0001$), intent to leave ($p < .0001$), and burnout ($p < .0001$) among all nursing and ancillary support staff, which was associated with a decrease in staff-reported QOC from 2020 to 2022. Reportedly, those nurses intending to leave their positions within a year were doing so for potentially preventable reasons. Job satisfaction, intent to leave, burnout, and our preparedness measures were all significantly associated with staff reported quality care (p value $< .0001$). The findings of this study may inform key stakeholders about burnout among health care staff with specific information about Army specialty nurses. This may motivate engagement aimed to address burnout with the goal of improving job satisfaction and retention, as well as to promote a more favorable practice environment.

Learning Outcomes

- Evaluate burnout, job satisfaction, intent to leave, staff-reported Covid-19 preparedness, and staff-reported quality of care among nurses, physicians, and healthcare administrators in one large joint MTF, one large Army MTF, one small Air Force Ambulatory Surgical Clinic, and one large Naval Hospital.
- Evaluate nursing practice environment scores in acute and ambulatory care areas to determine nursing staff outcomes in the four MTFs. In addition, we assess nursing specialty groups, or areas of concentration in Army nurses.
- Compare healthcare staff outcomes in early versus late phase pandemic response, and identify ways to increase job satisfaction and retention to mitigate the impact of burnout at the MTFs.

ID 22650: Social Factors Increasing Risk for Mental Health Conditions Resulting in Separation from the United States Navy

Selected presentation type: Poster

Military psychiatrists bear a unique burden to evaluate patient's suitability for service in addition to providing treatment. One important outcome measure for military psychiatrists is the number of patients separated due to being unfit for continued service, and psychiatrists must balance the benefit to patients of separation versus the costs associated with separating large numbers of sailors. During fiscal year 2008 alone, 20.7% of US Navy Sailors failed to complete their first enlistment term¹ and we know that in general 40% of administrative separations are performed due to mental health conditions (specifically adjustment disorders). A 2006 study of attrition during boot camp demonstrated a correlation between higher rates of attrition due to mental health and older age at time of enlistment, female sex, and being Caucasian or Native American². This study builds on this previous work to draw more statistically robust conclusions with data on separations from 2019 to 2022. Separated sailors were disproportionately female compared to the Navy as a whole (31.8% versus 20.4% of sailors overall, $p < .01$). There was also a disproportionate number of African American sailors who are administratively separated compared to the Navy as a whole (27.9% versus 17.5%, $p < .001$). The average age of separated sailors is 22.2 years old compared to the average age of all sailors, which is 27.6 ($p < .01$). With this data, we can aim to collaborate with operational colleagues working with patients in the fleet to identify sailors at risk of separation and intervene to reduce risk of separation. We will also examine ways in which collaboration with and education of military leaders would be effective in reducing these disparities.

References:

1. Enns, John H (2012). *Cost Attrition: Army and Navy Results for FY 2008* [Master's Thesis]. Naval Postgraduate School.
2. Condon, Nancy and John Eckenrode (2006). *Study of Attrition Documentation at the U.S. Navy Recruit Training Command* [Master's Thesis]. Naval Postgraduate School.

Learning Outcomes

- The participant will be able to identify risk factors associated with administrative separation.
- The participant will be able to explain the role of a military psychiatrist in balancing their dual responsibility to patients and the military.
- The participant will be able to explain the needed collaboration between military treatment facilities and operational units.

ID 22653: Impact of Power THRIVE Series on Professional Fulfillment and Retention of VA Spinal Cord Injury Nurse Managers – a Pilot Study.

Selected presentation type: Poster

Problem Statement:

The US is experiencing an unprecedented shortage of physicians, nurses, mental health clinicians and others is likely to worsen if we don't address burnout, stress and behavioral health disorders that are at a dangerously high level in healthcare workers. All components potentially contribute to impaired patient care, employee disengagement and employee attrition.

Intervention:

Job crafting in nurses has been associated with enhanced work engagement.^[1] Our goal was to mitigate burnout, increase engagement and enhance professional fulfillment nursing personnel in a Level 1a VA Medical Center through exposing nurse managers to the Power THRIVE Series.

Metrics:

To assess the impact of the Power THRIVE Series in SCI nursing staff we obtained the

- Professional Fulfillment Index^[2]^[3]
- Mini-Z Burnout Survey^[4]
- All Employee Survey Engagement Questionnaire prior to the intervention, after SCI nurse managers completed the Power THRIVE Series and 30 days after the completion of the intervention.

About the Power THRIVE Series

The **Power THRIVE Series** was developed by a VA physician and VA psychologist using the foundational Tenets of the Whole Health THRIVE Program in response to needs expressed by frontline workers and managers. Power THRIVE consists of **three 60-minute workshops** for VA employees and trainees that increases employee engagement and professional fulfillment through personal discovery and strengths-based job crafting. A **fourth 90-minute session** teaches managers to use employee-based coaching strategies for strengths-based job crafting. Job crafting has been proven to enhance work engagement in nursing staff.

Power THRIVE is based upon three core values of THRIVE (Transforming Health and Resiliency through Integration of Values Based Experience). THRIVE tenets include Whole Health, positive psychology, and Acceptance and Commitment Therapy and incorporates all components of Dr. Martin Seligman's model of happiness: PERMA (Positive Emotion (Values-based Living), Engagement (Flow), Meaning (Purpose), Positive Relationships, Accomplishment / Achievement).^[1] 3.0 CMEs provided when sessions 1-3 are completed. Manager Bonus Session = 1.0 CME.

Learning Outcomes

- Identify signs of and employ strategies to mitigate burnout
- Explore the PERMA model for building a meaningful life at home and work
- Motivate self and others towards professional fulfillment
- Teach the impact of knowing your Character Strengths and employing them at work
- Create a Job Crafting strategy to design the work of your dreams

ID 22654: RT Innovation Project

Selected presentation type: Poster

The RT Innovation Project will bring together an integrative group of Recreational Therapists (RTs) within the Veterans Healthcare Administration (VHA), researchers, academics and community partners dedicated to advancing the provision of Recreational Therapy (RT) within the the VHA. Through mentorship, collaborative research teams, quality improvement projects, funding support, continued education this project will help to drive the translation of research to clinical practice. The aim of this project is to develop strong ties within the VHA with clinicians and community partners to continuously advance and improve the service provision of RT for our nations veterans in an effort to improve quality and access to these services.

Learning Outcomes

- define the 3 activities within the scope of the RT Innovation Project.
- list 2 outcomes from implementation of the RT Innovation Project.
- explain at least one limitation of veteran-focused RT practice the RT Innovation Project will address.

ID 22655: Perinatal Reproductive Education Planning and Resources (PREPARE)

Selected presentation type: Poster

Perinatal Reproductive Education Planning and Resources (PREPARE) is a multidisciplinary approach to meet the needs of our perinatal Veterans. The innovation was developed due to a lack of comprehensive and easily accessible perinatal services available to Veterans. Services are scattered between VA, Community Care or not available at all. Veterans must pay out of pocket and request reimbursement for such services as lactation counseling covered under the Maternity Care benefit. PREPARE is a one stop shop wraparound approach where services typically offered in the community are now offered by trained VA specialists. These services include whole health, mental health, nutrition, physical therapy, women's health, chaplain care, and more.

Learning Outcomes

- Identify at least one reason a multi-disciplinary approach is effective for perinatal care
- Describe components of wraparound perinatal services
- Identify the need for specialized treatment for perinatal population

ID 22656: Establishment of the Clinical and Operational Space Medicine Innovation Consortium (COSMIC)

Selected presentation type: Poster

Vertical take-off and vertical landing (VTVL) commercial spacecraft may provide the DOD rapid, global point-to-point transit capability with unprecedented speed and ability to overfly contested airspace. DOD is actively cultivating commercial spaceflight partnerships with US Transportation Command (TRANSCOM) TCJ5-SC. Furthermore, the United States Air Force has already established the Vanguard Rocket Cargo Program, assessing the feasibility of using commercial launch platforms for rapid movement of military cargo. National Aeronautics and Space Administration (NASA) is the global leader in space medicine, with extensive space medicine research and operational capability. Department of Defense spaceflight will have a fundamentally different mission than NASA, utilizing kinetic, unregulated, suborbital, short-duration, VTVL flights. DOD personnel require different training, health screening, qualifications and mission risks than NASA. In order to study to customize a DOD centric space medicine research program in a systematic and logical fashion, we established Clinical and Operational Space Medicine Innovation Consortium (COSMIC), a dedicated, clinically focused, space research presence within the 59th MDW En-route Care Research Center (ECRC) in close partnership with the 711th Human Performance Wing.

Learning Outcomes

- Introduce the purpose and vision of the DOD Clinical and Operational Space Medicine Innovation Consortium
- Outline and describe key players, roles, collaborative federal opportunities in relation to DOD space medicine research
- Understand the clinical relevance associated with DOD space medicine research projects

ID 22761: The Effect of Implementing a Formal Trauma Activation System on Emergency Department Throughput: A High-Volume, Single Center Experience in the United Arab Emirates

Selected presentation type: Poster

Background: Worsening emergency department (ED) overcrowding is a global public health problem. Increased emergency department length of stay (ED-LOS) has been associated with worse outcomes. In 2021 a trauma activation system (TAS) was implemented at our regional trauma center. The primary aim of this study was to evaluate the effect of a formal TAS on ED-LOS for patients with traumatic injuries.

Methods: This study was a single-center retrospective cohort study at a regional trauma center in Abu Dhabi, United Arab Emirates (UAE). Data from all trauma cases were retrieved from the prospectively maintained Abu Dhabi Trauma Registry (ADTR). All trauma patients admitted between January 2020 to June 2022 were evaluated. Patients were divided into two study groups: pre- and post-TAS. To investigate the association between ED-LOS and clinical outcomes, the eligible study population was also divided into ED-LOS < 240 minutes (4 hours) and ED-LOS > 240 minutes. The primary outcome measure was ED-LOS. Secondary outcomes included hospital length of stay, ICU length of stay, ventilator days, and mortality.

Results: A total of 5,424 patients were included for analysis with 2,089 in the pre-TAS group and 3,335 in the post-TAS group. Median ED-LOS in the pre-TAS and post-TAS groups was 238 and 230 minutes, respectively. Patients arriving by ambulance and those being admitted to the wards had a shorter ED-LOS after the TAS was implemented. Patients with full trauma activations and those being admitted to the burn unit had an increase in ED-LOS. Between the two study groups there was no significant change in ED-LOS by age, sex, and time of admission. In a subset analysis of the post-TAS group there was a significant difference in ED-LOS by age, nationality, ISS, method of transportation, type of trauma activation, and ED disposition. When comparing patients with an ED-LOS <240 minutes versus > 240 minutes, patients with a shorter ED-LOS had increased ICU LOS, hospital LOS, and mortality. Patients with a full trauma activation had a median ISS of 13 and a mortality rate of 10.1%. Patients with a partial trauma activation had a median ISS of 5 and a mortality rate of 0.2%. There was a 20% relative reduction in mortality when comparing the pre-TAS and post-TAS groups.

Conclusion: Implementing a formal trauma activation system was associated with significant changes in ED throughput for severely injured patients. Factors associated with reduced ED-LOS were young patient age, ISS > 15, arrival by ambulance or helicopter, full trauma activation, and ED disposition to the OR or ICU. Patients with severe traumatic injuries were correctly stratified by trauma activation type based on ISS and mortality rate. For those who were admitted, there was a decrease in mortality with the formal TAS in admitted patients.

Learning Outcomes

- Understand what the trauma activation system (TAS) is and effects on trauma patient care in the emergency department (ED)
- Evaluate study results for pre- and post- TAS
- Interpret findings of significant positive outcomes and decrease in mortality of TAS patients